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Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

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A. I. ROOT, Editor Home Department
E. R. ROOT, Editor
A. L. BOYDEN, Advertising Manager
J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX JANUARY 1, 1911 NO. 1

Editorial

THE *Canadian Bee Journal* is growing better with every issue. Editor Hurley is putting some good work on it.

GENERAL reports indicate a snug winter over most of the northern States. The ground is covered with snow and has been covered in this locality for the last six weeks. An abundance of clover was reported last fall, and if the snow will only continue throughout the winter we shall have a bumper crop next year.

EXTRA-FANCY PRICES ON EXTRA-FANCY COMB HONEY.

WE believe the time is coming when extra-fancy comb honey will be put up in cartons, and the cartons put in shipping-cases having corrugated paper, top and bottom. When honey is put up in this way it is almost sure to go through in good order. Dealers and consumers, as a rule, do not object to paying a fancy price providing *they get the goods that correspond with the price.*

IN FAVOR OF THE TEN-FRAME HIVE.

WE are getting not a few endorsements of the editorial in our Nov. 15th issue, page 712, urging the use of the regular ten-frame hive rather than the eight-frame. The following letter is a sample of what is coming in from large producers:

> I must say, after reading your editorial, Nov. 15, you have at last got on the right road, except the deeper frame hive you mention, which you will find to be a mistake in later years.
> Colo, Iowa. DELBERT E. LHOMMEDIEU.

We also have assurances from some of the manufacturers that they propose to co-operate with us in working toward standards.

OHIO STATE BEE-KEEPERS' CONVENTION AT CINCINNATI.

As will be seen by Convention Notices on page 26, arrangements have been made by Secretary Henry Reddert, to hold the next Ohio State Bee-keepers' Convention at Cincinnati with headquarters at the Grand Hotel, Halls Nos. 1 and 2, on Feb. 16 and 17 next. A good program will be announced later. As there are a large number of bee-keepers in the vicinity of Cincinnati, there will doubtless be a large attendance. Bee-keepers from all over the State should make an effort to go, this year. Chief Inspector Shaw will be present and deliver an address on the foul-brood situation in Ohio. Other announcements will be made later.

THE COLOR SENSE OF THE HONEY-BEE; CAN BEES DISTINGUISH COLORS?

WE have received, with the compliments of the author, a very interesting booklet, the subject matter of which is reprinted from an article in the November issue of the *American Naturalist*, by John H. Lovell. Our readers will remember the article on the bee's sense of color by Mr. Lovell, in our Sept. 1st issue, 1909. In this new treatise on the subject this original article is incorporated, and with it a complete history of a large number of exceedingly interesting experiments. Mr. Lovell is an original investigator, and his patient and painstaking work is helpful to all students of apiculture. His conclusions follow:

> Bees plainly distinguish colors, whether they are artificial (paints, dyes, etc.) or natural ("chlorophyll") colors.
>
> Bees are more strongly influenced by a colored slide than by one without color.
>
> Bees which have been accustomed to visit a certain color tend to return to it habitually—they exhibit color fidelity.
>
> But this habit does not become obsessional, since they quickly learn not to discriminate between colors when this is for their advantage.

BEE-KEEPING FOR WOMEN, VERSUS POULTRY-KEEPING FOR WOMEN.

AT the last Ontario convention, a paper by Miss E. Robson, of Ilderton, Ont., on the subject, "Can women run an apiary?" attracted more than ordinary interest. In speaking of the advantages of bee-keeping for women she said:

> Now for some of the advantages for a woman in bee-keeping. In the first place, unlike poultry-raising, all the work can be done in fine weather—in fact, has to be done. Even in summer, unless during the busiest season, there will be a fair margin of time for other pursuits, and all the winter is free; the work is healthful, taking one into the open air, and keeping him constantly in touch with the great world of nature. It will yield a good profit for a comparatively small outlay. The chief capital required is brains and persistence; and, perhaps most important of all, the work is interesting, even absorbing. Can you imagine any thing more suggestive of peace and contentment than to stand in the midst of a bee-yard—one's own bee-yard—the

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sun beating down warmly, the air heavy with the fragrance of blossoms, sunshine glinting on flashing wings, and the air full of a steady hum which rises to a subdued roar? Then it is, indeed, that we know what a goodly thing it is to be alive.

Even for the woman who does not wish to go into bee-keeping on a large scale, it can be made in most localities the source of quite a little income—especially desirable where there is a large family of girls, as well as providing a wholesome sweet for the table. I have in mind two friends who keep from ten to a dozen hives of bees, which on an average net them about $100 a year. They winter outside, and leave the packing around the hives all spmmer, thus saving themselves much heavy lifting.

It is emphatically true that all the work necessary to be done with bees during the warm period of the year can be done in fine weather.

We wish to emphasize one other point, made by Miss Robson, that, in order to make bee-keeping a success, "brains and persistence" are required. She is emphatically right. We need more of both of these commodities in *all* walks of life.

THE CANADIAN BEE JOURNAL ON EIGHT VERSUS TEN FRAME HIVES; IS THE TEN TOO HEAVY FOR WOMEN AND ELDERLY MEN?

EDITOR HURLEY, in the November issue of the *Canadian Bee Journal*, gives his cordial support to our plea for standardization, and in particular the ten-frame L. hive; but he says that, in his experience, an eight-frame super filled with honey is about all he cares to lift; that a large number of bee-keepers are women and elderly men, and that the ten-frame hive is too heavy for that class. He thinks, therefore, it would be difficult to eliminate the eight-frame hive.

While we admit that the eight-frame is a little easier to handle, so far as lifting is concerned, than the ten-frame, the *relative* difference is very small. According to modern methods of handling bees in connection with a wheelbarrow or cart, there need not be very much lifting, but, rather, of *sliding*. Frankly, it is our opinion that even the eight-frame full-depth Langstroth body when filled with honey is too heavy for the average woman or elderly man. Such people can hire for this heavy lifting a man at $1.50 a day, and that lifting can be confined mainly to the time of taking off the honey. All other lifting that will be necessary can be accomplished by means of a light block and tackle, and a small tripod, such as we recently described in these columns.

Well, then, if all the important lifting can be accomplished by means of a light machine or a $1.50 man, why not start out with the *right hive* in the first place—a ten-frame one? In putting on empty supers, one can handle ten-frame size as easily as eight. In the production of comb honey the supers will be only half depth; and that leads us to the point that a large number of extracted-honey producers are using half-depth ten-frame bodies for extracting. If these women and elderly men do not care to hire a cheap man, or fuss with a lifting-jack, they should by all means use half-depth extracting-supers. It is well known that in a light honey-flow, or where the flow is very limited in duration, it is better to give a colony a half-depth super than one full depth.

Well, friend Hurley, taking it all in all, it seems to us that the ten-frame hive still has the advantage of the argument, both going and coming.

FOUL BROOD, BOTH AMERICAN AND EUROPEAN, AND ITS EXTENT OVER THE UNITED STATES.

THE following has been given out for publication by the United States Department of Agriculture:

U. S. DEPARTMENT OF AGRICULTURE,
DIVISION OF PUBLICATIONS,
JOS. A. ARNOLD, Editor and Chief.

WORK OF THE DEPARTMENT OF AGRICULTURE ON BEE DISEASES.

The honey bee annually produces a crop of honey valued at (at least) $20,000,000, and there are vast opportunites for increasing this output. The most serious handicap to bee-keeping in the United States is the fact that there are contagious diseases which attack the brood of the honey-bee. There are now recognized two such diseases, known as American foul brood and European foul brood. From data recently obtained by the United States Department of Agriculture, it is known that American foul brood exists in 282 counties in 37 States, and European foul brood in 160 counties in 24 States, and it is estimated conservatively that these diseases are causing a loss to the bee-keepers of the United States of at least $1,000,000 annually. This estimate is based on the probable value of the colonies which die, and the approximate loss of crop due to the weakened condition of diseased colonies. The States in which the diseases are most prevalent are California, Colorado, Illinois, Indiana, Iowa, Kansas, Michigan, Missouri, Nebraska, New Jersey, New York, Ohio, Pennsylvania, Texas, and Wisconsin; and it is unfortunate that these are the States in which honey production is most profitable, making the future outlook of the bee-keeping industry so much the worse unless active measures are taken to control the diseases. Furthermore, the distribution of these diseases is by no means fully known, and they are constantly spreading.

The cause of American foul brood has been found by the Department to be a specific bacterium, and enough is known of the cause and nature of European foul brood, which is also a bacterial disease, to make it possible to issue reliable recommendations concerning treatment for both diseases. Both attack the developing brood; and as the adult bees die from old age or other causes, the colony becomes depleted since there are not enough young bees emerging to keep up the numbers. When the colony becomes weak, bees from other colonies enter to rob the honey, and the infection is spread.

Both of these diseases can be controlled with comparative ease by the progressive bee-keeper; but the chief difficulty encountered in combating these diseases is the fact that the majority of bee-keepers are unaware that any such diseases exist; they therefore often attribute their losses to other sources, and nothing is done to prevent the spread of the infection. It is, therefore, necessary in most cases to point out the existence and nature of the diseases, as well as to spread information concerning the best methods of treatment. Several States have passed laws providing for the inspection of apiaries for disease, and the bee-keepers in other States are asking for the same protection, so that careless or ignorant bee-keepers can be prevented from endangering their neighbors' bees. This inspection is a benefit in the spread of information concerning disease, in so far as the inspectors can cover the territory. The Department of Agriculture is helping in this work by sending out publications to the bee-keepers in infected regions by examining samples of brood suspected of disease, and by sending out information concerning the presence of disease, so that bee-keepers will be informed that their apiaries are in danger. The co-operation of agricultural colleges, State bee-keep-

ers' associations, and other similar agencies is being urged.

In view of the fact that these diseases are so widespread, every person interested in bee-keeping should find out as soon as possible how to recognize and treat these maladies, and be on the lookout for them. A publication containing a discussion of the nature of these diseases and their treatment will be sent on request to the Department of Agriculture.

Washington, D. C., Dec. 6, 1910.

The facts here given will be very interesting and valuable. Our Uncle Sam is doing bee-keepers a great service by the energetic way into which he is going into this.

NOMENCLATURE OF HONEY; SHALL WE "STAND PAT" ON "EXTRACTED"?

There has never been any question in regard to the terms "comb honey" or "candied honey;" and "bulk comb honey" seems to find favor with more bee-keepers than the less dignified and less accurate term, "chunk honey." But "extracted honey," as used to designate honey thrown out of the combs, has been open to criticism. Not a few bee-keepers, perhaps, in an effort to shorten terms, speak of "extract" honey, and we have even seen it on quite a number of letter-heads. This is bad policy in more ways than one, for it is suggestive of an article that contains some honey, possibly, but that is more in the nature of an extract—honey extract, etc. But, is the term "extracted honey" very much better?

Remembering that in the *American Bee Journal*, a number of years ago, this same question was discussed quite freely, we turned back and found in the year 1887 a large number of suggested terms, all of which were advanced by the various correspondents as being more suitable than the term "extracted." We give herewith a list of the adjectives that were suggested, some of which would be more appropriate for a funny paper than a bee-journal. Here is the list:

Combless, slung, uncombed, divorced, separated, centrifugal, free, squeezed, nectar, divided, clear, excomb, liquid, fluid, drained, expelled, extricated, extruded, strained, emitted, evolved, thrown, thrashed, rendered, bulk, loose, discharged, excomated, and selected. The number of communications on the subject, even at the start, almost overwhelmed the editor, Mr. Thos. G. Newman, and he suggested, after using two or three, that perhaps nothing would be gained by changing the term, and that the space might better be used in another way. The volley of letters did not cease, however, and so a little later Mr. Newman emphatically stated that he could not take space in the journal to prolong the discussion. We can imagine his dismay in finding that it was impossible to keep it down; for almost every issue from then on toward the close of the year contained one or more articles, each in all seriousness sounding the praises of one of the terms given in the list above. Quite a good many felt that the term "extracted" was good enough, and another class insisted that extracted honey should be known simply as "honey." In desperation the editor kept trying to call off the fight, saying that the matter should be dropped until it could be submitted to the National Convention in the fall, but his pleading apparently had no effect. We assume that the Convention, after considering all the terms, decided either that "extracted" was the best, or else that it had become so firmly fixed as to be impossible of change.

One of our subscribers recently suggested the terms "separated" and "separator," and these really appeal to us much more than "extracted" and "extractor." We give herewith his letter in full:

> At home here we have fallen more or less into the habit of saying "separated" honey, and calling the extractor the "separator." The suggestion is offered for what it may be worth. The cream-separator is almost universally known and understood, and there is no prejudice against it. Centrifugal force does the work in each case, and the honey is just as truly separated from the wax as the cream is separated from the milk.
>
> P. W. RICHARDS.
>
> Mast Yard, N. M., Nov. 19, 1910.

We find that on page 476, *American Bee Journal* for 1887, Mr. T. Pierson suggested the same words and gave the same reasons for their use. Also, a little later in the year, another correspondent suggested these terms. We do not know that a change could be made, and we are not even sure that it would be advisable, although of one thing we are certain: However well fixed the term "extracted honey" is among bee-keepers, the average consumer of honey is unfamiliar with it—the less dignified term, "strained honey," being more popular, because it is really more used by the buyers of honey. Even in the advertisements of that glucose product *Karo Corn Syrup*, this "as-good-as" phrase appears: "Clear as *strained* honey."

All this goes to show, we think, that, to the average person, "extracted honey" means little or nothing. As a suggestion, would it pay all producers and dealers to have printed on their labels the following: "Pure extracted honey: (Honey thrown from the combs by centrifugal force)"? We realize that this might not find favor with perhaps a majority of producers, and it is very possible that our suggestion is not a wise one. However, of this much we are sure: In spite of all that has appeared in bee-journals during the last thirty years, say, comparatively nothing has gone out before the *consumers* of honey, to indicate that extracted honey means the same honey as that in the comb, the only difference being that it is separated from the comb. Some effort ought to be made to disabuse from the popular mind the implication that "extracted honey" means an "extract" of honey. This is not a point that is vital when the question of selling one individual's honey is considered, for the one individual may have no trouble with his particular class of educated customers; it is a point that concerns the whole bee-keeping fraternity.

Stray Straws

By DR. C. C. MILLER, Marengo, Ill.

AS POSTSCRIPT to that entirely correct answer, p. 769, to Mr. Hansen, let me add that a queenless colony is just the one with the most pollen, because for a time the bees continue to carry in pollen for which there is no market.

MRS. ACKLIN does well to urge *State* laws against adulteration, p. 749. The United States laws come in only when bogus goods go from one State to another. A man can mix glucose and honey, and sell all he likes in his own town, and no law can touch him if there is no State law to do it.

G. M. DOOLITTLE, p. 783, if you think the hexagonal plan for an apiary the best, you might change your laying-out a little and make it hexagonal. Instead of moving your line ahead ten feet each time, move it 8 feet 8 inches, You will get more hives on the same area, and no hive will be less than 10 feet from any other hive.

MY HUMBLE apologies to E. M. Gibson and N. M. Chap, p. 754. If I lived where there is cold weather every night, I don't suppose I should want the big entrances that are all right here. Every now and then I wake up to the idea that the whole world is not located within 2½ miles of Marengo. But now, after eating this much humble pie, I want to say to you, E. M. G., if you ever meet me out on the desert in a dark night, don't you dare speak to me in a friendly way. I have it in for you on another score.

"THE SIZE of entrances will depend on the character of the cellar" leaves one guessing. In what character of cellar is there danger from too large entrances? [Say, doctor, you should not ask such questions. Frankly, we do not know; but we do know that the cellar or the means of ventilation have something to do with the size of the entrances. We observe this, that authorities differ greatly in their recommendations. You belong to the large-entrance crowd. We belong to the school that favors a smaller entrance. At all events, we have secured better results in a better-ventilated cellar where the entrances are about the size they are in the spring or late fall.—ED.]

W. H. MESSENGER says, *Review*, 365, "When you air-slack lime in a bee-cellar you *ventilate*." Chemical action sets free a lot of oxygen. [Is there not some mistake here? The chemical name for common lime is calcium oxide, with the symbol CaO. When it is air-slacked, as, for example, in a damp cellar, it will take on or absorb water from the air in the cellar, and any carbonic-acid gas that may be present. We then have the symbol $CaCO^3$. If we understand the chemistry of the proposition, no oxygen is given off; but when lime is put into a bee-cellar, in the process of air-slacking, moisture and carbonic-acid gas are absorbed. While this of course purifies the air it does not do it by *adding* oxygen, but by *removing* the products of combustion—that is, carbonic-acid gas from the breath of the bees. If we are wrong in our chemistry we should be glad to be set right.—ED.]

WHENEVER improvement in bees is suggested, such as breeding for non-swarming, the cry comes, "Oh! you can't control the drones." Isn't that objection a little overworked? True, drones can not be directly controlled. Indirectly they can be and *have been*. I grant you, much quicker work could be made with direct control of drones; but do you believe that you can persistently select queens with any one object in view and not in time have the drones affected thereby? Look at color. Couldn't control drones; but there are your bees, golden from tip to tip. I can't directly control drones; but I have bred from biggest yielders, and have thereby bigger crops. Do you think my drones are not improved? "They'll revert." Let 'em revert. Keep breeding against reversion. A perfect non-swarming bee may never be; but a practical non-swarmer, just as well as a practical non-swarming hen. So long as my record-yields come from colonies that make no attempt at swarming, I'm going to keep up the chase. [Good for you! We grant that *something* can be accomplished; but a strictly non-swarming strain—well, we will wait for it.—ED.]

MR. EDITOR, you've made a good job of your "tentative propositions," page 779—might put more emphasis on pure air. Every year I think more of it, and am beginning to think almost any thing else may be wrong if the bees only have good food and good air.—[We submitted these propositions with the idea of having them criticised, so that, if they are accepted as correct by bee-keepers generally who winter their bees in the cellar, we may put them in permanent form in our A B C and X Y Z of Bee Culture and other literature. Perhaps some of our readers can add some other propositions to the list. More and more as time goes on it is being demonstrated that pure air is very important in wintering, either outdoors or in. At one time the whole fraternity went to the other extreme of putting in *too much* fresh air, or, rather, cold air, in a way that disturbed the bees. Then there came a time when it seemed to be accepted that bees did not need any air in the cellar—at least no more than would percolate through the walls; but the fallacy of that has now been shown up conclusively. While bees can be wintered in a good cellar where the temperature is maintained uniformly at 45, they will come out in much better condition if, with that uniform temperature, they can have plenty of fresh air. —ED.]

Bee-keeping in Southern California

By Mrs. H. G. Acklin, Glendora, Cal.

Comb-honey production seems to be going out of fashion in our part of the State.

In hunting for pastures new, "look a leetle out" for Redlands. By actual count we found 5000 colonies on two sides of the town. Many of these are too far from groves to store much orange honey.

A bee-keeper told me recently that fifty swarms were caught near his apiary in one season. There are several live-oak trees near, and "bait hives" were kept out. He thought none of them were his own bees.

There is an old saying that hope long deferred maketh the heart sick. I wonder how many bee-keepers feel that sickness when watching for the gentle showers that have not come up to this time—December 8.

My! what a crowd! pages 726, 727, Nov. 15. But those vacant steps at the rear and sides look bad. Bring the National out to California in the near future and we will furnish enough more bee-keepers to fill a vacant space like that.

How about that pledge the State association gave the president of the Los Angeles Chamber of Commerce to put on exhibition a fresh supply of honey? If it has not been redeemed, how can we have the audacity to ask him to welcome us at our next meeting?

In answer to Mr. Crane, page 716, Nov. 15, I will say that many of our bee-keepers would not take the time or trouble to divide, but they do take care of swarms and do not want after-swarms; hence the "natural-swarm" man may benefit by my item on page 546, Sept. 1.

I got track of a man the other day who is actually getting rich on what other people throw away. He drives around to different apiaries and buys slumgum, takes it home, and, by an ingenious process, gets a fine grade of wax from it, and always has first-class beeswax for sale.

One of the happy surprises is the gentleness of the average bee in this climate. I have passed among the hives of many apiaries, and never yet had a following of "mad" bees. Sometimes half a dozen of us will be scampering around to find the best place from which to get a view, but never a bee bothers. Perhaps they realize the importance of "looking pleasant" on such occasions.

I have been talking recently with different bee-keepers regarding a honey exhibit, from our section, at the State Fair. Some think it is too far to send honey, and others say it can not be sold to advantage after the fair is closed. I admit it is a long way from the southern portion of our State to Sacramento—about two-thirds the length, I believe; but I really believe it would pay to put in an exhibit up there. Let the whole southern part of the State unite in selecting fine honey, both comb and extracted, plenty to fill whatever space we could have, and then put some competent person in charge. If the premiums are as large as in some other States they will pay all expenses. Each bee-keeper should have his honey labeled; and among the thousands inspecting it daily there will surely be some buyers. I had considerable to do with State fairs for many years before locating here two years ago, and know whereof I speak. Let us be public-spirited, even if it does make us some extra work, and help out the fair officials with a fine honey exhibit the coming season.

How to keep extracting-combs in good condition when not in use is a question which has racked the brains of bee-keepers, north, south, east, and west, for many years; and in this climate, where Jack Frost seldom comes, it is a continual question. Mr. B. G. Burdick, of Redlands, president of the State association, has solved this problem to his own satisfaction. Almost any kind of building will answer the purpose if the roof does not leak and the sides are sufficiently open to admit of a free circulation of fresh air. If the building is light, screen wire will have to be used to keep flies from entering and soiling the combs. Comb-racks, securely fastened to the beams on roof, can run the entire length of the building. They should be a trifle narrower than the length of a top-bar so the ends of the top-bars can rest on them. There can be as many racks on the first tier as the width of the building will admit. More racks can be placed under the upper row if the strength of the supports above is sufficient. Hang the combs in these racks far enough apart to admit of a free circulation of air, and also far enough apart so moths can not nest between them. Mr. Burdick claims he brought through several hundred combs one season, in perfect condition, by this method. He also leaves combs in supers outside, stacked up so as to allow a circulation of air all around them, and far enough apart so they will not be attractive to moths for nesting-purposes. The nights being so cool here may be one reason why moths do not flourish under all conditions. If this simple method proves as effective with other bee-keepers as with Mr. Burdick it will be a great help to all of us.

Bee-keeping Among The Rockies

By WESLEY FOSTER, Boulder, Colo.

Dr. Miller, I fear that even the editor has missed it this time in saying that Oliver Foster has been spoken of by me as "my father," p. 646, Oct. 15. Now, I have a father whose name is A. F. Foster, and he is a brother of Oliver Foster, so you may figure out the relationship. The Foster family have been bee-keepers since 1861, when father bought a hive of bees in a patent hive (with county rights to make them and sell them) of Edwin France. Father, in his first season of bee-keeping, got something like 140 pounds of honey from two colonies, and sold it all at about 25 cents a pourd. My uncle Oliver, however, has been a bee-keeper for a longer term of years than any of the rest of the Fosters. I think legend has it that he got his start in bees by digging out a bumble-bees' nest in a red-clover field, putting the nest, bees and all, into a cigar-box and bringing them home to occupy a position on the window-sill of his room where he could watch their actions more or less by lifting the lid of the cigar-box and taking a peek. Any way, this swarm of bumble-bees now has increased (oh the marvel!) into something like two thousand colonies of bees located in various places of the irrigated West.

UNITED EFFORT TO FIGHT THE GRASSHOPPER PEST.

A movement is on foot to get something like ten or twenty thousand dollars appropriated by the State of Colorado with which to fight the grasshopper pest, which was the main cause of the honey failure in Northern Colorado this past season. The bee-keepers are letting their influence be felt along with the farmers and gardeners and fruit-growers. If we work concertedly for an adequate appropriation we shall get it, and the use of this fund under the direction of the Agricultural college will mean the difference between success and failure in years to come. When one sees orchards entirely shorn of their leaves and fruit, and the bark of many of the limbs and twigs eaten off, it makes him feel that our real enemies are insect pests and not some foreign nation. We are recognizing very fast where our danger lies, and, as a people, are overcoming obstacles that will make for better and worthier living.

REQUEENING.

Not long ago I was talking with a bee-keeper who never clips his queens nor spends much time in looking after the age of his queens. He trusts to the bees for all this. He told me that no doubt he could get a higher average yield of honey, but that this work would require the time he would spend in caring for a hundred hives of bees, so that if the extra hundred hives of bees make the difference in yield, he had lost nothing, and has kept his work in a simpler form. I am not sure this policy would do for all of us; but this bee-keeper makes it go very well; and as long as he can succeed better than the average he is not very likely to change his course.

BEES NEED WATER, EVEN WHEN HALF-AND-HALF SYRUP IS FED.

Why do bees visit watering-troughs, streams, etc., when feeding a sugar syrup made half and half, and this in August and September? One would think that they would have a great abundance of water from handling this comparatively thin syrup. The bees went in search of water this year after feeding commenced, whereas up to the time feeding began they were not noticed (to speak of) around the watering-troughs. But can the bees extract any amount of water from this syrup? Might it not be necessary for them to carry the syrup some distance before any water could be made available for the use of the bees in the hive? The syrup stimulated brood-rearing; and, in order to care for the young brood, water from outside had to be brought in. This brings up some interesting questions.

"JUMPING" THE PRICE TO LARGE BUYERS RESULTS IN NO SALES.

I believe that bee-men are as fine a class of people as we have; but, in common with other rural and semi-rural dwellers, we have some "queernesses." For instance, when a buyer writes, asking quotations on a large amount of honey — perhaps as much as or more than we have, so that, in order to sell to him, we would have to buy of our neighbor bee-keepers—we think because he is in a large city, and has a good market, he will pay a higher price than the merchants nearer home, so we ask him a price higher than what we have been getting from local merchants in single-case lots. Of course, ordinarily we do not sell to the large buyer when adopting these tactics, for the large buyer figures on buying as cheap as others if not cheaper. So we keep our honey that we have jumped the price on, and continue to sell it a case at a time for the same old figure, and very likely the large buyer would have taken the whole crop at the figure, and saved us all the bother of small orders; but, no! we have not got over the idea that, if a man comes in search of an article in large quantity, we can jump the price up and get away with a little extra money. The man who lists his house for sale, and then every time a prospective buyer comes to look at it jumps the price, generally never sells. It's better to have one uniform price, and not try to get a little extra money from a man because he wants what we have. The chances are that he knows the rock-bottom price better than we do.

Notes from Canada

By R. F. HOLTERMANN

PINCHING BEES.

Doctor Miller, page 748, Dec. 1, I believe a pinched bee throws off poison scent, and excites the other bees in the hive, possibly for a long time, until they are ready to attack every thing suspicious.

IN A CHEERFUL MOOD.

The editor must have been in a particularly cheerful mood (shall I say optimistic spirit?) when he penned that editorial in regard to my pictures, page 747, Dec. 1.

[We are always cheerful when we have stolen a march, or, rather, "got the laugh" on an old friend.—ED.]

EXAMINATION OF FOUL-BROODY COLONIES.

The *British Bee Journal*, page 463, after drawing attention to some lawsuits in Ireland, refers to one case as follows: "In this case there is no objection raised to the Beepest Prevention act; but the bee-keepers object with considerable reason that their colonies should be inspected during the height of the honey-flow when the bees are in full work. The act provides that the bee-inspector should be allowed to come to examine the hives at 'all reasonable times,' and the regulations were taken by the county council to mean 'any time between April 20 and Oct. 31 inclusive, when the bees are flying.' The defendants contended that this was not a reasonable time, and that it would be a serious loss if the bee-inspector disturbed their bees when in full work, as they would lose three or four days after being thus disturbed. Of course, one can easily understand that bees disturbed at such a time must be impeded in their work; and a bee-keeper having a large number of hives would naturally suffer some loss. We do not see that there is any necessity for meddling with bees at such times; and the inspection can just as well be made either before or after the harvests so as not to interfere with the work in supers."

The above is so diametrically opposed to what we hold in Canada that I confess I never came nearer pinching myself to see if I was awake or dreaming when I read this. In this province (Ontario) the desire of bee-keepers, and their contention, has been to have the inspectors out only when a honey-flow is on; that at other times the bees are likely to rob and distribute diseased honey; and if the colony requires treatment then, it can be treated successfully with less trouble during the honey-flow, but robbing is the great objection. I fully agree with that contention. As to losing three or four days after an examination, the result of a mere examination can surely not be that. I would not be willing to admit even three or four hours' loss of time, particularly if the combs were returned to the hive in the order found—no, not an hour would I admit lost.

SHOULD A BEE-KEEPER HELP HIS NEIGHBORS TO START WITH BEES?

Our well-known friend G. M. Doolittle, page 752, Dec. 1, has an article on the above subject which contains a good deal of sound sense. I find that, from a business standpoint, to say nothing about a Christian standpoint, it pays to be honest and frank. It is neither honest nor kind to magnify or minimize the difficulties in connection with bee-keeping. To withhold all information and to refuse to answer a question which can be answered briefly by even a busy man is petty. However, I do feel that there are bee-keepers who have spent much money in gaining experience, traveling to conventions, and experimenting. For instance, I do not feel called upon to sit down when I can not do all my own work fully, and educate some one else for nothing; neither would I allow any one else to do this for me. For years I have felt very strongly that it pays a man who wishes to specialize in bees to learn the business from a specialist and not acquire every thing by dearly bought experience; and I for one have not felt like teaching some one my business and allowing him any more than actual expenses while doing so. Bee-keeping is a profession. A man does not secure an education at considerable expense, and then charge nothing for instructing others. The bee-keeping industry has been brought to its present condition, not by governments and government help, but by individuals giving out what they have learned. The safeguard against undue competition in bee-keeping lies not so much in keeping methods of success secret, but in the fact that not many will carry out those methods. Those who realize that their crop has been produced as a result of money invested, as well as of thought, time, experience, and labor, should be willing to share their knowledge; but they have a right to consider it worth all that can be secured for it in the market.

NOTES FROM CANADA.

With these notes I expect to withdraw from this department. To conduct such a department properly requires a good deal of general reading, and for over a year my plans have been in the direction of having entire liberty during the winter months for gospel and Christian meetings, and to be able to accept invitations in scattered and needy sections where not much financial aid could be given to Christian work or special help secured for special meetings.

[We are very sorry to lose our correspondent. His extensive experience, coupled with his habit of close observation, has enabled him to give to his brethren of the profession not a few tricks of the trade. We wish him God-speed in his new work.—ED.]

Conversations with Doolittle

At Borodino

TIERING SECTION SUPERS.

In one of the papers I see that some of our best bee-keepers tier supers of sections by raising the first super (on the hive) and putting the second one under. Then, later, if more are needed, the third is placed under the second, and so on to the end of the season. Last summer I tried the plan, being told that the bees would almost invariably fill the top super before commencing in the lower one, and that the top one, when completed, could be taken away, and a third put under the second, if the season held out favorably. But the end of the season proved that the bees had filled the second super put on, doing very little more in the first. Can you tell me wherein I failed?

Undoubtedly you failed from not having your colonies strong enough when you put on the first super; for it is evident that the bees never occupied that first one before you raised it up and put the second super under. Or, if strong enough, there was no nectar coming in from the fields, or, at least, not enough so that the bees were inclined to draw the foundation and store their honey there. But your greatest failure came from not knowing just what you "were at." In other words, you did not work in the right way to succeed in what you desired to accomplish. Had your second super been placed underneath at the proper time—that is, when the sections in the first super were about two-thirds completed, the bees, if the colony was in suitable condition to receive more room, would have taken to the lower sections at once, and commenced to draw out the foundation; and if the yield of nectar kept on, they would have continued to work without interruption, storing and finishing the sections in the first or upper super the same as if the other had not been placed under.

Frequently it will be found that, where the colony is strong and the season extra good, from one-half to two-thirds of the sections in the lower or second super will be also ready for removal. Now, if those not fully completed at the sides are placed in the center, and a third super put under, the work will go forward in the same manner as with the first, and so on to the end of the season. It is natural for bees to build comb downward, and to extend it gradually in a lateral direction. For this reason they almost always commence drawing out the foundation in the center of the super, where the hive below is filled with brood centrally; and, as they progress, honey is stored in these center combs, and at the tops of the sections on either side; therefore the center combs, and the tops of those further out, are sealed first, and this is why it is well to change the sections from the center to the outside, and the outside sections to the center, where there is plenty of time for such work. However, if "bait" sections are properly used in the first super put on, with a colony running over with bees when the harvest commences, there is little need of this exchanging of sections till near the close of the season, as, with bait sections placed two-thirds of the way from the center toward either side of the super, all sections will be sealed at so nearly the same time that it will not pay any one whose time is worth $2.00 a day to fuss with the changing of sections in the early part of the honey-flow.

Some bee-keepers prefer to put the second super on top of the first, and I myself am quite inclined that way; but I shall have to admit that the majority of section-honey producers usually raise the partly filled supers and place the empty one between these and the hives. One of the reasons given for this is that, in this way, swarming is more readily delayed, if not entirely prevented, as by this plan room is also given for the bees, so that they do not become overcrowded.

Another reason why the supers are moved up is that, when sections are finished close to the brood, they become soiled, or what is often called "travel-stained," by the bees walking over the darker brood-combs below, and from these immediately on the nice white sealed sections above. But when the supers are tiered, the white sealed sections are so far away from the brood-nest that they remain in their beautiful condition until the whole super can be removed. However, I find that the size of the hive or brood-nest used has very much to do with this matter. Where a small hive is used so that the queen breeds clear to the top-bars of the frames, and continues thus to the end of the season, this reason will hold fairly good with all colonies having old combs; but where the hive is large enough to insure a liberal allowance for winter stores, there is generally an inch or more of sealed honey along the tops of the combs below the supers, in which case this travel-stain is largely a myth.

There is one part of this tiering-up process (usually not spoken of) which I consider of very great importance. The tiering should be done with a view to the greatest success. With such a view, no empty supers will be placed underneath those partly full toward the end of the season, for, if so done, the result will be, nine times out of ten, nothing but a whole lot of lean and unfinished sections at the end of the season. When the season is drawing toward the close, and yet there is a possibility that the bees may need more room, always place the empty super *over* the one the bees are at work in, and in this way catch the "overflow," should such happen to come; and if it does not come, or the season stops more abruptly than usual, then the larger part of the sections the bees have commenced work in are salable. How may we know just when the flow of nectar will stop? No one can foretell; and this is the reason that some prefer to be always prepared for a sudden stop in affairs by placing *all* empty supers over those in which the bees are at work.

General Correspondence

ENGLISH METHODS OF WINTERING.

Absorbent Coverings Preferred with a Dead-air Space Around the Side Walls Instead of Packing Material.

BY D. M. MACDONALD.

The subject is a complex one, yet I think we have solved it in these islands in the only possible way for us, and we will vote almost unanimously in favor of absorbents. But then your State of Ohio centers on 40° north latitude, while we here in Banff are about 57.5°! It is very interesting to add that the British Isles stretch from 50° to 60° N. Just fancy — a fact not often realized — the south of England is on the same parallel as Winnipeg and the north of Ontario, Quebec, and Newfoundland, while *our* parallel runs through the south of Greenland, the center of Hudson's Bay, and the very north point of Saskatchewan and Alberta. Judging by the degrees north of the equator, *we* should be almost in the arctic circle compared with Medina. But from several interesting causes which I need not dwell on we really differ little in climatic conditions from you. We would never dream in this country of wintering in clamps or cellars, and all our bees are wintered on their summer stands with very little packing in addition to that used in the heat of the season. Our success, I think, depends a good deal on two very important points, if not three. Perhaps it might be considered presumptuous in me to assert that in these respects we are ahead of you, so I will let the facts speak for themselves.

The main point, I think, to be attended to in securing safe wintering is the top of the brood-frames. There is the chief point of weakness. Heat is generated by the bees in the hive; and to give the colony the best chance of living in comfort, and surviving the rigors of our severest winters, we must preserve the internal heat by every means in our power. No draft may play through the brood-nest escaping upward and conveying the life-giving heat. We generate animal heat in our own bodies unconsciously; but to preserve it on nights of zero cold, we must wrap up snugly beneath warm woolly blankets over linen sheets. Here is our ideal for the bees. Cover the tops of frames with a calico quilt, then over that place from three to six layers of warm woollen cloth, and you have just what the bees require to keep them in the best heart in an arctic cold. Too heavy a pile of blankets tends to make mankind uncomfortable; too many heavy coverings incommode the bees, and fail to secure the ends we are striving for. The nearer you go to "hermetically" sealing up the body under a press of heavy coverings, the nearer you get to defeating the very end you are striving to attain. The body becomes bathed in perspiration, and discomfort follows. Bees breathe all over the body, and if their primary and secondary organs can not get full play they are not wintering under favorable circumstances.

Now, here is just where the nature of the roof of the British hives scores against those generally used in America. I know your chaff-hive roof has a clear space above the packing; i. e., the roof does not press down the planer shavings, forest leaves, or cut straw generally used. But it lacks the depth of our span roofs, and, moreover, in general we are not content with even that depth, but employ a lift of about six inches. That affords a large space of nearly dead air above the covering, affording ample means of ventilation. Further, to aid this essential to safe wintering, our hives have auger-holes pierced in the gables, back and front, to act as ventilators, and they thus afford an opportunity for the vitiated air to escape. These two points, the deep space over the covering and the ventilating-holes, covered, by the way, with perforated zinc, or with cone escapes as a general rule, mean more than at first sight might be supposed.

The ample covering over the frames preserves the heat of the hive, yet it does not prevent a gentle percolation of the heated atmosphere through the porous coverings. The vitiated air thus finds a way out overhead, and fresh air is introduced in such measure as the bees deem necessary. Their keeper, of course, aids them by contracting the entrance by means of slides in zero weather, or by enlarging it when the temperature is high. A fairly large actual entrance is provided on the approach of winter; but it is contracted partially to prevent snow drifting in and hinder the ingress of vermin by perforated zinc being tacked on above the slides, affording only about one inch by ⅜ in. as the space left open for the bees' exit and entrance. The nature of our packing overhead, and the ample "attic" space, are the two points I specially specified at the start. The third is the open space between the outer and inner bodies of our hives. Take a W. B. C. as a typical one. The wood employed might, perhaps, be deemed too thin for our rigorous climate, being only half-inch boards; but practice proves theory wrong here, for even in our northern latitude we are content with the dead-air space between the outer and inner body boxes, and never think of packing between the walls. Elaborate experiments were formerly made to test this, and all kinds of material used; but the end of it is that now the dead-air space is deemed sufficient. It must be granted that two half-inch boards, with a space of two or three inches between, will prove warmer, and in several other respects more desirable than a single board one inch thick. Yet another point deserves notice. A deep bottom space is favored by many on your side. Well,

this hive has a three-inch eke placed beneath the inner or brood-frame box, allowing that amount of aerating space below the winter cluster.

Condensed moisture settling on the inner ceiling, or even on the walls, of such a hive as I have described, is rarely if ever observed; and, indeed, I think it is next to an impossibility, during even a continuance of zero weather, or in course of a prolonged snowstorm, when the hives are buried in snowdrifts for weeks together. Some add a bottom ventilator capable of being opened or shut when desired; but I have never yet discovered any need of its use, although in a moister climate with a higher temperature at times it might work for good. Neither do I use a Hill or any other device for the tops of frames, as there is a tendency to draft unless coverings are extra carefully attended to; but I leave on all brace-combs above frames during the winter to provide winter passages for the shifting cluster to work around to new sources of nectar if they require it when long confined.

I do not adopt an antagonistic attitude toward sealed covers, as I have wintered bees here safely in my own Langstroth hive, but not with such an ideal measure of success; and I have now provided a lift, and practice the more successful plan with it. I tried American oilcloth unsuccessfully. Boards placed close over packing proved an evil. So did such materials as old magazines used liberally. Glass quilts overhead had a fair trial. Bees came out fairly fresh and strong; but the expense as well as the worry entailed taught me to discard them as inferior all around. Convinced as I am that the three points I have touched on all tend toward successful wintering I submit them to your readers, and trust something may be done to test their value on your side. The wintering problem is a trying one at best, and every one who provides some food for thought advances the solution one step further.

GLEANINGS advocates a vestibule or outer chamber in connection with cellar wintering, whereby the chill outer air is modified before it reaches the inner room in which the hives are deposited. In general, bee-cellars are below dwelling-houses, or have some workroom above; consequently these apartments are ideal winter receptacles, because the inner sanctuary is aerated gradually, pure air being permitted to enter only after its severe temperature has been raised to something approaching 45°. Most consider this works most successfully for the bees' well-being.

Now, here is this W. B. C. hive with a layer of pure air above, below, and all round on every side of the inner body boxes. The chill is taken off the fresh air previous to its entrance, so that no rude lowering of temperature attends the entrance of the volume of air carried into the hive interior. The dead air all round the brood-nest body secures an equable temperature, while the deep space overhead, aided by the ventilating cover, allows the vitiated air to be dissipated almost insensibly. The idea of a "lukewarm" air-space around the brood-nest body already exists with you in a crude elementary form in the system practiced by some bee-keepers in Northern States where they "clamp" their hives, and, to a certain extent, in a modified form when they enclose their hives in winter cases.

Banff, Scotland.

NATURAL SELECTION AND DISEASES OF BEES.

The Meaning of Immunity; Why Certain Strains of Bees Become Immune.

BY G. W. BULLAMORE.

The majority of bacteria obtain the nutriment necessary for the carrying-on of their vital functions from dead animal or vegetable matter which they break up into simple compounds. Some of them are found in the cavities of living animals where they lead an apparently harmless existence with no power of invading the living tissues. Others have developed this power and can attack living protoplasm. This latter class are the pathogenic or disease-producing bacteria.

Some pathogenic bacteria are capable of leading a harmless existence on dead matter, but set up disease when they gain an entry to the living body. Others are incapable of growth apart from the host except under highly artificial conditions; and as their object is to live and multiply, it is obvious that the death of the host, although caused by the bacteria, is a misfortune which tells against them.

The power to resist bacterial invasion is an attribute which varies with the individual; and, when present to a marked degree, constitutes immunity.

It must be clearly understood that immunity and vigor are not the same thing. Although the breakdown of health may mean loss of immunity, no amount of vigor will protect a susceptible individual if the right germ comes along.

Immunity is of two kinds. An attack of disease often renders the individual immune to that disease for the future. This is acquired immunity. The other kind is present without such stimulus, and is transmissible to offspring. In the study of bee-disease it is the latter kind with which we are interested.

When a disease visits a district for the first time, all the very susceptible stocks are killed. The immune (if any) and those capable of recovery perpetuate the species. Successive epidemics will weed out those who revert to susceptibility, and a balance is at last established in which the disease, although propagated at the expense of the stocks, is not sufficiently virulent to inhibit the production of honey and swarms. The bee and the bacilli become mutually adapted, and the disease becomes endemic. If

exported to hitherto unvisited districts it will still manifest itself as a serious epidemic.

According to Mr. T. W. Cowan, the senior editor of *The British Bee Journal*, foul brood is endemic in Italy, and the exposure of diseased combs to robber bees is not followed by any serious consequences in that country. In some parts of England also, a form of foul brood is endemic. It is probably present in all large apiaries, and can best be detected in spring. Later in the year, in normal seasons, the combs are cleaned up. Affected colonies sometimes swarm, and the surplus yield is often up to the average.

The experiences of American bee-keepers go to prove that the immunity of Italian bees to one form of foul brood is greater than that of the black bee. Brother craftsmen in Switzerland find that the susceptibility of the yellow bee is greater than that of the black with regard to the type of foul brood present in their district. I understand that these Swiss yellow bees are natives of the district, and it would be interesting, therefore, to know what micro-organism is concerned in the trouble. If it is the one to which the ordinary Italian bee has a partial immunity, then the explanation is that the disease has recently arrived in the valley. On the other hand, the trouble may be due to the bacillus of a disease which has "run its course" for ages among black bees, and is now starting a natural-selection campaign among the yellows.

We can best understand the present state of affairs by supposing that different races of bees in the past have developed their own endemic diseases. These diseases have been kept distinct by the natural boundaries that have kept the races of bees from intermingling. Although the endemic disease of the black bees (*B. larvæ?*) may have been present in the original skeps brought to America, its mild character would not bring it into notice. In crossing the continent, however, the swarms escaped for many generations from the selective influence of the disease, and the consequence has been a reversion to greater susceptibility.

With the introduction of Italian bees came the endemic disease of Italy, and this started an epidemic among the non-immune blacks. Naturally the trouble would become modified when Italian blood was substituted for the black strain, although both races would suffer severely from *B. larvæ*.

The literature of bee-keeping in England leads me to suppose that foul brood has long been present in this country, although overlooked by the early writers. With the introduction of the frame hive it was found to be far more common than was suspected. The explanation is that, in the old days, only the epidemics were recorded. When movable combs became general the endemic cases were also included. The "black" bee of England is now a mongrel, and the varying accounts of the disease on this side are probably due to the variable resistance of the bees, and to the fact that the term "foul brood" is applied indiscriminately to all varieties and mixtures of foul-brood trouble.

At a meeting of bee-keepers, some of the audience were much amused when I stated that, in the struggle with disease, it was advisable to procure queens from districts where disease was known to exist. Many bee-keepers are obsessed with the idea that, if we could but find some island, some district, where bees are plentiful and foul brood unknown, it would be a grand thing to import stocks and queens from such a source. There is no fact in our experience of disease which warrants such a conclusion. Dr. Dzierzon's loss of 500 colonies, and Della Rocca's description of the introduction of foul brood into the island of Syra, will illustrate the terrible mortality which results from a first epidemic; and it can make no difference whether we take the disease to the bees or bring the bees to the disease.

Mr. Beuhne, the Government Inspector for Victoria, Australia, informed me that the same fallacy prevails there. When paralysis was sweeping through the colony he advertised for queens from an apiary where paralysis had run its course. He hoped by this means to confer some measure of immunity on his own bees; but the advertisement was considered a joke, and no queens were forthcoming.

I think this question of relative susceptibility can be well illustrated by some facts relating to human disease. The Anglo-Saxon has been exposed to consumption from time immemorial. It is estimated that in England 80 per cent of those attacked recover from the disease. In the cases which terminate fatally, often many years elapse before it incapacitates. The aborigines of America, Australia, Afrria, etc., broken up into hostile tribes, by this means preserved a strict quarantine against the spread of such a disease. When communicated to any of them it often takes the form of an illness which terminates fatally in three weeks. In the search for immune individuals, are we not more likely to find them among the healthy inhabitants of a crowded city than among these hitherto unvisited colored races?

Again, there are districts in India where 100 per cent of the school children have the malarial parasite in the blood. The relative immunity to malaria of a native of such a district and of an Anglo-Saxon would not be difficult to gauge. The native would suffer no inconvenience. The white man would be kept alive only by regular dosing with quinine. So it is with bees and their diseases. The most susceptible bees will come from districts that have never experienced trouble of the kind under consideration.

Although I have suggested that the Italian bee may owe its exemption from disease to inherent powers of resistance, there is another way in which they may have the advantage. Black bees which have struggled for generations in cold northern climates against long winters and unfavorable

summers have often been put to queer shifts in order to survive at all. As a consequence they readily resort to the fluids excreted by aphides, to damaged fruits, etc. These unwholesome substances may either set up active gastric trouble or cause such a lowering of vitality that an organism hitherto quiescent is able to commence active interference with the life activities of the bee. The freedom from disease shown by the Italian bee, therefore, may be partly the result of cleaner living, as they are far less inclined to gather these noxious honey-substitutes.

The theoretical parts of the foregoing are put forward as an explanation of the facts as they are at present recorded. I quite realize that, with increase of knowledge, the theory may require considerable modification. To the primitive astronomers the theory that the earth was fixed and the sun moved sufficed as an explanation. With increase of knowledge we hear of a fixed sun and a moving earth. At the present time it is postulated that both the sun and the earth are moving. In our knowledge of bee diseases I fear we are only at the fixed-earth stage.

Albury, Herts., England.

SELLING HONEY AT HOME.

Better Prices Secured than by Shipping to the Cities.

BY C. W. PHELPS.

Of late a good many are recommending the sale of honey at home, and this I am glad to see, for I believe in developing the home market. In 1879 I commenced keeping bees in the country, and I had hard work selling the few pounds of honey that resulted from my efforts the first season. I soon had one hundred colonies, and in 1882 or '3 I sold 1650 lbs. of honey to eight families—poor people at that.

After this I began putting up my honey in butter-firkins and selling it for $12.00 a firkin, which consisted of 150 lbs., or 8 cents a pound. For what I sent to the city at the same time I received only 7 cents, and I had to pay all expenses myself. Furthermore, the honey had to be very light and of good quality, while that which I sold at home was off grade or dark. If I remember correctly I received 10 cents a pound for the small lots sold at home at that time.

Remember, all this was in the country. The way I sold the honey was to prove that it was the cheapest of any thing my customers could buy of like nature. I generally took my pay in any thing the customer had to sell that I would have to buy any way. For instance, of one man I took lumber for hives; of others, meat, butter, potatoes, etc. Of course, I also took pay in money as well.

At the present time we have a different market, for we sell in a small city. We put up the honey mostly in dollar packages, eleven pounds for one dollar. We make a reduction of a few cents for 60-lb. cans.

We always sell our honey as fast as we extract it, and in this way we have no candying, no melting, and no bother. We tell our customers if they want *our* honey they will have to take it when we are ready to sell it, and they know that *our* honey is pure. We are now booking orders for next year, and we could sell a number of tons more if our bees produced it.

We have a friend near us who deals in honey, usually at the same prices. He says he can not sell honey until fall, and he commences to sell about the time we leave off. We send him what trade we can after our honey is sold. We sell much more than he does, although we tell people his honey is as good as ours. The difference is, we have bees, and produce all our own honey, so that people know what we are talking about.

If bee-keepers would follow a few simple rules, honey markets would never be overstocked.

Give good weight.

If you have poor honey, say so; never lie about your own goods nor about your neighbor's.

Explain that your honey is pure, but never joke about it. Do not argue about other honey, and never run it down.

Never sell one pound of honey to a customer who is able to buy more.

Binghamton, N. Y.

CAN SOUR AND SWEET HONEY EXIST TOGETHER IN THE SAME CAN?

BY STEPHEN ANTHONY.

On page 479, Aug. 1, Mr. Holtermann, in substance, asks the above question. Some years ago I was asked to set aside fifty pounds of liquid honey for a party who would call for it later. I used a kerosene-tin, covered only with a cloth, as the top had been cut out, and added small amounts of honey to the can from time to time until the right amount was reached, and after that it stood for about six months. When I removed the cloth I found about a cupful of sour liquid honey on top in a sort of hollow in the candied honey. This I poured off and scraped the rest clean, the cup-like hollow especially, as a portion of the honey near it was quite soft. I found that the remainder was excellent.

A lady who seems to be pretty good at raising sour honey once gave me about 25 or 30 pounds of it which she had been keeping, thinking it might improve in the two years that had elapsed. Upon digging out the honey with a spoon to put it into the vinegar-cask I came upon some very clear amber honey that was still liquid and perfectly sweet. This I strained in order to get all of the sour honey out of it, and filled three quart jars. In these jars this honey has been standing for several months, and it continues to be perfectly sweet and entirely liquid.

Waitete, Amodeo Bay, Auckland, N. Z.

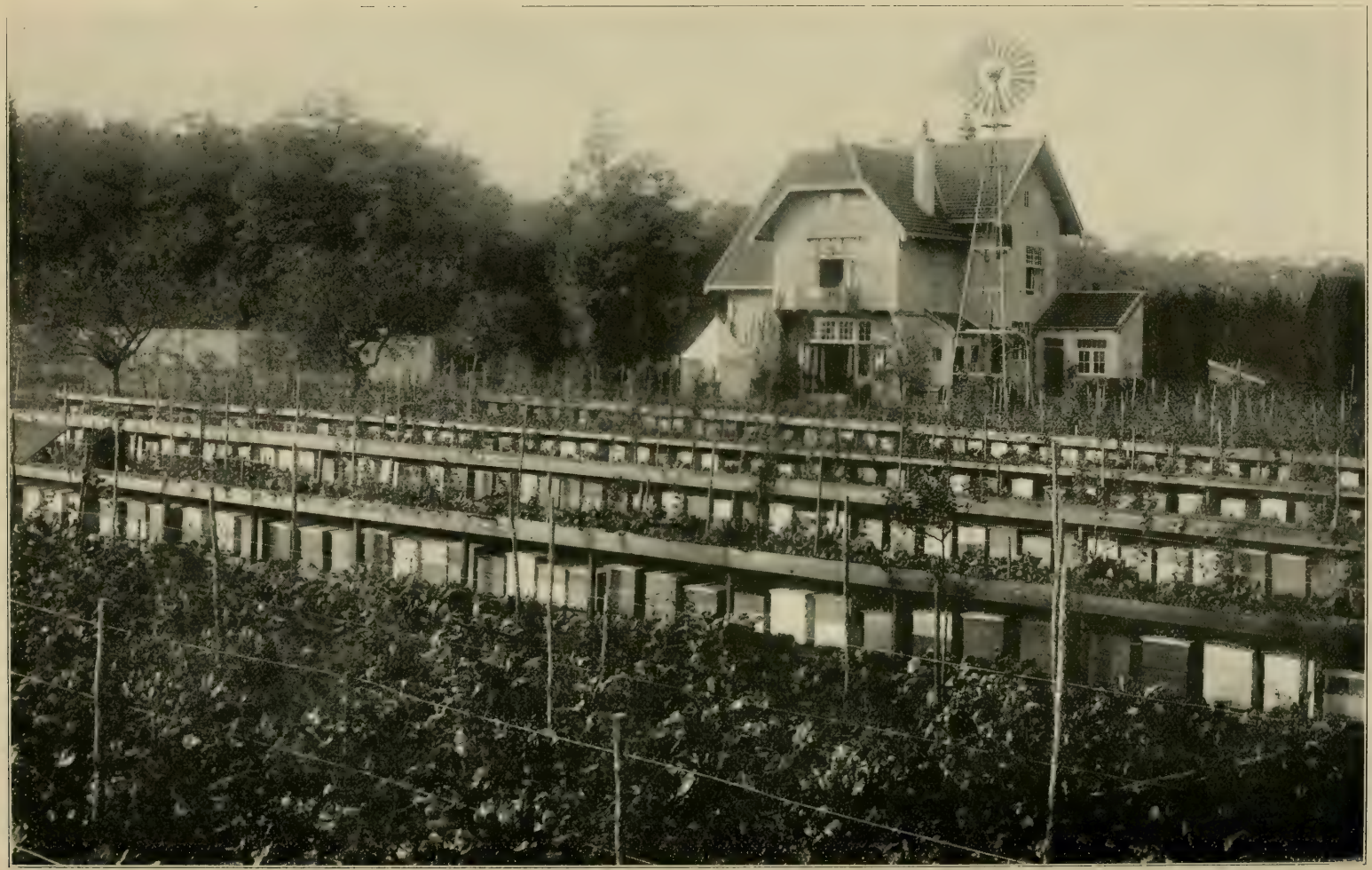


FIG. 1.—HOME APIARY OF HANS MATTHES, IN BREUKELEN, HOLLAND.



FIG. 2.—MIGRATORY BEE-KEEPING IN HOLLAND.

The bees are sent by rail to the station nearest the buckwheat-fields, and then transported to the de sired location by rail.

MIGRATORY BEE-KEEPING IN HOLLAND.

BY HANS MATTHES.

In the Oct. 1st issue, 1908, was an illustrated article showing my apiary, and I now take pleasure in submitting some new views which will, perhaps, be of interest. Fig. 1 is a portion of my home apiary, the hives being sheltered in the winter time by the low roofs. My dwellinghouse appears back of the bees.

Fig. 2 shows the colonies being unloaded from the cars to be transported to the buckwheat-fields, as was mentioned in the abovenamed article. Early in the season I go with my bees to the cabbage, mustard, and white-clover fields, transporting the whole outfit in a launch. The distance to the buckwheat-fields being rather considerable, I have to use the railroad, which brings the bees to the nearest station, and then they are brought to the fields by wagon.

I am also sending a view showing the interior of my house, which may, perhaps, be interesting, because at the table a box of my honey appears ready for the cakes.

Breukelen, Nederland.

[We are glad to present this brief though interesting communication, for it shows that our Dutch friends can probably teach us a number of things in regard to migratory bee-keeping. We should be glad to have further particulars, especially in regard to the details of moving to the cabbage and mustard regions by launch.—ED.]

EXTRACTING HONEY AS SOON AS THE COMBS ARE REMOVED FROM THE HIVES.

Honey which Stands in Dark Combs Away from the Bees Becomes Injured in Flavor; the Gravity Strainer Criticised.

BY GEO. SHIBER.

If black or dark brood-combs are uncapped quite deeply, so that some of the black cells are cut off with the cappings and a few of such cappings put into a bottle of fine clover honey, and allowed to remain for 24 hours, the delicate clover flavor of the honey will be gone, and in its place a rank dirty flavor left. It is not necessary to have more than a very small amount of the cappings in proportion to the honey.

This unmistakably dirty flavor may be noticed in honey that is set away for a day and a night in the honey-house in dark combs. A few years ago I had my extracting all finished with the exception of ten or twelve stories, and for some reason or other I was unable to extract these for several days. If I had known then what I have learned since, I would have placed these stories back on the hives again. Well, when we did extract the honey, about three days later, the flavor was simply awful although the body and color were all right. For this reason Mrs. Shiber and myself (and she is more strenuous than I, if any thing) have laid down this rule: After combs are removed from the bees in the yard the honey

must be extracted, and placed in the cans, with the caps screwed on tight, in the shortest possible time. With this process, and with sealed combs in the first place, we get "quality honey" every time.

From the above it will be seen that I do not favor allowing bits of black comb to float on top of the honey in a settling-tank. In other words, we want to get the honey away from the black comb or any part of the comb at once, as our experience shows that it is safe to allow good honey to be in contact with black combs only when such combs are covered with bees in the hives.

THE GRAVITY STRAINER TRIED.

We tried the float plan of separating the honey as described by Mr. Townsend in the *Bee-keepers' Review* and also in GLEANINGS, page 402, July 1. I made the wooden disc of ½-inch stuff, about ½ inch smaller in diameter than my forty-gallon tank, and drove staples around the edge of the float to equalize the space between it and the inside of the tank. I started the "ball rolling" one afternoon, and soon had the tank full, when I had to stop. After drawing out a pailful or so of honey, and pouring it back on top, so as to remove the sediment still remaining in the bottom from the first honey poured in, according to Mr. Townsend's instructions, we then put the rest in cans until there was only about a foot left in the tank. We did not dare draw off any more. The next day we commenced extracting again, and I did not want to draw off that foot of honey and then pour it back in again; but I did draw it out and kept it out until I washed and dried the tank, then I rigged up our old strainer.

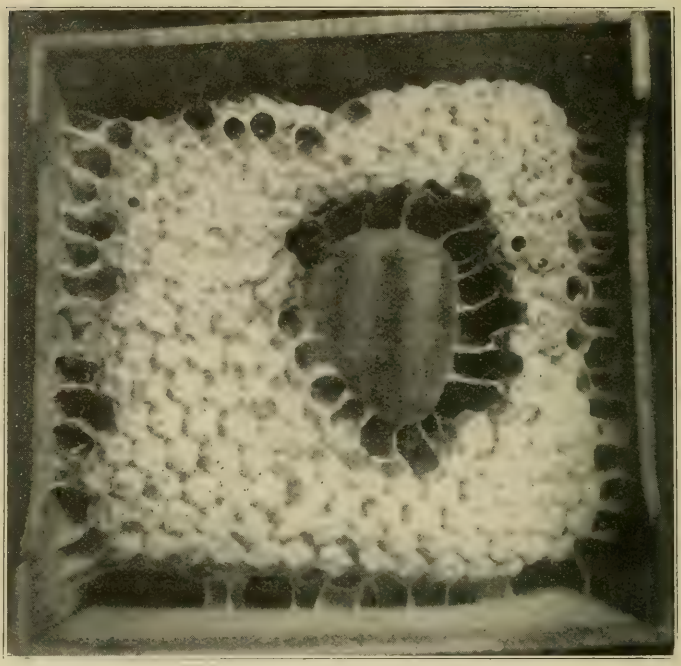
The strainer that we use is an improvement on an old idea. The whole plan, as we used it this year with so much success, is one that has lain dormant in my mind for perhaps twelve years, it being described in GLEANINGS long ago by the late John H. Martin, otherwise known as "The Rambler."

Over the top of my tank I place a sheet of wire cloth, same as that used on windows, and tie it tightly around the top with strong cord, at the same time pressing it down in the middle. Over this I put one end of a five-yard length of white cheese-cloth, the part not in use rolled up at the side of the tank. Warm honey will go through this rapidly when the cloth is clean, but, of course, it soon gets clogged. Just as soon as this happens we pull the cloth along, bringing a new clean surface over the tank, and then roll up the clogged portion on the



FIG. 3.—A DUTCH DINNER-TABLE, SHOWING THAT HONEY APPEARS ON THE "REGULAR BILL OF FARE."

other side of the tank. When one five-yard piece is used up we put another one in its place. We never bother with the old cloth again, nor try to clean it for further straining—we use a new piece instead. What is the use of wasting five dollars' worth of time to save twenty-five or thirty cents' worth of cheese-cloth? The cloth that has been used once, we simply put in water to soak; and when it is washed and dried we cut it up for use in the house for wiping dishes, etc. With us time is a big factor in extracting. We aim to leave the honey with the bees until the last possible moment; and then on, until the last of it is extracted, we do very rapid work, making no false motions to hinder our progress. Buckwheat is always due August 5, so we have to keep out of the way of it.



A CASE WHERE BIRDS NOT OF A FEATHER FLOCKED TOGETHER.

BUCKWHEAT BEING SOWN MORE EXTENSIVELY EACH YEAR.

Buckwheat is being planted here more and more, and probably this is true in most dairy regions, as the great question with a dairyman is what feed gives the most pounds of milk "at the condensory"? I was talking with a farmer who had a ten-acre field of buckwheat across the valley, and he said, "Last year I made a fool of myself by selling my buckwheat for $1.20, and then turning around and paying $1.50 for feed. I should have had the buckwheat ground with corn or oats, and saved the 30 cents per hundred." Many dairymen are thinking the same, and on this account more buckwheat is being sown each year, but the increase will go to increase the dairy products instead of being made into buckwheat flour for "flapjacks." However, the blossoms are what the bee-keeper is after any way, and so the dairyman and bee-keeper will fill the land with milk and honey.

Randolph, N. Y.

WASPS BUILD CELLS IN A SECTION OF HONEY.

BY S. N. HATHAWAY.

Last season I found a curiosity in the shape of four cells built by wasps in a section of honey. The illustration shows this quite plainly. This section was a middle one in the front row, and this is the only reason I can think of why the bees let the intruder enter the hive so many times; for, besides building the four cells, which in itself would necessitate many trips, the cells had to be filled with tree-spiders as food for the young wasps in the larval stage.

A HANDFUL OF BEES THAT DEVELOPED INTO A NORMAL COLONY.

The question has often been asked, "Do bees carry eggs?" Those who doubt this would have some difficulty in solving the following: My neighbor has two hives full of combs—one of the two containing a little honey and a handful of bees. These few bees remained in this condition a month or more, when, as there were no more bees to put into the hive, the entrance was closed. Early in October my neighbor looked into the hive, and to his surprise found the bees still alive, with a fine yellow queen. There were also young bees, some sealed brood nearly ready to hatch, and quite a space of comb filled with eggs.

Waldron, Ill.

[We assume from what you say that neither of the two hives contained a full colony of bees, and neither one a queen, when the first examination was made, although the one mentioned had a little honey and a "handful" of bees. While we believe that bees under some circumstances may steal eggs, still this case that you cite is not conclusive proof. We regard it as probable that a swarm from some other apiary, or perhaps even from a bee-tree, might have taken possession of this hive shortly before

the entrance was closed; or it looks to us as though there was some opening in this hive even after the entrance was closed, so that the swarm might have come afterward. You do not say how long it was before October that the entrance had been closed. If a month or more we should hardly expect that the colony would be in a normal condition if there were absolutely no opening from which the bees might fly, for the larger number of bees would certainly starve. It looks very much as though there were some entrance through which bees could pass; and if this was the case it seems quite clear to us that a swarm unbeknown to your neighbor selected this hive and took possession. We do not know just how many bees there were originally, for a "handful" is rather indefinite. However, even if a queen had been reared it is doubtful if she could have built up a normal colony with so small a start.—ED.]

HOW APPEARANCES AFFECT SALES.

An Insight into the Deceptions Practiced by some of the Bottlers of Food Products; what is the Best Shape and Size for a Honey-jar?

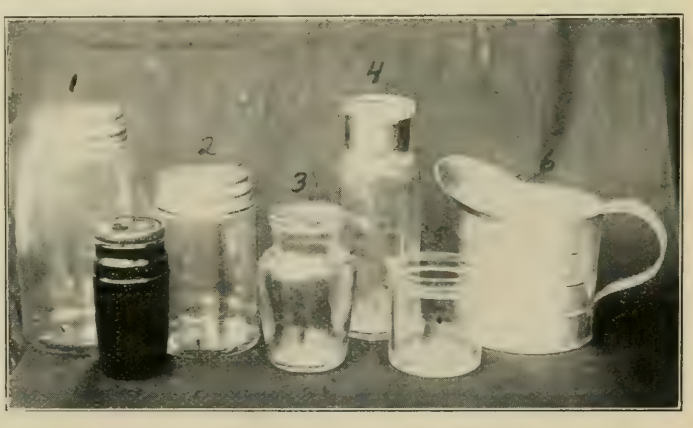
BY WESLEY FOSTER.

The appearance of food products has more to do with their sale now than ever before since stock packages have so largely taken the place of the bulk products. This has been brought about by a number of reasons, among them being that the manufacturer wishes to derive some advertising through the sale of his goods. For instance, if he put out rolled oats in barrels, no one but the wholesaler, or perhaps the retailer, would know who the manufacturer was; hence the neatly labeled package, which not only advertises the particular brand, but is a better protection for the goods, keeping them free from dust, and saving the retailer the trouble of weighing out the packages, the weight being guaranteed by the manufacturer.

This stock-package business has spread until it takes in almost every kind of food; but with it has come the chance for deception. Perhaps one manufacturer puts out a gallon can of peaches. A dozen others soon do likewise, and competition becomes so strong that some sharp canner gets up a can holding 3½ quarts. This looks as large as the gallon can; and unless a close comparison is made the difference does not appear. Any way, even if the grocer does notice the difference the customer is not likely to; so that this particular canner has the advantage, for he can put out the smaller can perhaps 50 cts. a case cheaper, so that his sales are larger and larger. Thus this thing has gone on until we have gallon cans holding only three quarts, and so-called quart cans holding a little more than a pint. There is the greatest anxiety on the part of all canners and preserve concerns to put out a package that will look the largest and hold the least. If any one wishes to go into this matter more in detail, let him procure a bottle catalog from some glass company and note the hundreds of different styles and shapes; or one can get almost as good an idea by looking over the shelves of the nearest grocery store.

There are several ways of making a jar hold less than it appears to hold, or, in other words, of making it appear to hold more than it does. Perhaps the trick originated by brewers in having beer-bottles made with the bottom blown an inch or more up into the body of the bottle in a bulb of very thick glass. This alone takes out about one-third of the real capacity of the bottle. Another scheme that works well so far as fooling the customer is concerned is to use very thick glass. The long-necked jar should also be mentioned, the neck being covered with a paper label; and if the neck is almost as large as the body of the jar the delusion is all the greater. Moreover, this gives space for the label without covering up any of the goods in the main part of the container.

A pint jar having a small base, which gets larger toward the top and then draws in abruptly at the neck will have the appearance of holding as much as a quart jar if the latter is short and stubby. This large appearance of a bulb-shaped jar is well



HOW DIFFERENT-SHAPED JARS ARE DECEIVING AS TO THE AMOUNT THEY HOLD.

No. 1 holds one quart of honey; No. 2, one pint; No. 3, seven to eight ounces; No. 4, one pound; No. 5, seven to eight ounces; No. 6, quart measure.

known to food manufacturers, and it is really an attractive jar that sells well. In the same way the 4×5 section of honey looks larger than a 4¼ square section, and therefore the tall section, like the tall jar, is the better seller than the smaller-appearing square one. I myself have been fooled into thinking that a pint jar held a quart because the pint jar was thin and tall, and had a neck that took the tall cap. When we consider the thick glass, the bulb-shaped, tall, large-necked jars with large capacious caps to hold air, it is really wonderful how small a quantity we can be satisfied with for 25 cents.

To overcome these matters some States (Nebraska, for instance) have passed laws requiring the actual net weight placed on every label of a food package. The time is coming when there will be a change in the matter, for people are now ceasing to be fooled by mere appearance. The looks as a sole criterion have failed to make a permanent impression; and the simple straight jars with plain caps are cheaper, and the jars more serviceable when empty; and so, while I have decided opinions as to the necessity of providing the most attractive packages for our honey, I do not think we need to resort to air-packed necks and caps, nor to glass bubbles in the bottoms of our jars.

All this reminds me of the way assessments are made on property for taxation. The assessing has kept falling from real value until we have it down to about one-fourth of the full value, and, of course, the mill tax goes up with each drop in the rate of assessment. In the same way we get packages that appear large for the price, or perhaps for a little less than the price of the original standard-sized packages. Now, would it not be well to have a general readjustment all around and put things absolutely on the square and open basis? If a jar holds a pint, let it be labeled in that way, or perhaps the weight-mark would be better. So many goods are sold by the can that no one knows how much he is really getting.

To illustrate the points I have referred to, I have made a photograph of several different glass packages, most of which have been used for honey. No. 1 is a quart Mason jar and No. 6 a quart measure. The quart measure being short, and made of thin tin, does not appear as large as the Mason jar. The size of the package is easily seen to be less apparent when the dimensions run horizontally than when the change is on a perpendicular line. Of course the cap on the Mason jar, and the fact that the glass is thicker than the tin, makes the quart jar larger than the quart measure, though it holds no more. Now, does not jar No. 2, which holds a pint, look more than half as large as No. 1? This shows that the smaller packages look larger when on the shelf than the larger packages do in comparison with their real capacity. I believe that this is one of the reasons for the gradual reducing of the size of packages for food products. A pint jar at 25 cts. will sell much quicker than a quart jar at 40 cts., and I do not think the smaller amount of money required is the real reason for its greater sale, although, of course, it is a big factor.

Now, take jar No. 7—the small black one toward the left of the picture, which holds just one-fourth of a pint. One would hardly suppose that it would require four No. 7's to fill one of the No. 2's. The thick glass, and the fact that the jar is tall, are the principal reasons why No. 7 looks large. This is a jar that sells for ten cents, generally, when filled with honey. It is a rapid seller, too, for it holds enough honey for the average family at one meal—provided the average family does not have too many children who are inordinately fond of honey. No. 7 holds almost one-half less than No. 5, which holds just the same amount as No. 3. By the way, this No. 3 shows the effect produced by thick glass and the bulb-shaped bottle with a rather tall neck. It is one of the most attractive jars for honey that I have seen, even if it does hold only seven or eight ounces of honey. There is room on the neck for a label which will cover up the empty space in this part of the bottle. Of course, the neck might be filled with honey; but what would be the use of doing so if the jar sells just as well with the ounce and a half of honey left out?

No. 4 is perhaps the most deceiving of all in regard to the amount of honey or other material which it will hold. This bottle had sweet pickles in it up to the bottom of the gilt label around the neck, the label being wide to cover the tall neck. The jar holds one pound of honey or just two-thirds of the amount that could be placed in No. 2. Jars No. 3, 4, and 7 are the most attractive on the shelves; and with the net weight plainly marked on the label there would be no deception.

Perhaps this packing of food in expensive glass bottles that are useless when empty, and that are deceptive in the amount that they hold, is in part responsible for the high cost of living. The consumer pays 30 cts. a pound for honey in No. 7; and the bee-keeper who furnished the honey in 60-lb. cans received not over 8 cts., and possibly not over 6. I may be wrong in some of my conclusions, but not so very far off when taking my position as a whole.

Boulder, Colo.

[From what you say we believe that you would regard it as ideal if all glass packages could be plain and similar in shape; but as long as this (at present) seems impracticable, you would adopt the most attractive and economical shape for all glass honey-containers, but state plainly on the label the real amount contained.

We believe that you are very nearly correct in your statement as to the high cost of living. There is certainly a vast difference between the amount that the producer receives and the amount that the consumer pays for a food. The middlemen may not

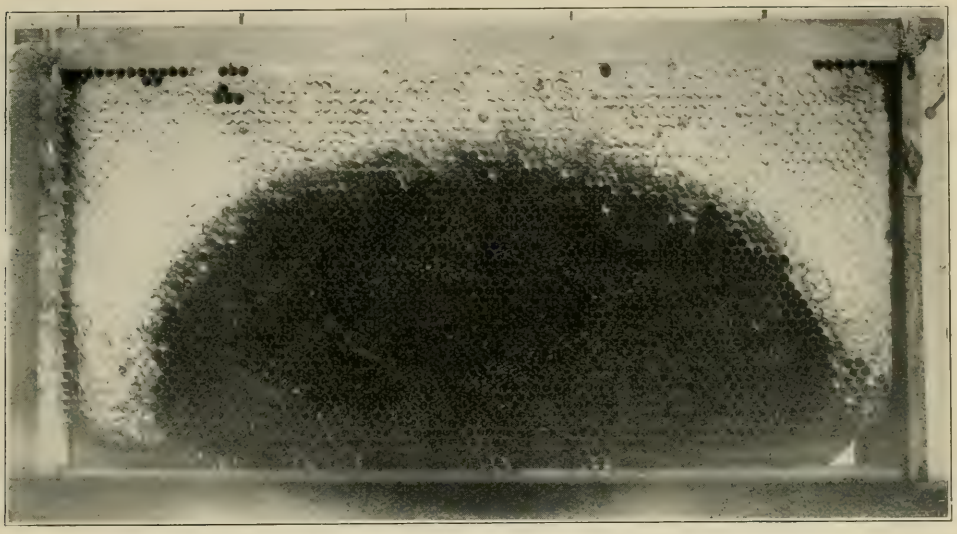


FIG. 1.—AN IDEAL COMB TO FORM A WINTER NEST.

be getting rich; but if they are not, it is because there are so many of them. Certain it is that we all demand expensive containers, not only for our honey, but for most of our different kinds of food. Recognizing this, bee-keepers and honey-dealers can well afford to select attractive containers, thus furnishing what is demanded, but taking care, always, to practice no deception, for deception sooner or later kills sales.—ED.]

THE WINTER NEST OF A COLONY.

How the Bees will Form it if Not Disturbed by their Owner.

BY E. R. ROOT.

A year ago, it will be remembered, there was some discussion as to whether bees actually form a winter nest. Our good friend, the editor of the *Canadian Bee Journal*, while not doubting the existence of such a nest, yet like the Missourian of old wished to be "shown." After we had presented our proofs our contemporary very generously acknowledged that he was "almost convinced."

What do we mean by "winter nests"? We mean a space of empty brood-cells in one or more combs, such space approximating the form of a hemisphere in ordinary Langstroth brood-nests. These empty cells surrounded by sealed stores constitute the winter nest where the bees cluster when conditions are ideal. As the stores are consumed, the number of empty cells increases either backward or forward, but always upward. As a general thing we find the ball of bees located near the front of the hive and regularly over the entrance. As the stores are consumed they move upward and backward; but the cluster in no case extends over the sealed honey when the bees can have their own sweet will.

Very often a well-meaning A B C scholar finds three or four combs in the center of the hive, having a space of empty cells as large as the hand spread out. He thinks this is all wrong and will remove the combs containing such spaces, and put in their place *solid cards of honey*. What has he done? He has compelled the bees to cluster upon sealed honey. The cluster is broken up into slabs approximately ⅜ inch thick, each slab of bees separated by approximately an inch of solid honey. Instead of having one solid cluster separated by only the midrib of the combs, he has made a series of clusters, each within itself trying to maintain its own body heat but at a very great disadvantage.

Let us illustrate: Two people on a cold winter's night require less bed clothing than one person would in that same bed. Now, then, suppose that, instead of having those two bed-fellows separated from each other by only their night clothing, we have a slab of metal or even wood between them. If they are compelled to place their warm bodies in contact with that cold surface they lose a great deal of their body heat because the cold surfaces carry away (that is, dissipate) the warmth.

We have exactly that condition when we insert combs of sealed honey into a bunch of bees. We compel them to divide up into four or five clusters. The result is, that colonies tampered with in this manner perish or come out in the spring very weak because of their inability to maintain the requisite temperature. Where outside bees become stiff with cold they can not long endure that condition.

We show herewith two illustrations of combs showing an ideal winter nest which bees under normal conditions will form if

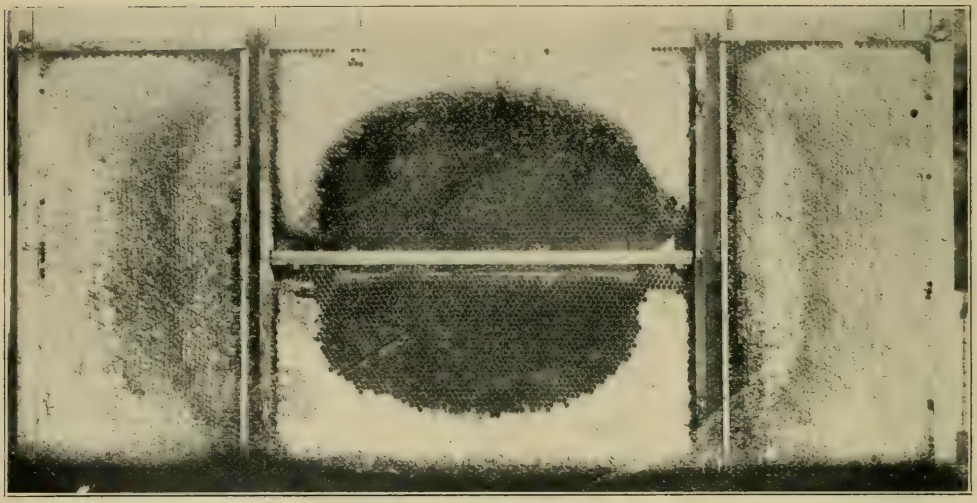


FIG. 2.—COMBS FOR MAKING UP A WINTER-NEST FOR A MODERATE-SIZED COLONY. Note the center comb is placed upside down.

allowed to carry out their own sweet will without molestation from their well-meaning owner. In Fig. 1 note the hemispherical shape of the winter nest as the bees form it under ideal conditions. The combs next opposite in the brood-nest will show a smaller half-circle, and those next to them a relatively smaller circle still, until there is just a mere spot of perhaps an inch or two in diameter in the outer comb. This makes up a complete hemisphere in the Langstroth brood-nest or a perfect sphere in a cubical brood-nest. While one does not by any means always find this form of winter nest it is the ideal condition.

If one lifts off the cover of a colony when the temperature is about 45 outside he ought to find, if conditions have been favorable, the cluster of bees in a space about the shape shown in the winter nest of the frames here shown. On the next two combs the half-circle of bees will be smaller until there will be a little patch of bees on the outermost combs or comb. As it becomes colder this hemisphere of bees shrinks in size. When the temperature goes down below zero a large strong colony will be compressed into a space about equal to that of the doubled-up fist. It may not then occupy more than two combs.

In Fig. 2 we show two combs having an ideal winter nest already formed. For a moderate-sized colony this will make a good winter nest. We would then place on the outside two solid cards of honey, as shown in the two end frames. Colonies not over strong we would contract down to the space they will occupy in mild weather by putting in thick division-boards, or packing of some sort to fill up the empty space. If, on the other hand, the colony is a strong one it may require three or four and possibly five combs in which there are winter-nest cells.

If a colony is fed gradually during October and November they will form this winter nest. If, however, they are on the verge of starvation, and they are fed 30 lbs. in a single night toward the last end of the fall, or when it is quite cold, they do not have the opportunity of forming this nest. They will carry the syrup down while it is hot; then for a few days after that, if it is so they can fly, or, rather, so the cluster can move freely about the brood-nest, they may or may not rearrange the stores. The cluster, when it actually forms up for winter, will be practically one homogeneous mass of bees separated by only thin cell walls and the midribs of the combs.

If anybody doubts that bees try to have a winter nest, let him break into several clusters of bees when the temperature is down to about 5 above zero, in an outdoor colony. We have done this repeatedly. If the arrangement of combs has not been disturbed in the fall, we will probably find the bees tightly jammed into the cells. And, again, we will often discover, as we go over our colonies in the late winter or early spring, that some of them have actually starved to death. In all such cases we will see dead bees tightly packed in the cells of the winter nest, and a solid mass of bees between the several spaces between the combs. Starvation is often due to the fact that cold weather has continued so long without a let-up that the bees are left high and dry, so to speak, in the center of the winter nest. They actually starve, notwithstanding that sealed honey is within two inches of the cluster. The long-continued cold has given them no opportunity to warm up and shift the cluster over in contact with the sealed honey. We have seen this condition almost every winter in our yard.

Still again, we have often found dead colonies where some of our newer men in the bee-yard had disturbed the combs, putting a solid comb of honey right down through the center of the winter nest. This made

two bunches of bees; and both, being too small, died.

When it comes to indoor wintering, especially where the cellar temperature does not go below 45 F., a winter nest is not so vitally necessary. But if the temperature goes down below 45, then the absence of a winter nest may mean the death of a colony.

Nature has worked out this problem of wintering bees; and when we tamper with her plans we tamper with our pocketbook. While we can do certain things contrary to nature, we can not interfere with her plan in the arrangement of the combs.

BEE-KEEPING AS A HOBBY.

An Explanation of the Various Parts of a Hive for the Benefit of the Beginner.

BY F. DUNDAS TODD.

The beginner in bee-keeping ought at the very start to get acquainted with the parts of a hive. If he be like the writer at the outset of his bee-keeping career the novice may assume that the structure in which the bees are housed is a solid piece of carpentry; but he will be greatly mistaken, for it consists of about a dozen movable pieces, which number is greatly increased in the active months of the year—June, July, and August.

THE LANGSTROTH HIVE.

We will, therefore, begin by studying a hive as it appears on the stand. Fig. 1 may be taken as a type of the average hive in common use in this country to-day, though there are, of course, other styles; but the bee-keeping world as a whole has settled down to using what is known as a Langstroth hive, though generally called the

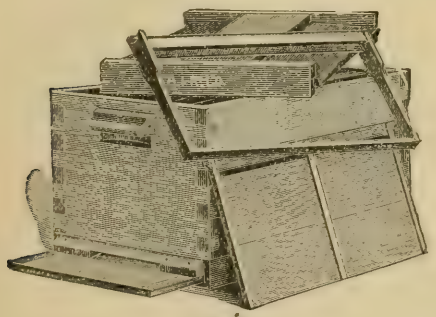
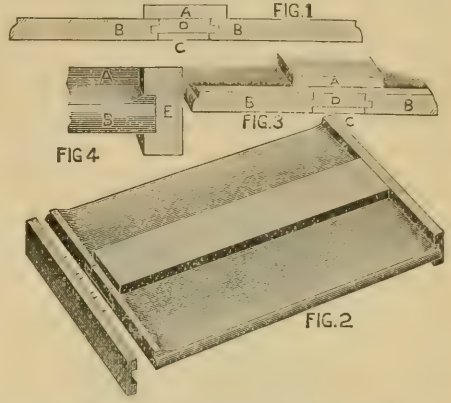


FIG. 1.

Dovetailed in catalogs. Now, if we look at it even casually we see that, like a dwelling-house, it has a roof, side walls, and a foundation. These three are definite, distinct parts, and are essential features of every modern hive. If you take hold of the roof you will find it to be removable, sometimes with a little difficulty, for the bees have a habit of fastening the roof to the walls with a special kind of glue that is very adhesive. In bee-keepers' language the roof of the bee-house is known as the "cover."

The four perpendicular walls inclose the living-room of the hive, which is also at once pantry, kitchen, dining-room, bedroom, and nursery; for a wonderful series of operations is going on in this little home all at one time. But the modern bee-keeper, although he knows full well the many phases of its interesting life, has come to associate it with the raising of the family, so he usually speaks of it as the "brood-chamber." It is also known as the "hive-body."



The foundation of the bee-house has side walls like the cellar of a modern human home; but since there is no floor between the basement and the living-room we can not give it a title corresponding to the same part of our home. Bee-keepers in their practical way have given the name of "bottom-board" to this very important part of a hive.

You have been told that, in order to prevent all decay of the bottom-board, it must not rest on the ground, but upon wood, brick, or stone, at a convenient height from the earth. This support is called the hive-stand.

THE COVER.

We will now examine the different parts of a hive in closer detail, as, like every thing else, there are important problems to be solved in their construction. Take the cover for example. At first thought one would suppose any flat piece of good lumber would do very well; but any bee-keeper will tell you that very much thinking has been put into designing hive-covers; nevertheless, the perfect cover has not yet been invented. In the first place, it must be water-tight, for rain must not get into the brood-chamber. Then it must fit snugly on the body of the hive so as to conserve the heat there, and, consequently, must be prevented from warping.

The illustrations, Figs. 1, 2, 3, 4, show a design that is very efficient. The pieces are securely fastened by tongue and groove, the joints being protected from water by a cap. Warping is prevented by cross-pieces on the ends.

BROOD-CHAMBER.

The brood-chamber is really a box without top or bottom. Its mission is to hold the frames to which are attached the combs in which the bees store the honey and pollen, and also raise the young. Some are wide enough to hold only eight of these frames; but an increasing number of bee-keepers prefer them wide enough to hold ten frames. This size is shown in Fig. 5, nine of the frames being in place and one outside.

Simple as is the general plan of a brood-chamber, it must nevertheless be made with great accuracy. You see, after bees had been kept by man for several thousand years a clever bee-keeper discovered one very important fact—namely, their conduct in small areas varied according to the size of the space. When this is less than one-fourth of an inch the bees will fill it with wax or other adhesive substances; if more than three-eighths of an inch they will build

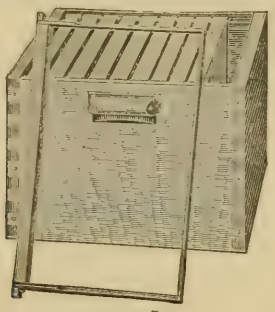


FIG. 5.

comb in it. When he learned this he was able to invent the movable frame whose most noteworthy feature is this: Its end-bars are about three-eighths of an inch clear from the inside ends of the chamber in which the frames hang, thus allowing the bees room to move freely around the ends, but preventing the building of combs that would fasten the end-bars tight to the hive-body. It will also be apparent that the sides must be perfectly square with the ends. Hive-bodies, then, must be machine-made; and it is better if they have lock joints as in the illustration, for such joints insure perfect squareness.

BOTTOM-BOARD.

The bottom-board is really the floor of the hive which rests evenly on three sides of it. The fourth side is left clear, thus providing an entrance to the house, so to speak; but the doorway is also a ventilator, and it is important to remember this fact, for bees breathe and need fresh air just like any other animal. So we must intelligently follow the climatic conditions and adjust the size of the entrance to suit the comfort of the bees, contracting it as winter approaches, and enlarging it in the hot days of summer.

The illustration, Fig. 6, shows an excellent bottom-board of great adaptability. The upper figure is partly sectional, a small part of the end of the hive being indicated in position to show that the sides of the bottom-board and the hive are of the same length. An alighting-board fits into the groove in front (half of the board is shown

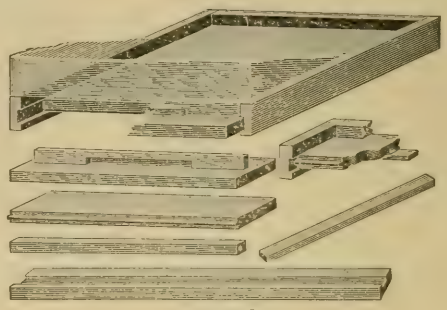


FIG. 6.

in position), and projects several inches in front of the hive-body. One side of the alighting-board is perfectly plain; on the other is nailed a cleat with a narrow passageway. When this side is turned up, the entrance is one-fourth inch by eight inches; but if the plain side be uppermost, then the entrance is seven-eighths of an inch by the width of the hive.

HIVE-STAND.

The purpose of the hive-stand is to keep the bottom-board clear of the ground, and thus prevent decay. But if the board and the stand have contact over a considerable area it is found that both water and ants will collect between them and hasten the destruction of the wood. The points of contact between the bottom-board and stand should, therefore, be as small as possible. Fig. 7 shows a stand that is inexpensive,

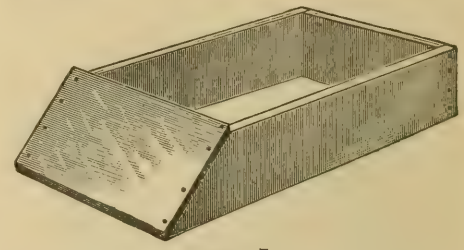


FIG. 7.

easily put together, and strong and durable; at the same time, it touches the bottom-board only around the edges.

FRAMES.

The furniture of the bee-house is very simple, and rather wanting in variety; but the tenants so far have not been known to make any complaint, so we will gravely assume they are satisfied. They are mostly ladies, seemingly free of the habit (said to be characteristic of their human sisters) of finding fault with their home and its furnishings. Eight frames, sometimes ten, with a division-board or follower, is a complete inventory of the contents of the brood-

chamber. As will be seen from Fig. 8, each frame consists of a top-bar, a bottom-bar, and two end-bars. The top-bar is longer than the bottom one, the projecting lugs being the points of support when the frame

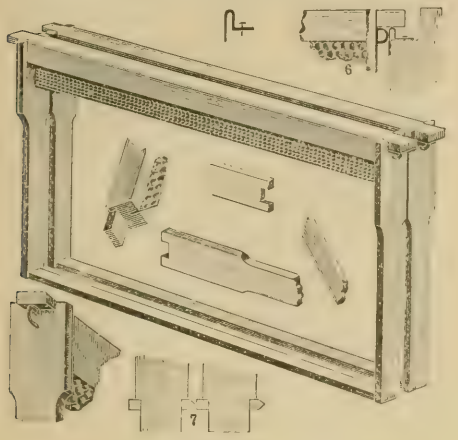


FIG. 8.

is in the hive. Notice the end-bars particularly, for the upper third is wider than the lower part, the respective sizes being 1⅜ inch and 1 inch. Careful measurements and experiments have proved that bees build combs in the natural state very nearly one inch and a half from center to center, so man secures the proper distance in the hive by making the end-bars of the frames the proper width. The space between the lower part of two frames is the regular bee-space of three-eighths of an inch, so as to facilitate the movement of the bees from one part of the hive to another.

DIVISION-BOARD.

Since there is considerable expansion and contraction in a hive, due to the presence or absence of moisture it would be unwise to make the frames a close fit, so the brood-chamber is somewhat wider than the frames pemand. After the frames are all in, the vacant space is partially reduced by the introduction of a division-board, which, being in contact with the last frame, really becomes the wall of the brood-chamber on that side.

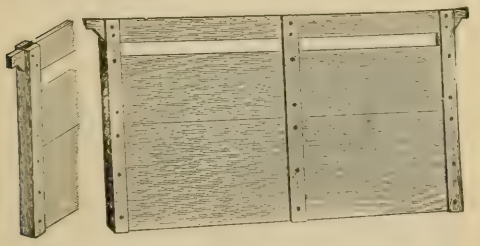


FIG. 9.

Fig. 9 shows one style of division-board or follower.

BEE-KEEPING IN CALIFORNIA.

The Sage the Principal Producer in the Southern Part of the State; the Lack of Rain Prevents the Secretion of Nectar in Most Years.

BY P. C. CHADWICK.

Mr. Root:—May I add something in line with your comment on the articles of Mr. E. M. Gibson and Mrs. Acklin? After carefully reviewing Mr. Gibson's article and your comments, page 718, Nov. 15, I find myself almost entirely in accord with you, and with him in a few respects.

I am not a "pessimist" who talks about overproduction; but I am of the opinion that production can be reduced by overstocking, much in the same way that a small pasture would fatten four head of stock while ten head would merely keep alive.

My object is not to discourage people from casting their lot with us in this glorious climate, but, rather, to acquaint them with difficulties that must be surmounted, and at the same time give an idea of what those who have been in the bee business for years have accomplished and what they have faced in the way of seasons.

South of the Tehachapi Mountains lies practically the entire sage of our State, notwithstanding eastern people and many of our westerners term every form of small growth on the vast slopes of the Rocky Mountains "sage brush." There is no denying that the button (or black) sage is, of all honey-plants, our chief surplus-producer. Neither does it average a crop more often than every other year regardless of rainfall; for it seems necessary, from its semi-arid nature, to be dried out or rested before it comes back to its prime yielding condition. I have seen it return some surplus for three consecutive seasons; but the middle season was not what could be considered a crop, even after a sufficient rainfall.

I am now speaking of Southern California, the sage-field—not any particular place within that may have special producers, as the orange at Redlands, Riverside, Pomona, Monrovia, the lemon in San Diego Co., etc.—for the portion of our territory covered principally by the sage is so much more vast in extent that the few thousand acres of orange, lemon, or deciduous fruit are a comparatively small factor in a good sage year, and show no great results when the sage fails; therefore if the sage fails every other year, Southern California outside of those districts above mentioned may well be counted an every-other-year producer, which means the greater portion of our Southland.

To quote Mr. Gibson: "There were scores of bee-keepers who did not get a pound of honey, but it was not the fault of the season nor of the bees." The implication follows that it was the fault of the bee-keeper. Now, of the entire article the above sen-

tence is the most unfair; for most of us know that, regardless of the good condition of many well-kept apiaries during the entire season, no surplus was secured. I will admit that, if every one knew the true condition in our sage ranges, and the overstocked condition of the foot-hills on the outskirts of our orange-groves, we would be in no danger of overstocking.

The misapprehension of many people owning bees (not bee-keepers) as to the distance locations should be apart, has much to do with overstocking. My apiary was at one time in as fine a location as could be found; but now, however, I am surrounded by an aggregate of 1200 colonies, any of which can overlap my range on one side or the other, and nearly half on both sides to a certain extent.

Here let me give you the report of our local weather observer on the annual amount of rainfall for 15 years beginning with 1895. Ten inches of rain is about as small an amount as can be figured on to produce a yield from the sage; and that must fall late in the season. For example, we had 10.22 inches this season—only about two inches of which fell after Jan. 1, the result being that, while the sage bloomed more or less profusely, there was not sufficient moisture to produce nectar. In 1895 there was a fall of 7.51 inches; 1896, 12.85; 1897, 5.50; 1898, 4.82; 1899, 6.89; 1900, 12.21; 1901, 7.00; 1902, 12.75; 1903, 15.81; 1904, 8.59; 1905, 22.12; 1906, 16.22; 1907, 20.76; 1908, 14.56; 1909, 14.47; 1910, 10.22.

I have the records before me back to 1880—those from 1880 to 1895 being 4 inches less per annum than the average from 1895 to 1910. In 1882 the fall was only 2.94 inches. Think of going twelve months with less than three inches of rainfall, and three years with less than 15 inches, as was the case from 1880 to 1883.

Bee-keeping here is conducted, to a great extent, in as haphazard a style as farming was in the middle West 30 years ago, when, we are told, the farmer moved the barn instead of the manure. We have bee-keepers who know their business and know it well; then we have a class who give their bees little personal attention, know little of the business, and seem to care less, for they rent their holdings for a share, during the honey season, many renters simply knowing how to extract, and they usually do close work on that, after which the bees are left to shift until another season. Imagine the condition of some such apiaries, the danger of foul brood, and the general rundown and unkept condition.

I could not point you to a single bee-keeper who depends on his bees entirely for his support, though some have been in the business for twenty years.

If the East can send us up-to-date bee-keepers with capital to buy out these half-kept apiaries, and help improve conditions, we will give them the glad hand; but as for new locations, they are few and far between—at least, desirable ones; and what we have are being encroached upon each year by the barley-fields. More than one who thought himself secure a few years ago now finds he is surrounded by great grain-fields, and will soon have to pull up stakes for new pasture, and eventually only the most rugged of the foot-hills will be left for the support of our industry.

Redlands, Cal.

A HISTORY OF A CASE OF PROPOLIS POISONING.

BY C. H. HOWARD.

This summer I worked among my bees without a veil, and with my shirt-sleeves rolled above my elbows. The beginning of October the inside part of my arms between the elbow and wrist became very much inflamed, and itched, smarted, and burned all at the same time. Oct. 11 I tried a bismuth formic-iodide preparation, supposing the trouble came from some poisonous plant. I was surprised, as I can handle poiton ivy without any ill effect. My arms kept about the same, sometimes a little better, and then not so well, till Oct. 31, on which day I scraped the burr-comb and propolis from some sixty frames. That night my arms got very much worse, and for sixty hours they were very bad. I slept very little for two nights. I showed my arms to a doctor, and he said I had got them poisoned, and gave me stuff to put on.

Oct. 10 I wrote to Washington, D. C., for Farmers' Bulletin No. 86, "Thirty Poisonous Plants of the United States." None describe my case, but ivy is the nearest.

Mr. C. P. Waldron, of Boulder, told me, some time ago, that he had to give up his apiary of over 100 colonies, as working over them brought on vomiting. Mr. J. E. Walcher says he has been poisoned, and he supposes it is from the propolis; and Mr. Eggleston, who helps Mr. Collins with his 900 colonies, says his hands become poisoned soon after he begins work with the bees in the spring, and it continues till some time after he gets through with the work in the fall. Many people have told me of getting poisoned from propolis; but I never believed it until I myself had trouble.

I have kept bees on and off more than fifty years, and I never had such an experience as this year. I had several cases of poisoning after cleaning off the propolis from a few hives. Then on Nov. 29 I did considerable scraping, and my arms were very bad for two days, and did not get well till the 6th or 7th of December. Yesterday, Dec. 9, I thought they were right for an experiment, so I put a little propolis on my left arm, about three inches above the wrist. This was at 12:50 P. M., and I felt nothing of it for several hours. At 7 P. M. the spot was much inflamed, and at 11 P. M. it was very bad. This morning my wrist and five to six inches above it was scarlet, and all the symptoms were as I described.

Boulder, Col., Dec. 10.

Heads of Grain

from Different Fields

What Makes the Hives so Damp Inside? the Relative Values of the Different Packings.

I have eight colonies of bees, all in good condition —plenty of bees and good clear honey. They are in eight and ten frame hives. I have had only two years' experience in the business, and am troubled about their sweating so much, especially the single-walled eight-frame hives. The two chaff hives do not sweat much. They all face southeast; are in a bee-shed open in front with the back to the northwest, and straw between the hives, and the top or super packed with straw. Early last fall I cut linoleum the size of the top of the brood-chamber, and under this I used strips to provide a bee-space on top of the frames. Right under this linoleum is where the sweat starts, and runs down and out at the entrance. Of course the bees get damp, and freeze. The opening to the entrance is ⅜ x 9 for the eight-frame, ⅜ x 11 for the ten-frame, and ⅜ x 8 for the chaff hives, which are also ten-frame. Would you advise cutting a small hole in the top of the linoleum, or take out the block in front and give them the full ⅞-inch entrance?

Last winter I lost an Italian queen from the A. I. Root Co. because the hive was so damp. It was so wet it burst, and the paint came off the sides.

Washington, Pa., Nov. 29. J. C. McNEELY.

[Common straw, unless a great deal of it is used, is hardly dense enough for packing. You had better use planer-shavings, leaves well packed, or wheat chaff if you can get it—a packing that is better than all of them. The trouble is, the sides and tops of your hives are too cold from insufficient packing. Then, moreover, linoleum is not as good as a plain board laid on top. The surface of the linoleum is too cold. On a cold morning, with your bare feet step on a piece of linoleum and then on a thin board and note the difference. Wood is a much better non-conductor of heat and cold.

Your entrances appear to be large enough in size, but possibly for your locality it might be wise to make them larger. Before we would do that, however, we would try the absorbing-cushion plan, because there is a possibility, and even probability, that your locality is so damp that absorbents providing for upward ventilation would be better than a tight sealed cover; but if you use absorbents you will need to have a good deal more packing material than you have provided. It should be of a loose porous nature, preferably chaff; but if this material can not be secured a large quantity of dry forest leaves may be substituted. Planer-shavings do very well, but are not quite the equal of chaff. When you use absorbing cushions you will need to have them not less than eight inches thick. Then be sure to provide an air-space over the packing and under the cover, so that the moisture as it passes through the cushion can escape.

Now, we wish to suggest this: That you try a part of the bees with sealed cover and eight inches of packing material on top, and the other part with absorbing cushions. When you use the latter you will need to put a Hill device or some sort of stay to hold the cushion up off the frames.

The very fact that your chaff hives are drier goes to show that the single-walled hives are not sufficiently protected. By increasing the amount of protection for all the hives you will reduce materially the amount of condensation; but in any case remove the linoleum, using boards instead. We shall be pleased to have you report the result of your experiments next spring.—ED.]

Lack of Ventilation; Another Instance of the Folly of Shutting the Bees in the Hive with Wire Cloth when Placed in the Cellar.

I am in trouble, and do not know how I am going to get out of it. My bees are kept in an outyard, and in moving them to the cellar I was obliged to screen them in. I am now going to tell you how I proceeded with the screening and moving. I put the hives on a bottom-board 2 in. deep, setting them even with the front end of the bottom-board, and over this open space of 2 x 14¼ in. I nailed No. 12 wire cloth. The space at the back end of the bottom-board I closed except a space of about an inch wide and five inches long, over which I also nailed wire cloth. They were then placed in the cellar and left as I have described. The colonies are strong in bees, and have an abundance of clean sealed stores. When first put in they settled down, and I thought they would be all right; but at this writing, Nov. 28, they are perfectly crazy. I should have said I left the cover on. Is it possible to make any change that will quiet them? The cellar is clean and the air is pure, with temperature at 45.

El Roy, Wis. CHAS. SHELDON.

[We would advise you by all means to remove the wire-cloth screens; at any rate, fix it so that the bees can get out of the hives. They might boil out over the fronts of the hives, but they would soon go back. In spite of what you say, we think there is a lack of ventilation. Before you remove the wire screens open the cellar door wide at night, allowing the cellar to become cold. This will force the bees back in the hives; then quietly remove the screens. If you will give the bees infusions of fresh air constantly, from some sort of ventilator, they will become more quiet. The best thing you can do now, probably, is to open the cellar-door at night and close it by day; but do not open the cellar if the bees are quiet. During severely cold weather it will probably not be necessary to open the cellar.

If you provide ventilation we think you will find that your troubles will disappear. When bees are shut in with wire cloth it is apt to make them very uneasy. In their efforts to escape they stir up the whole colony. Under such conditions the only thing to do is to reduce the temperature of the cellar nearly to freezing, and then quietly remove the screens as before explained.—ED.]

Grafting and Cell-building; Staple-spaced v. Metal-spaced Hoffman Frames.

I am anxious to raise queens for my own use, and did so the past season, requeening 75 colonies, some of which were black stock, all with pure Italians of Jones' stock. This, of course, was accomplished by removing the queens and causing the bees to build cells which were weeded out when near hatching, leaving the best one for the hive, provided it were Italian. The blacks had all cells removed; and when they well realized their plight a nice plump Italian cell was grafted to the comb, and may be they did not look after it, regardless of the fact that their color was to go on for ever. I am desirous of rearing queens next season in nuclei by the use of queen-cups so as to have the queens mated and laying before introducing to the colonies made queenless; and any informtion as to the grafting of eggs or larvæ into these cups would be gladly received. I presume one strong colony will nourish the whole set of cells up to within a few days of hatching, when they have to be separated and given to each nucleus.

Do the good qualities of the staple-spaced frames overcome the bad ones—that is, in the way of swinging in the hive, etc.?

H. HARLEY SELWYN,
Director of Experimental Farms, Ottawa, Can.

[For information on grafting cells you are referred to our A B C and X Y Z of Bee Culture under the head of "Queen-rearing." One strong colony will furnish you all the cells you require if you do not expect more than 10 or 12 cells for every 10 days. While it is possible to get as many as 55 or 60 cells from a single colony during that same period, you will get stronger and more vigorous stock by giving the bees only about a dozen cups to feed and take care of. In your case, at least, we would advise you to make the colony queenless, and then feed a little every day if no honey is coming in, say from a half to a full pint of syrup. You can not get good results unless the colony is put in a highly prosperous condition. Until you have had more experience we would not advise you to adopt the twin or baby nuclei. Better use nothing smaller than the two-frame Langstroth nucleus. After you have had a little more experience you can get down to the smaller boxes.

The staple-spaced frames are not nearly so satisfactory as the Hoffman metal-spaced frames. The staples space only the top-bars and not the end-bars, while the Hoffman metal spacers hold the frames square and true.—ED.]

Feeding During the Winter in Tennessee.

Having purchased several stands of bees this winter at $1.50 per hive, in log and board hives, without any frames or boxes inside, I desire to know how I shall feed; or, will they need feeding? The combs are built on the same principle they are in the bee-tree. Ha! ha! what comb I can see by removing the cover seems empty! I intend to transfer to Danzenbaker hives in the spring.

Would you think that old burlap bags wrapped around these box hives would be ample protection in this latitude? Our bees fly every month in the year; but many of the nights are very cold.

At what date would you advise feeding for stimulating or for increase in the spring. Fruit-blossoms open in March.

Maryville, Tenn., Nov. 28. C. R. COULTER.

[If your weather gets warm enough for you to make an examination it would be well to remove enough of the cover or side, as the case may be, of one of the hives and ascertain the condition of that colony so far as stores are concerned. If you do not find that there are 20 to 25 lbs. of honey, you had better do some feeding. It is a question whether you can feed sugar syrup; but as your bees can fly every day we should think that you can. It is well to feed toward evening, so that the excitement caused by the syrup may subside before morning, so that other bees may not be unduly stirred up and robbing started. After you have examined one colony, if the others are about the same size and the hives about the same, you can probably get a pretty good idea of the condition by lifting or weighing the hives, noting any that may seem unduly light.

Without knowing more in particular in regard to how cold it gets, etc., we can not be sure how much protection these hives need; but we presume that burlap sacks wrapped around and covered with some waterproof material in the shape of a cover would be sufficient. Do not put on any packing that can get soaked with water and then frozen, for such packing is only a detriment. Whatever packing you use, keep it dry.

Most progressive bee-keepers of to-day say it is much better to provide the necessary amount of stores in the fall, and do no feeding for stimulating in the spring. However, exceptions must be made in case of colonies that, for some reason or other, have not the necessary amount of stores. Colonies which are well supplied, ordinarily do not need feeding in the spring.—ED.]

Carbolic Acid for Driving Bees Out of Supers.

Will you be kind enough to give me some information about the use of a carbolic solution for quieting bees?

Lordsburg, Cal., Dec. 1. JOHN STRIPSKY.

[Carbolic acid in a diluted solution for quieting bees has been used to only a very limited extent. Our British cousins sometimes use a piece of muslin saturated in a weak solution of carbolic acid, laid on top of a super of sections. It is said that the odor of the acid is so repugnant to the bees that in a very short time they will all go down into the brood-nest below. How true this may be, we do not know from personal experience; but the fact that we do not hear very much of these carbolized cloths for the purpose mentioned would rather lead us to believe that the scheme works prettier in theory than it does in actual practice. If anybody knows to the contrary we should be pleased to have him report.—ED.]

Feeding to Prepare for a January Honey-flow.

About the 10th of January we have a flow of nectar lasting about two weeks. Queens quit laying in October, and by January the colonies are very small. Bees fly nearly every day in the year at my place, and there has never been a week when I have not seen a *few* bees bringing in pollen. Would you advise feeding when the colonies can say, "Millions of honey at our house"? With strong colonies I think more honey would be stored here in January than in any other month.

Bakersfield, Cal., Nov. 24. C. G. KNOWLES.

[Under the circumstances we would advise you to practice a little stimulative feeding along about the middle of November or first of December, and continue it up to within a week of the honey-flow. Enough feed should be given so that the bees will have the brood-nest filled with brood and sealed honey. We say *sealed*, so that they will not carry any of the fed syrup up into the supers. For that reason we advise discontinuing stimulative feeding just about a week before the honey-flow actually begins.—ED.]

How to Make a Weak Colony Robber-proof.

Mr. G. H. Latham, p. 737, Nov. 15, take that rather weak colony from its stand early in the morning; put it in a safe place when its bees can go out at will. Put a baited robber-trap in its place with a screen cover and a tight cover on top. Leave it there until you have trapped all the bees needed, which will include many of the field bees from the weak colony. Take your catch into the part of a room furthest from the window; remove the cover; set it on end with the screen facing the light (which should be rather limited). Let it remain all day or until the bees realize they are hopelessly caged; then give them time to repent. Unite the weak colony with the catch. After 12 hours they may be placed anywhere in the yard, and you will have a colony as nearly robber-proof as any. This not only abates a nuisance but turns the nuisance to good account.

Sonora, Cal. A. D. HEROLD.

Why the Honey was Not All Capped Over.

I should like to know why my comb honey contained so many cells partially and entirely filled that were not capped. In other words, why was not the comb filled out to the edge of the section? A great many colonies had sections partially built that were never finished.

East St. Louis, Ill. J. C. READER.

[It looks to us as if you had an extraordinarily good flow of honey that ceased suddenly. This nearly always results in a lot of uncapped honey and unfinished sections. It may be that you put on supers a little too rapidly, and did not give the bees time to finish what they had. Of course, it is a regular practice to add new supers before the first ones are entirely finished; but in case the honey-flow is nearly at an end, a new super put on will result in only a lot of unfinished combs. For this reason the putting-on of more supers must be done with extreme caution.—ED.]

A Steady Temperature of 33 F., in the Cellar; the Probable Effect on the Bees.

Having my cellar full of bees I was compelled to put 47 colonies in a neighbor's stone cellar, size 20x 10x7. The thermometer registered steady 33 above with no way of raising it except artificially. How are these bees likely to come out after perhaps four months of confinement? I am a little worried about them.

Fawndale, Minn., Dec. 8. JOHN S. LIND.

[A steady temperature of one degree above freezing is altogether too cold for a bee-cellar. You will probably find that, before spring, many of the colonies will be dead outright, and others much weakened down, and suffering from dysentery. You ought to arrange to put in artificial heat to bring the temperature up to 45; and you probably would require, also, some ventilation, although a cellar 20x10x7, for only 47 colonies, ought, with proper temperature, to take care of that number with very little ventilation. Probably opening and closing the cellar-door at night at intervals would be sufficient.—ED.]

How Much Honey should a Purchaser Expect to Receive in a 60-Pound Can?

I bought 120 lbs. of honey, and when it arrived it was weighed; and with the cans which contained it it weighed exactly 120 lbs. Now, I wish to know if the purchaser of honey should pay for 114 lbs. of honey and 6 lbs. of tin, or should he receive 120 lbs. of honey net? An answer through GLEANINGS would probably be of interest to other bee-keepers who buy honey to help out their shortage.

Pawtucket, R. I., Nov. 21. F. E. CURRAN.

[A good deal will depend on how the honey is bought and sold. If it is bought by the *can* the seller may put in less than 60 lbs. to the can. It is our rule in selling honey to put in full 60 lbs. in each can.—ED.]

Our Homes

By A. I. Root

Surely goodness and mercy shall follow me all the days of my life, and I will dwell in the house of the Lord for ever.—PSALM 23:6.

To-day, Dec. 9, is my birthday, and I am really 71 years old; and, may the Lord be praised, I am strong and well, physically, mentally, and (I trust and pray) *spiritually* also.

In a little Sunday-school paper called *Forward*, that is distributed at our church to all the classes, old and young, I found the following little gem of thought:

Only things to eat and drink and wear are high in price. Happiness is at the same old figure.

I read it over and laughed, and read it over again, and thanked God that it *is* indeed true. We may, if we will, or if we choose, all of us, have "happiness" at the "same old figure." My life has, as a rule, been a happy one. I was happy in childhood, and I am happy (may God be praised again) in my old age. One especial thing that has made my life a happy one is that I was always keenly interested in exploring the wonders of God's creation. Even in early childhood I was full of curiosity in regard to every thing about me; and when father or mother could answer my eager questioning no further, I set about making the plants and animals tell what *they* knew. In other words, I put them on the witness-stand, as we are told Prof. Holden put corn "on the witness-stand," and made corn answer his questions. Bees were my first great hobby, and for many long years I questioned them indefatigably, both day and night. Of course, the explorer in nature's domains meets with many disappointments, and, as a rule, follows many false scents, ofttimes, before he gets on the true trail; but, oh the joy and thrill that one feels when he gets at the truth and reaps his reward!

To illustrate the above, and to tell you at the same time how I am enjoying my "old-age vacation," as I sometimes term it, I will tell you something about what I am now engaged in.

I have told you before about my arrangement for watering my seven yards of chickens, with dropping water, in an overflowing dish in each yard; well, the plan I have been using requires quite a little pumping every morning, and it was, therefore, quite desirable to have a running stream; so we sank a well on the highest part of our premises, and found plenty of water down about four feet. As our ground slopes strongly, in only a few rods this water would be on top of the ground; so we got some cheap second-hand pipe and undertook to siphon the water out of the well; but although the long arm of the siphon was several inches lower than the water in the well, it didn't work. The reason was, a much stronger fall is needed to pull water out of a well, under such circumstances; and the friction in passing through a long iron pipe of small diameter (more or less rusty inside, besides) was more than I had calculated. We spent considerable time on it before we reluctantly gave it up, and now I must confess to a piece of stupidity on my part that I am ashamed of; but as it well illustrates my point, I will tell you about it.

During these very experiments mentioned, we were having trouble with water coming up through the cement floor of our incubator cellar. My brother had suggested digging a ditch in which to place the pipe from the well to the poultry-yards; but this would be quite an expense, besides littering up the premises; and we should also have to cut through quite a few clumps of palmetto. In trying to drain the cellar I first put in a two-inch cement tile; but the palmetto roots or something else soon rotted the tiles. Perhaps they were made of cement not "rich" enough; at any rate, they soon failed. I then dug them all up and put in four-inch sewer-pipe; but after the heavy rains of last summer, even this sewer-pipe became filled up more or less with the soft white quicksand that runs almost like water in this region. The consequence was, that when I got here the first of November there was several inches of water in the cellar; and the "legs" (and especially the "ankles") of my Cyphers incubator indicated the water had been almost a foot deep and had stood there for some time.

By the way, when I commenced making a cellar here in Florida I was told by several that you couldn't *have* cellars here; and I was just beginning to find out at least *one* reason why. Now, a damp or wet cement floor for an incubator cellar is just what is wanted; but, of course, we do not want water a foot deep. After pondering over the matter I declared I would put in an iron pipe, so fixed that sand could *not* get into it. And this is the way I did it: We cut out a small circle in the floor of the cellar, and with a post-auger made a small well about three feet deep. The iron pipe was then turned to go down into this well, nearly to the bottom. This pipe was then laid under the floor (and, of course, under water), and then pushed down through the filled-up sewer-pipe, so we had no digging whatever to do. Thus you see we had a "living spring" of pure soft water, and had the cellar drained nicely, and about then it occurred to me that if this pipe was connected with my "water works," we had not only killed two birds with one stone, but three, and the last one a "whopper." We not only have running water in all our yards, but have an overflowing tub full for four Indian Runner ducks that we brought from Ohio.

There are several lessons to be learned from the above: First, that we can not well appreciate something of value to us until we have labored and experienced disappoint-

ment in getting it. Secondly, the things that annoy us most, and seem at times almost insurmountable, may finally turn out to be one of our greatest blessings.

Once more: When we first started "our cottage in the woods" Mr. Rood suggested that, on account of a chance fire, it would be an excellent idea to clear a path or lane clear round our premises, and so we have had Wesley, whenever he had spare time, clear up a lane ten feet wide, and we have lately had this lane fenced off and planted with oats and other crops for the chickens. You see this arrangement makes it very convenient to throw the droppings from any poultry-house right over the fence into the lane; and whenever it is desirable to admit the fowls from any yard into this lane it is easily done by raising the fence a little. A hen with chickens can be given much or little room in this lane by putting in a cross-fence. At present we are growing some of the upland rice I have spoken of at one end of the lane down by the creek, where the ground has always been pretty damp and wet for any thing else. Our chufas that I have spoken of have also been grown in this lane, and we also grow carrots, collards, and any thing else we find the chickens are fond of. We sow oats broadcast, a little patch every few days, and in this way we always have oats of the right size to pull up by the roots for the chickens. Now the planning for all this work gives me exercise for the mind; and taking hold of the tools occasionally gives me exercise for the body. Last Wednesday evening at the close of the prayer-meeting our pastor made a remark something like this: He said the church of God needed not only consecration and sanctification, but it needed also "perspiration." Well, I am strongly impressed with the idea that this thing we call *happiness* can not be found, at least in its highest and purest attainment, without this same "perspiration," and, I might almost add, with both mind and body.

Our new automobile has not arrived yet, although it was shipped from Chicago almost two months ago, and, as a consequence, we have been obliged to have more or less repairs on the old one; and after having tried one after another of the three repair-shops here, Wesley and I have been obliged, on account of the expense, to do most of our own repairing. Well, you would not at first glance conclude that crawling under a car, getting your hands and possibly your clothing covered with black grease, was particularly *conducive* to happiness; but I want to tell you, you are mistaken. Some of my happiest moments have come when, after perplexing and fatiguing toil, we have succeeded in correcting something the expensive experts up town failed to master. In like manner I find happiness in surmounting *other* difficulties. Because of a door that shut imperfectly, a possum got in to a sitting hen and ate every egg except one, when almost ready to hatch. Well, I fixed the door; then, after two attempts, caught the possum in a steel trap; and my next sitting hen gave us 14 smart chicks from 14 fertile eggs, and the whole 14 are now two weeks old, and as smart as crickets.

There are many inquiries about the Buttercups. Well, although they (the three hens) did some tall laying last spring and summer, after moulting they were very slow in getting started to laying again, and only one was laying the first of December, and she lays only every other day. She lays a very long white egg, extra large; in fact, it is unlike any egg you ever saw, for it is more like a rolling-pin than like an ordinary egg. If she will only keep it up the year round I may have some faith in Buttercups after all. When I first came back, the Buttercup roosters had grown so much and improved so much, even after they were a year old, that I said the first evening that the best one was worth $5.00. The next day the beauty of his plumage, his kingly carriage, with his royal streamers and gaudy coloring, impressed me so much that I raised the price to $10.00; but when I kept on adding $5.00 each day to his value until I got up to *$25.00*, Mrs. Root called a halt, reminding me that I knew nothing at all about "scoring" fancy birds. Well, he *is* about the handsomest bird I ever saw, any way.

And this reminds me that quite a few have written, asking if I would sell some Buttercups or eggs. Now, good friends, I hope none of you will feel hurt if I tell you I could not, with a clear conscience, sell any thing that I have mentioned here in these Home papers. God has, in his infinite mercy, placed me here to give you all unbiased facts about Florida, Buttercup chickens, and a host of other things. What would you think of me were I to use this great privilege to boom something I had for sale? What would you think of a minister who would mention in his sermon the things he had for sale during the week? It is true the editor of a family journal does not occupy *exactly* the sacred position of the minister; but I think he *ought* to realize that he should feel pretty near that responsibility resting on him. Think of the number of men who have been placed by the people in important places, solely to protect their interests, but who have used their great privilege and opportunity to steal from the people and our nation. May God forbid that this thing should go on any longer. If I should use these pages accorded me for years by those who pay for this journal to boom the stuff The A. I. Root Co. have for sale, do you think I could feel happy in repeating over and over the precious text I started out with — "Surely goodness and mercy shall follow me all the days of my life, and I will dwell in the house of the Lord for ever"?

From one colony, spring count, I increased to five by natural swarming, and secured 120 lbs. of comb honey. Two swarms absconded, so the increase would have been seven if I had succeeded in keeping them all.

Homet's Ferry, Pa., Dec. 12. EMMA V. BILES.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. Root, Assistant Editor
A. I. Root, Editor Home Department
E. R. Root, Editor
A. L. Boyden, Advertising Manager
J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX JANUARY 15, 1911 NO. 2

Editorial

"Our Homes" came in from Florida too late for insertion in this issue, hence will be held over until the Feb. 1st issue.

STATE BEE-KEEPERS' CONVENTIONS IN OHIO AND INDIANA.

Ohio bee-keepers are reminded of the fact that the Ohio State Bee-keepers' Association will hold its convention in Cincinnati, at the Grand Hotel, Halls 1 and 2, Feb. 16 and 17. There will also be an important State Convention of the Indiana bee-keepers in the State-house at Indianapolis on Feb. 2. A good program is being arranged for both conventions. State Entomologist Shaw, also foul-brood inspector, will be present at the Cincinnati meeting to deliver an address. In the same way, State Entomologist Douglass, and also foul-brood inspector Demuth, of Indiana, will deliver addresses at the Indianapolis meeting. The bee-keepers of both states should get out to these two conventions, as there will be important matters up for discussion. The editor of Gleanings expects to be present at both meetings, and assist in the discussions.

THE HONEY-COOKING RECIPES.

On page 777 of the Dec. 15th issue we asked all those who knew of good recipes, in which honey was one of the ingredients, to send such to us, and in exchange for any that we could use we agreed to send Gleanings one year free, or a copy of "How to Keep Bees," by Anna B. Comstock, the "Townsend Bee-book," "Alexander's Writings on Practical Bee Culture," or "How to Keep Well and Live Long," by T. B. Terry. A large number of recipes have come in, in response to this offer, for which we will issue the proper credits just as soon as we can go over the list and find out what we can use. Meanwhile, any others among our readers, who intend to send recipes will please get them to us as soon as possible.

So far we have been considerably surprised to see how widely honey is used for making almost every thing, from shoe polish and cough syrup to bread and cake.

NATIONAL BEE-KEEPERS' ASSOCIATION ANNUAL REPORT.

The 1910 Annual Report from General Manager N. E. France is just out, and, after looking it over quite carefully, we find that in many respects it is ahead of any other. There are quite a number of very interesting illustrations, and the whole subject matter of the report bears the stamp of practicality. As usual, a full list of the members of the Association is given, which list, by the way, is larger than ever before, and shows the Association to be in first-class condition.

The new secretary, Mr. E. B. Tyrrell, has sent out, with the report, a request for names of bee-keepers to whom he might write with the idea of interesting them in the Association and thus materially increasing the list. By the way, we happen to know that Mr. Tyrrell is well qualified for his new position, as he has practically spent his life in work similar to this; and we bespeak for the National Association a period of greater growth and prosperity than it has ever enjoyed.

CANDIED COMB HONEY; WHAT SHALL WE DO WITH IT?

At this time of the year, dealers and jobbers should look over their comb honey very carefully. If they detect initial signs of candying they should move it off at once. If the room is not raised to a temperature of about 80 degrees Fahr., they should take steps at once to have a uniform warm temperature provided night and day. When honey once *starts* to candy the process goes on very rapidly. With a uniform temperature of about 80 degrees the candying is delayed materially.

We once thought we could stop it by putting the temperature up to 95 or 100, but we found from experience that such a high temperature has a tendency to make the combs sag and leak. We do not now advocate a higher temperature than 80 to 85.

Dealers should make sure that it does not jump from 90 down to 32. There is nothing in the world that will make honey candy any quicker than a *variable* temperature.

ILLUSTRATED MATERIAL ON HAND FOR PUBLICATION.

Never before in the history of Gleanings have we had so large an amount of illustrated material on hand. We have spared no expense in procuring the very

finest engravings possible from some of our largest and most extensive producers, illustrating each step in important methods of management, many of which we ourselves have not fully understood up to this time. It is astonishing how these "moving pictures" aid in making the meaning clear. Then, once seen, they are never forgotten, and the method in question is permanently fixed in the mind.

In spite of the fact that we have so much on hand, we are just as anxious as ever to get good instructive photographs, illustrating various interesting points in connection with bee-keeping. Mere pictures of apiaries we do not ordinarily care for, unless they illustrate some special feature.

HOW THE MOVING PICTURES ARE SECURED.

In some instances the editor himself has visited the yards of the contributors, taken the necessary pictures, step by step, to illustrate a prospective series of articles contracted for. In other cases the contributor has used his own camera. However, besides our complete and up-to-date outfit which we use ourselves, we have four or five compact folding cameras that we send out to special contributors together with the necessary instructions, so that they "press the button and we do the rest." Parties who have had no experience at all have taken some very good pictures in this way.

CAPPING-MELTERS AS VIEWED BY OUR EXTENSIVE PRODUCERS.

WE can not help noticing that some of our large bee-keepers who have tried capping-melters under quite favorable circumstances have had more or less complaint to make in regard to them. As our readers know, there are quite a number of different shapes and sizes of melters that have been used; and one opinion that has been expressed quite frequently is that a capping-melter means considerable apparatus that needs constant attention at a time when all hands are the busiest. Some have come out quite frankly with the statement that they would prefer to lose a little honey rather than have so much heat and fuss around in the way. Others have decided that it is better to allow the cappings to drain and accumulate until a time when work is not so rushing and labor is less expensive, then render up the whole lot at one time and have it done with.

There has been also more or less complaint of the quality of the honey being injured by being heated in close contact with the wax, propolis, etc. The latest producer to express a sentiment of this kind is W. A. Chrysler, who, in a paper read at the Ontario Bee-keepers' Association convention, and published in the December issue of the *Canadian Bee Journal*, had the following to say on the subject:

We have capping-melters that are used to separate honey from the cappings while the uncapping of the combs is in progress. The cappings, when first removed (not having time to drain), contain large quantities of honey. I maintain that, although the honey may be just as palatable, it is changed in flavor and color to a certain extent, although it be not overheated. All honey, when melted with cappings or comb, will take on the flavor and the color that wax, smoker smoke, and probably other minor substances, such as travel-stain, etc., will give it. Overheating has been suggested many times as being the cause of darkening the honey and affecting its flavor. From my experience I am thoroughly satisfied that the honey will be darkened in color and changed in flavor, even if not overheated.

Unless cappings can be in some way pressed cold, we may always expect capping honey necessarily to be kept separate from our other honey, and sold on its merits.

I find that cappings, after having been drained of all honey that will drain from them, still contain a large percentage of honey, the value of which will repay an effort to secure it in a palatable and salable condition.

While taking off honey, it is advisable, however, to avoid smoking the bees more than is necessary, as smoker smoke, when used to excess, will affect the flavor and the color, especially the cappings or honey exposed on the surface of the combs.

In my honey-house I have an uncapping-tank about 6 feet long, about 18 inches wide, and about the same depth, made of ⅝-inch lumber, and lined on the inside with tin, in which I have four wire-cloth baskets, about 17 inches square and about 12 inches deep, which have lugs to hang them suspended in this tank, and handles for removing when ready to melt up. I can uncap in any place that is most convenient along the aforesaid tank; and when the wire-cloth basket is full I can slide it along out of the way to drain, and replace with an empty one.

The cappings, when sufficiently drained, are melted over steam-coils, or in a vessel placed in hot water, with an opening to allow the wax to separate from the honey. The chief difficulty I have found is to separate the wax and the impurities from the honey successfully, and with the desired amount of labor. I have, while attending this convention, seen displayed here, by the Provincial Apiarist, Mr. Pettit, an apparatus that I feel certain will obviate and remove the above difficulties, and may also be used in connection with the wax-press when rendering wax from all combs.

Some of these objections may be overcome; but time only will tell whether the capping-melter is a piece of apparatus that will come into general use. We know that there is a large number of capping-melters of various constructions in use, and we invite comment on the question, cut where it may. Let those who know speak from their experience so that others may profit thereby.

IMPORTANCE OF ACCURATE AND HONEST GRADING OF COMB HONEY.

MORE and more the evidence is coming in, showing that too many bee-keepers either do not grade their comb honey at all, or else do it so slovenly and carelessly that the consignee is simply disgusted when he comes to open up the cases and finds No. 2, No. 1, and Fancy all mixed together indiscriminately. One dealer said that he could excuse careless grading, providing that the front of the case was not faced up with "fancy." Said a jobber, "When I send out a case of fancy comb honey and suppose that the case is in keeping with the facing on the outside I get 'particular fits' from the grocer, and I deserve it, too. Now," he said, "Mr. Root, you can not blame me very much when I turn around and give the producer 'fits.' When that producer turns around and sends my letter

to the Root company and wants me 'shown up,' it makes me mad all over, and I have about come to the conclusion that I will never handle another pound of comb honey so long as I live."

This is only a sample of some of the interviews that we have had with some of the buyers of comb honey. No wonder some of our dealers are saying they won't handle any more, especially when so much good comb honey carefully graded is broken down in shipment.

There is no question but that there must be a radical reform in the marketing of comb honey. In the first place, better shipping-cases must be used, and the comb honey must be packed on corrugated paper. When small shipments are sent out, the cases should be crated in carriers, in the bottom of which are heavy cushions of straw. In the second place, producers must learn the importance of careful grading, not to say honest grading, for it is not honest to face a case with fancy combs when all the rest of it is No. 2, No. 1, and fancy, indiscriminately mixed up.

Another practice that can not be too strongly condemned is mixing *old* comb honey with *new*. A few months ago we inspected one shipment where it is evident that this year's crop was mixed up with last year's. The latter was largely candied, and otherwise gave the appearance of being old. Unless the whole lot is regraded, putting this year's crop by itself, and last year's crop by itself, the entire shipment will go at the price of the poor honey. The average dealer has no facilities for regrading, and therefore he will lump off the whole lot, if it is on consignment, at any old price to get it off his hands.

The seeming indifference on the part of some small producers (and a few large ones) in packing their comb honey for shipment in such haphazard ways as have been described, will, sooner or later, drive railroad companies to refuse to handle comb honey. It has already driven from the field hundreds and possibly thousands of good customers who would buy comb honey largely to sell again.

We propose to hammer at this proposition until reform is well under way. Such slovenly, careless methods of packing should give way to more scientific ways of putting up a product so fragile as comb honey, and we invite bee-keepers' associations, bee-journals, and all bee-keepers everywhere, to join with us in the crusade.

A BEESWAX EXPLOSION.

YESTERDAY, if we had been told that beeswax would explode we would not have believed it; but, nevertheless, one of our men is to-day suffering from severe burns about the face and hands as the result of beeswax apparently exploding that was being heated during the progress of an experiment. The details of the incident are as follows: About a pound and a half of wax was being heated in a deep wash-dish over an ordinary stove. The dish had a rounding bottom, was about a foot in diameter at the top, and perhaps six inches deep. The melted wax occupied not more than 1½ inches space at the bottom of the dish. When fine bubbles of wax commenced coming to the top, showing that the boiling-point had nearly been reached, about half a pint of water from a tea-kettle was poured in, the idea being to cool the wax and prevent it from boiling. Without any warning, however, there was a sudden explosion, all the hot water and wax being thrown violently into the face of the one who was performing the experiment; and, as the wax had to be scraped off with a knife, it caused some quite severe burns before it cooled.

Now, did this wax, like nitro-glycerin or gunpowder, simply explode of its own accord? There was no exposed flame or fire at any time, and, fortunately, nothing caught fire afterward. Our explanation of the trouble is as follows: Wax boils at a much higher temperature than water; hence, although the wax in the dish on the stove had not quite reached the boiling-point, its temperature must have been considerably above the boiling-point of water. When the hot water from the tea-kettle was poured in, its tendency was to go to the bottom of the dish because the wax is lighter; but the high temperature immediately volatilized the water; and as the steam had no exit except through the wax, it fairly lifted the whole contents of the dish into the air.

If wax is being heated over boiling water, there is no such danger if our explanation is the correct one, for the wax could get no hotter than the boiling water underneath; hence it hardly seems correct to say that wax may be boiled over water. It is true that the water underneath boils; but the wax above does not reach its own boiling-point, although the steam from below, rising through the wax, agitates it and gives it the appearance of boiling.

All this only goes to show that it is much safer, when melting wax, to put water in the bottom of the vessel before the wax is thrown in. The wax will then not reach its own boiling-point. In the experiment described above, the wax was already above the temperature of boiling water before the water was introduced. Very serious results would surely follow if a large quantity of wax were brought nearly to its boiling-point, being heated in a dry vessel, and then water introduced. If a large quantity of cold water were put in there might not be bad results, as it would have a tendency to cool the wax, although the first of the water put in might make trouble before the larger volume had cooled down the body of the wax. If we are not sound in our reasoning, we shall be glad to be corrected.

Fires from burning wax are very hard to extinguish; and the greatest precautions should be taken, not only to prevent wax from boiling over, but to prevent such occurrences as this.

Stray Straws

By DR. C. C. MILLER, Marengo, Ill.

ITALIANS are far less inclined to "resort to the fluids excreted by aphides, to damaged fruits, etc.," p. 12. That's new. I wish the proof had been given.

FIGURES as to nectar-loads, page 780, are, after all, not very conflicting. Professor Koons' data give 20,000 bees to carry one pound of nectar. That would be .350 of a grain to a load against Mr. Digges' .333.

DUMMIES for eight-frame Dovetailed hives are, I think, usually made the same length as brood-frames, 17⅝. For years I have used them ½-inch shorter; and if I were making new ones they would be an inch shorter. Bees never build in the space left, and they are more easily handled. Manufacturers, please take notice. [We are not sure but you may be right. We shall be glad to hear from others.—ED.]

A HIGH PRICE is set on propolis, p. 772—namely, $5.00. I'd like to sell five or ten pounds of it at that price each year I have a crop of honey. [You say you would be glad to furnish propolis at $5.00 a pound when you have a crop of honey. When you have not a crop, perhaps you could not furnish it in quantity at any price; therefore $5.00, taking seasons as they go, probably would not be much out of the way.—ED.]

F. H. CYRENIUS, p. 802, it doesn't follow that you would make a big gain by feeding between fruit-bloom and clover because J. A. Green did. That 1000 lbs. of sugar—perhaps 3 lbs. to the colony—wouldn't cut very much figure in filling up; but it would cut a big figure in keeping up brood-rearing; for in Colorado there is a dead break in brood-rearing, while with you it is probably the same as here — the queen doesn't stop laying.

"I CAN NOT SEE why anybody should think that he can buy better queens than he can rear at home," page 766. The man with average bees can always buy better queens than he can rear, simply because some one else has better bees than he has. If he buys a queen of better stock than he already possesses, even should that queen after her journey prove a poor layer, he can from her rear queens that will beat his old stock.

"WE HAVE an idea that, to eliminate completely the swarming desire, is to breed a race of bees that is lacking in fecundity."—*Canadian B. J.*, 358. I don't know about that. The thing I do know is that the colonies that give me record crops are the very ones from which the swarming desire is completely eliminated for one or more years. They seem to have at least enough fecundity left to get more honey than anybody else.

BANATS "more nearly resemble the black bees in appearance, and it would be difficult to keep the blacks and Banats separate." That would hardly count against the Banats in places where the black blood is nearly all worked out. I suppose there are thousands of bee-keepers to-day who have never seen pure blacks, although some of us never saw any other for years.

HOW LONG does it take a bee to load up with pollen? In six to eight seconds it cleans up a single erica blossom, and in five to six minutes the beginning of the pellets can be seen; eighteen to twenty minutes later they are finished; and four to five minutes later the bee is back to its hive ¼ mile away.—*Deutsche Imker*, 336. Can it be that it fools away four or five minutes getting over that quarter of a mile? [What kind of a mile is meant, doctor?—ED.]

DISAGREEMENT still continues as to absorbents and sealed covers. I wonder, now, whether, in places where absorbents do better, sealed covers would not do just as well if the absorbents were put *on top* of the sealed covers. At any rate, it seems very important to have the top warm, sealed or not sealed, so that moisture will not be condensed and drop down on the bees. [When sealed covers are used for outdoor wintering there should *always* be some warm packing placed on top. The great thing in favor of sealed covers is that they keep the packing material dry because the moisture can not escape through the top.—ED.]

ALLEN LATHAM has the secret of keeping section honey. I have some of his get-up of 1907, '8, '9, and '10, and there's no more sign of graining in the first than in the last. All of it is thick, stringy, with never a grain. Now, how does he do it? [This is very important. If Mr. Latham, or any one else, has a plan of keeping comb honey liquid, it would be worth much to dealers who have to hold over a crop after the holidays, In this connection it is proper to remark that some honeys will remain liquid very much longer than others. We wonder whether our friend has any plan that would keep *alfalfa* honey from candying for any great length of time.—ED.]

"SOLID CARDS of honey" break up the cluster, so that the bees, instead of being in a solid cluster separated only by midribs, are separated into slabs of bees ⅜ inch thick, p. 19. That's true, with an "if"—*if* there is not room for them to cluster below bottom-bars. In my cellar the colonies that look "goodest" to me are the ones with a big cluster below bottom-bars, not separated even by a midrib. [We had in mind, particularly, colonies in *outdoor* wintered hives. It is not so necessary to have a winter nest for *indoor* colonies; but when they are outdoors it would be simply impossible for the cluster to be so strong that it would reach away down below the bottom-bars. If the entrance was of the usual size, the bees would hug up against the top of the hive.—ED.]

CARBOLIC solution. Little is heard about it nowadays, so it may be prettier in theory than in practice, quoth ye editor, page 26. Possibly less is said about it now because it has become a settled thing. Cowan's Guide Book, p. 98, says it is frequently used, and gives instructions for using. Digges' Practical Bee Guide says, "By some the carbolic cloth is preferred to the smoker. In certain operations it is somewhat easier to work with than is the smoker," p. 67. To subdue bees, lay over them a cloth moistened with a solution. Cowan says 1 oz. of Calvert's No. 5 carbolic acid to 2 oz. of water. Digges says 1 to 10. I've heard of its tainting the honey.

ONCE I HAD two nuclei in the same hive. One of them, becoming queenless, united with the other. I suppose it united without flying out, merely crawling the short distance from one entrance to the other. At any rate I found one side of the hive deserted, and part of the field bees regularly entering its entrance, and then solemnly marching out again, and walking across to the other entrance. This they kept up for days, I suppose as long as the original field bees lived. I leave Ralph P. Fisher to reconcile their actions with his experience that "bees invariably seek the shortest way home." [At our north yard, where we use 200 twin baby nuclei, we find it a common thing for some of the bees of the queenless side of the nucleus to desert and go over to the side that has a fertile queen.—ED.]

IS THERE a better name than "extracted"? page 3. The fact that much discussion, several years ago, failed to find the better word, it looks as if there were none. "Extracted" is a better word now than it was then, because it has had all these years of reputable use. The editor strikes at the root of the matter. It is not so much what the name is, as what the public knows about the thing itself. My Chicago daily—and likely other dailies—contains a full-page ad. of beer—not beer of this or that make, just beer—its food value, its tonic effect, nourishing, soothing, livening, cleansing, etc. That ad. cost a pile of money, and on the face of it the beer-makers must have got together to pay for it. If it pays them to raise big money to pay for lies about their vile product, why should it not pay bee-keepers to get together to tell the truth about the most delicious and wholesome sweet in existence? In that way the public would learn just what extracted honey is, and the name would matter little. Will they ever do it?

YE EDITOR "silenced for ever" all questions as to beet sugar being inferior for wintering, p. 733. Now comes one of the big feeders, Wesley Foster, who breaks the "for ever" silence by saying, *Ranch and Range*, 34, "The reason for using cane sugar in place of beet sugar is that syrup made from beet sugar turns to crystals much quicker than syrup made from cane sugar; in fact, cane-sugar syrup fed to bees does but rarely granulate." [Beet and cane sugar look exactly alike, and chemically are precisely the same. Very often local dealers will sell what they suppose is cane sugar, when in reality it is beet, and *vice versa*. We have never been able to get granulated sugar from the sugar-refiners which was guaranteed to be either beet or cane. The question of crystals forming from the syrup would depend more on the way the syrup was heated, we should say, than upon the material out of which it was made. Our friend Mr. Foster we consider one of our most reliable correspondents. We simply raise the question as to whether he is misinformed as to the source of the sugar. We have tried ordering a granulated sugar made of sugar *cane;* but so far the sugar trust has not seen fit to give any information, any more than to state that they guaranteed it to be first class, and equal to any granulated sugar sold.—ED.]

"AT WHAT DATE would you advise feeding for stimulating or for increase in the spring?" is the common question of all beginners after they have been reading a little about bees, and have somehow got the idea that bees will not build up as they should without that sort of attention from their owners. The proper answer to that question—an answer given with emphasis—should be "At no date." If bees do not have plenty, yes, abundance, of food, they should be promptly fed (and that feeding is better done the summer or fall previous); then, having abundance, the safe thing is for a beginner to let them alone. It's the safe thing, as well, for the veteran. A sort of exception occurs in places where there is so great a break in the early forage that the queen stops laying. [You are sound, doctor, all the way through, but once in a while a beginner finds his colonies, during mid-winter, with almost dry combs. If he has no combs of sealed stores from other hives or in reserve in his honey-house, the only thing he can do is to give slabs of candy, laid up on top of the frames. We recommend hard rock candy, made only of granulated sugar; there should be no flavoring of any sort. Generally speaking, it should be made by a professional candy-maker who knows how to do the work without *overdoing* it. A slightly burned candy is almost sure to be fatal to the colony before spring. Where one can not secure the rock candy, the ordinary queen-cage candy does very well. One objection to it is the waste, as the granules of the sugar rattle down between the frames, and the first warm day, or fly day, are carried out and deposited at the entrance. We find nothing of this kind when rock candy is used. Again, unless the candy is made of the right stiffness, it softens from the warmth and moisture of the cluster, and sags down between the frames, daubing up the bees. This difficulty can be overcome by putting the candy in wooden butter-dishes. Metal or porcelain dishes should not be used, as they are too cold for the cluster.—ED.]

Siftings

By J. E. CRANE, Middlebury, Vt.

On page 683, Nov. 1, attention is called to the necessity of strong colonies for working a late flow. Good advice, and it is just as good for working an early or mid-summer flow.

After looking at those beautiful pictures on pages 690 and 691, of the field meeting of the Massachusetts Association of Bee-keepers, it makes me regret more than ever that I could not accept their pressing invitation to be present.

I think it will pay to read that article twice by Albion Platz, page 651, Oct. 15, on stimulative feeding. Evidently we can not improve much on Nature's methods; and the closer we study this old teacher the more success we shall have.

Hip! hip! hurrah! Vermont at last has a foul-brood law. Conditions were favorable, and a few of us put our shoulders to the work and it went through. We did not get all we desired, but enough to make it work in our small state, and we hope in the near future to eradicate entirely this scourge of foul brood.

Wesley Foster, page 682, Nov. 1, gives us a glimpse of Colorado winters. It must be a great thing to be able to leave bees out all winter without packing or care. By the way, I have found a most excellent material for packing to insure safe wintering is 1½ inches of live bees packed around a moderate-sized colony.

The editor says, page 711, Nov. 15, he would like to see the question of a settling-tank vs. strainers settled. Well, we have settled it so far as we are concerned. Unless honey is quite warm or thin we find it too great a task to strain it satisfactorily, and now prefer to trust to a settling-tank. [This opinion seems to be growing.—ED.]

I was much interested in the short editorial, page 643, Oct. 15, on the value of bees as fertilizers of cranberry-blossoms. Mr. Martin, Commissioner of Agriculture for Vermont, recently informed me that, while the apple crop of Western Vermont is large, that of Addison Co., where the most bees are kept, is much larger than in the adjoining counties.

A very interesting article is that by D. M. Macdonald, page 617, Oct. 1, on securing heather honey in Great Britain. Some of his methods are especially applicable to this or any country, and we do well to remember them; viz., to get the hive full, crammed with brood in all stages, with an abundance of hatching bees, strong colonies just as the flowers begin to bloom, from which the harvest is expected. But why heather honey sells at so much higher a price than clover honey I fail to see.

Attention is called, page 679, Nov. 1, by the editor to the relative price of comb and extracted honey. I believe that here in the East, in small packages, say from ¼ to one pound in glass, extracted honey sells as high as or higher than comb; but in larger quantities the extracted sells for less. However, when we speak of a pound of comb honey we think of a section, which often does not weigh over 14 ounces after the wood and wax are removed.

Mr. Holtermann's note, page 614, Oct. 1, on percolator feeders, seems to me quite to the point. I never could see the sense of letting our sugar dissolve slowly in cold water when we could melt it in half or a quarter the time with hot water. We have to feed heavily here in Vermont, especially some years. With hot water we are able to melt up two or more barrels of sugar and take it from six to ten miles away and feed the same day, and then repeat again the next day. How long would it take with "percolator feeders"?

A number of articles have recently appeared as to the practicability or possibility of breeding out the swarming impulse. Some think it can be done, while others claim it is impossible. Now, I am not going into the fight, but just going to stand on the fence and "holler" for the under dog. One thing seems to me very clear, however. The swarming instinct or impulse, or whatever you may call it, is a very variable quality in different breeds or races, or even strains of bees of the same race. Furthermore, when any quality, either in plants or animals, over which man has control, is variable, he can either increase or diminish that quality by careful breeding and selection.

Mr. W. E. McFarland tells us, page 655, Oct. 15, of a wise chicken he has, that every afternoon goes around among his hives catching drones. A great deal has been written about improving our bees, and I am of the opinion that, a breed of chickens such as he describes would be a decided acquisition. Try as we do to cut down the drones, we always have quite too many, and a few chickens with drone-eating habits would just fill the bill. Only think! instead of our drones being a complete waste, as now, they would furnish food for our feathered family; and our hens, instead of just furnishing eggs will earn us money at drone-catching. But how about our choice drones? I think we will just set such hives on a barrel, so the chickens wouldn't find them.

Bee-keeping in the Southwest

By Louis Scholl, New Braunfels, Texas

THE REAL PRICE OF BULK COMB HONEY IN TEXAS.

On page 680 Otto Sueltenfuss takes the writer to task as giving to the bee-keeping world an erroneous idea of the prices of bulk comb honey. Had our correspondent taken the pains to investigate the situation as thoroughly as we did through some forty or more letters asking for postal-card replies, he would have found that by far the greatest amount of Texas bulk comb honey sold for 10 cents per pound, and a great part of fhis realized those who sold direct even better than this. We have sold on a 11, 11½, 12, and 12½ cent basis the entire season for bulk comb honey. For extracted honey our price, f. o. b. shipping-point, was 9 cts. per lb. in the two 60-lb. cans, and 9½, 10, and 10½ cts. in the smaller-size pails in case lots.

On page 580 he quotes the average price for extracted as having been 7 cts., and a dull market for this later for three months, crowding it down to 6½ cts. This seems strange to us, since we have scoured the country for extracted honey with which to put up our bulk comb honey, and found nearly everybody sold out; or those who had any, held it at 8 to 9 cts. We ourselves paid 7¾ cts. for dark amber, and 8¼ for light-amber honey in two 60-lb. cans, in several thousand pound lots. A single lot of 33 fifty-gallon barrels, we paid 7 cents per lb. for, the lightest we could get, though still a light amber. In the first place we have seen no "water-white" honey this year, and know of none that sold at so ridiculously a low price as 6 to 6½ cents, as stated. If he got so little for *his* honey it does not necessarily set the price obtained for the great bulk of the Texas honey crop. We have yet to meet a single bee-keeper who is complaining either about the demand or the prices of honey this year; and *many* have obtained more than the ten-cent basis.

ORDER YOUR SUPPLIES EARLY.

This is of more than average importance, for delays in ordering the needed supplies for the next season have resulted in far greater losses than one would suppose without a second thought. The writer has seen instances where the simple delay of a month in the spring meant almost the entire loss of a honey crop to the owner of several hundred colonies of bees, while in other instances a great part of the main crop was lost for the simple reason that the much-needed supplies were either not to be obtained at all or they were delayed "somewhere on the road" and could not be located until it was too late. A little extra care in this direction would prevent many a loss of a crop.

There are other advantages gained by the early ordering of supplies. It is still early enough to do this; but the *proper* time to get the new things should be in the late fall or the early winter months. As soon as the honey crop is out of the way, and there is still some of the money on hand from the proceeds of the apiary, turn it into supplies for the next season. At this time there is a reduction on early orders. These can be shipped out earlier, since there is not the rush of the busy season, and the trouble resulting from delays *en route* will not be felt nearly so much.

But there is a much greater advantage; and that is, if the supplies are received early they can be put together and painted at leisure when there is nothing else of a pressing nature to interfere, as is the case later in the season. Then we are able to give our thoughts and attention to some of the more important things that help so much in making our business a success. This warning is given at this time so that those who have not already ordered will not be caught delaying the matter any longer.

PREVENT FIRES IN THE APIARY.

Fire may do disastrous work in an apiary if proper precautions for its prevention are not taken. One of our river-bottom apiaries, in which the hives are on scaffolds four feet high, is located in a Bermuda-grass pasture. While the stock keep the grass very short in the pasture, it grows very rank and thick in the apiary during the year. This fall the grass caught fire; and, before it was discovered, a lot of supplies and some lumber, part of the fence, and several large trees, were burned. One of the scaffolds, together with six colonies of bees on it, also burned up entirely. Several others that had caught fire were saved. Had this not happened on a Sunday, when there were many plantation negroes near the place, the fire would not, perhaps, have been discovered, and the entire apiary would have been destroyed.

We have always been careful to guard against such disasters; but this work was delayed on account of other matters. It has made a still firmer impression upon us of the importance of cleaning up the apiaries *in the fall* of the year instead of leaving all fallen leaves and other trash and rubbish until spring.

Although we have been careful before, this experience has taught us to do this work a little earlier and more thoroughly than heretofore. It is not very pleasant even to think of finding one or more of the out-apiaries entirely wiped out by fire. Where some of the apiaries are located in pastures or forests it is also wise, as an extra precaution, to plow or otherwise clean a space entirely surrounding the bees. This, together with a clean-kept apiary, not only prevents fire losses but improves the appearance of things materially. It shows intelligence, energy, and thrift on the part of the owner.

Conversations with Doolittle

At Borodino

BOOKS, HIVES, ETC., FOR BEGINNERS.

I read with interest your article for beginners in the November 15th issue. Now please name some of the practical books on bee-keeping; and tell us what size of frame and hive you would use. Would it be advisable to sow sweet clover or other nectar-producing plants for bee pasture?

It would be hard work to pick out any special book on bee-keeping and recommend it above all the rest, as all writers on apiculture have their own individual ideas of what is *practical*. When any one originates something new, that thing is more practical in his hands than in the hands of some one not familiar with it. To illustrate: For over thirty years of my bee-keeping life I used a smoker made of a piece of tin ten inches long, rolled into a tube two inches in diameter, and locked together with a stove-pipe joint, so there was nothing to unsolder from heat from the burning fuel. In one end was nailed a cone-shaped plug having a ¼-inch hole in the center, while the other end was fitted with a removable plug or stopper having a mouthpiece with a hole bored through it, something like the mouthpiece of an ordinary tobacco-pipe. This cylinder was filled with almost any kind of fuel that would produce lots of smoke—a coal of fire or a little punk set on fire from a match dropped in, and the mouthpiece or plug replaced. It was then held between the teeth, and the smoke directed just where it was needed, by a slight breathing through the mouthpiece and a little turning at the desired angle by a pressure of the teeth, or a little motion of the head and neck. This left both hands free, and the directing of the smoke, and the quantity required, became, after a little, almost automatic. When, finally, my teeth began to decay I had to resort to a "bellows smoker"—a thing which the great mass of bee-keepers called "perfection;" but I was so thoroughly disgusted with it that I threw it into the waste-box till I was simply obliged to go back to it on account of having no teeth to hold the old mouth smoker with.

In 1876 I was at Medina, having the old mouth smoker with me. I showed the founder of GLEANINGS, Mr. A. I. Root, how I used this smoker; and as he saw how any amount of smoke, from the least trifle to a large volume, could be directed just where it was needed, and at the instant needed, while both hands were free, he became very enthusiastic in the matter. When I returned home I left the old smoker with him; but I soon received a letter telling me how the "elephant" had filled his eyes with smoke till the tears streamed down his face—how his lungs were filled till he was nearly strangled, and he forgot to turn the thing on the bees, so that he got the worst stinging he had had in a long time. If beginners—yea, and all others—will be patient in trying something new, their trial is not so apt to be in vain.

Now about the books: I think all will bear me out when I say that the book containing the most *up to date* matter on apiculture is the one called "The A B C and X Y Z of Bee Culture." But, while this is a fact my eyes always glisten at the sight of my old 1865 edition of "Quinby's Mysteries of Bee-keeping," for it was at the feet of this Gamaliel that I learned my first lessons in practical apiculture. Of course, this book is now out of print; but "Quinby's New Bee-keeping," by L. C. Root, Father Quinby's son-in-law, is still obtainable, and brought more nearly up to date. Then there is "Langstroth on the Honey-bee," which was and is considered "the *standard*" for the world. And our own Dr. Miller's book telling of his forty years' work with the bees, which has placed him where his name is a household word on the tongue of every lover of our little pets, should be in every bee-keeper's library. And, dear me! there are nearly or quite twice as many more books on bee-keeping that have the "right ring" in them, from which so much can be learned that surely no one interested in bees can go amiss in making a selection.

For 35 years I used and "swore" by the Gallup frame about the same as I did by that old mouth smoker. The Gallup frame was like a Langstroth frame, but it was 10¾ in. square, inside, or 11¼ outside. Mr. Gallup used twelve of these to the hive, while I used only nine, spacing them 1½ inches from center to center. This small brood-chamber caused nearly all the white honey to be stored in the sections; but when I wished a non-swarming plan for working my bees, this one-foot cube for a brood-chamber would not answer. I then took the old beaten path and adopted the regular Langstroth size, using ten frames to the hive; and now, after getting "acquainted" with this regular L. frame and hive I am wondering at the patience the rank and file of the bee-keepers of the past had with my continual claims for the Gallup as best.

Now about sowing for bee pasturage: I very much doubt whether the sowing or planting of any thing which is of no value except for the nectar it may produce can be made to pay on land which will produce fairly good returns for farming purposes. Sweet clover is surely a great honey-plant; and the beauty of this plant is that it will thrive on gravelly, rocky, or sandy soil where almost nothing else will grow at all. I have sown it all about here by the roadside, by gullies, and all waste places, until it is quite a help to the bees. But as an apiary of 100 colonies requires hundreds of acres of pasturage, the clovers, as sown by our farmers, the basswoods growing for lumber, and the buckwheat for its grain, give 99 out of every 100 ounces of nectar which our bees gather; while the hard maple, willows, and fruit-trees give the most of the other ounce not included with the 99.

General Correspondence

SECOND HAND CANS.

Does it Pay to Use Them? Occasional Lots of Cans will do for Use the Second Time; but in the End the Second-hand Business Proves Unsatisfactory.

BY F. B. CAVANAGH.

The only possible object in using second-hand cans is the saving in cost over new ones; therefore if second-hand cans cost us 30 cts. less per case we can obviously sell our honey at ¼ ct. per lb. less when we market. Furthermore, if the cans have contained nice light honey, and have been carelessly drained, there will be close to a pound of honey in each can, which, included in the selling weights, may net us 10 to 15 cts. more per case. All very well so far, and a good-appearing proposition; but now for the facts and figures governing both sides of the case.

In the first place, it is exceedingly hard to get cans which are good enough. The dealer empties his once-used cans after melting the contents by placing the can in hot water. The can looks very good, but in reality it is injured at the time of emptying when he shoves it back into the box to await an order from some bee-keeper. Mr. Beekeeper writes a letter something like this:

HONEY BEND, May 22, 1910.

Honey Bottler Co., Big City, U. S. A.

Gentlemen:—

Have you any good second-hand cans, conforming strictly to the following specifications? New cans used but once for white-clover, alfalfa, or sage honey; bright, and free from rust both inside and out; free from leaks; not battered, and with caps which fit; cases to be in good condition for shipping. You might also quote me on the same cans shipped without cases.

I had decided never to use second-hand cans again, as I had to throw out fully one-fifth of those purchased of a firm last year. However, the 100 cans *you* sent me loose last fall were so good (with the exception of the ones the trainmen used in playing football) also, that your firm is highly recommended to us; hence we contemplate trying once more if prices are right. Yours very truly,

E. Z. BEEMAN.

In due time a cheerful reply comes back:

BIG CITY, U. S. A., May 27, 1910.

Mr. E. Z. Beeman:—Replying to your favor of the 22d, we have for immediate shipment 200 cases of good cans such as you describe, in good solid boxes. For these we ask 30 cts. a case. We also have 100 loose cans at 5 cts. each.

These will be good; cans used but once; and on receiving them, if you find any you can not use, just throw them out and report to us.

Yours truly,

HONEY BOTTLER CO.

The order is sent. Mr. Beeman, being busy at the time the cans arrive, takes a hasty glance at a few cans opened at random, finds them bright and good, is satisfied, and stores them away.

In a couple of weeks comes another letter advising of several hundred more cans in stock. Beeman writes that the first lot looks fine, and if others are as good he says, "Ship us the 100 boxes and 200 loose cans."

The Honey Bottler Co. replies later that they have shipped 100 boxes of cans, 40 cases of which have had maple syrup in them marked ××, and which are good cans, and "we hope you can use them at 20 cts. per case; also 200 loose cans, some of which are not so good, so we include 25 extra ones. Trusting you can use the entire shipment, we beg to remain, etc.

"P. S.—You may throw out any cans which you can not use."

Now, the proper thing to do was to inspect the cans before accepting. However, Mr. Beeman, being busy at out-apiaries, leaves strict advice to the agent and drayman not to delay a minute in getting those cans inside the shop. No bees must get at them; hence the cans are piled inside, and, feeling secure of the company's good faith and the clause to throw out any poor ones, Mr. B. waits for a rainy day to inspect the cans.

It rains at last, so to the shop goes Mr. Beeman and helpers armed with towels, a tank of cold water, tub of hot water on a gasoline-stove, also hammer and nails to renail boxes.

The first 200 cases tested are satisfactory, barring a dozen with nail-holes. Of the remaining 400 cans, over 160 are sour inside, or blackened with an evil-smelling rusty substance, much unlike maple syrup. About 100 remaining cans are tarnished outside, and hardly fit to use; but Mr. Beeman polishes them up and keeps them, hoping to make a little better report. He very kindly writes the Honey Bottler Co., expressing regrets. They, being very much surprised, and somewhat offended, reply thus in substance: "Enclose shipping-bill for 25 cans, which," they add, "ends the matter so far as we are concerned."

Mr. Beeman takes the local bank's cashier down and has him look the lot over. He smells the openings of many cans with appropriate exclamations of disgust. He writes his confirmation of condition of cans, and sends it in the same mail with Mr. Beeman's kind repetition of facts.

The Honey Bottler Co. say they now recollect having sent cans used for maple syrup, and are, therefore, enclosing billing for 75 more loose cans to replace these. The letter closes thus: "The cans we sent you were exactly what you ordered; and if you are not satisfied now, then we certainly shall not do any thing further in this matter."

Mr. Beeman calls attention to the matter of freight, which aggregated over $30.00 (no reply); offers to return cans (no reply); writes a sassy letter, saying he will take such action as the case justifies (no reply). Honey Bottler has the money. Mr. Beeman has the freight-bills and dray-bills to pay, and a shop cluttered with cans which, like whited sepulchers, look good outside, but are very bad inside.

The reader may draw his own conclusions, knowing that this firm is rated and well recommended.

My experience in past years has never been quite satisfactory. There were always cans without caps, and cans with holes in them. Frequently cases bought as used but once the past season would have old dates stamped by the railroad company, showing conclusively that, in reality, they were two years old instead of one.

The deterioration of honey-cans occurs in ways unlooked for. To begin with, the acid contained in honey acts on the tin. Honey spilled in the melting-tank forms a sweetened solution which tarnishes and eventually injures the tinning of the can. If wiped dry the can will remain bright, but this is seldom done. The bee-keeper then fills it with honey; the varying temperature causes a collection of moisture, which frequently rusts the can badly before it is shipped. Can-manufacturers do not tin their cans heavily enough to withstand more than a single season's use.

Then we have inside deterioration of cans, which some dealers in cans refuse to acknowledge. Cans containing thin syrup or honey with caps loosely attached will "breathe air," inhaling during falling and exhaling during rising temperatures. Thus in time oxidation of the tin occurs inside as well as out. If the caps are air-tight the cans will swell and shrink from expansion or contraction of air, causing an audible snapping, which in time cracks little cross-shaped leaks in the can.

In conclusion I would say go slow. It doesn't pay to buy second-hand cans as a rule. Good second-hand cans quickly marketed may be all right. Cheaper cans may serve in certain cases in selling to a wholesale manufacturer where price is a prominent feature. To ship hard-looking cans to a mixed trade will certainly cause the loss of customers, no matter how fine the honey inside.

We all desire a deserved reputation for a neat, cleanly, and securely boxed article as well as one of superior quality. If a "kid" handles the honey-gate and the honey spilled is left on the can-tops, what will it look like when marketed even in new cans?

Fill the cans to weight *yourself;* don't spill a drop on the can. It isn't necessary. Then box them up, and either remove at once to a separate room or cover with a cloth, piling five cases high. Don't let bees crawl over cans and cases if they are to look nice. Lastly, don't be stingy with nails. I have never lost a can of honey in my fifteen years of shipping, and I attribute it largely to care in screwing caps tightly, nailing cases securely, and also to the use of caution-labels.

Enclosing our product in cheap cans is like dressing in shabby clothes. It gives a bad if not a wrong impression. Good containers appeal to the average user to the extent of the difference in price, and are fully as convincing in suggesting the quality within as are statements made by the producer.

Hebron, Ind.

THE PROPER ARRANGEMENT OF BAIT SECTIONS IN A SUPER.

How Baits at the Sides of a Super Tend to Discourage Swarming.

BY C. B. PALMER.

It has been said that a queen will not ordinarily lay in bait sections if such sections consist of worker comb. The bait sections I use are the unfinished ones saved from the previous season. I asked Dr. Miller where to place bait sections when an excluder is not used; and from his usual answer,* I concluded that he used an excluder. When I read the editor's remarks on page 379, June 15, 1909, I went directly to my bee-yard to see if I had placed the baits where they would do the most good. I had put supers on fifteen colonies on Monday, the 14th of June, and on the following Friday I raised the covers and listened with my ear close to the honey-board, and heard the bees waxing and making that snapping sound in ten of the fifteen supers. The other five colonies gave forth a roaring sound below the supers, so I knew that ten had commenced to work. (This is my way of finding out without disturbing the bees.) Therefore, on Saturday, the 20th, I raised the honey-boards to examine those bait sections. For convenience I will refer to the sections by number as in the following chart:

3	2	1
4	5	6
9	8	7
10	11	12
15	14	13
16	17	18
21	20	19
22	23	24
27	26	25

One super had baits in sections 2 and 11, the latter being covered with bees that were drawing out the cells, and the former containing a few bees that were doing nothing. The other nine supers had baits in sections 4 and 6, 22 and 24, and 11. I found that all of these were full of bees. The end sections seemed to have as many bees as any other sections in the super except those with baits, but the most bees were in sections 22, 23, and 24, and in 4, 5, and 6; sections 8, 11, and 14 had no more bees than 4, 5, and 6, if as many. The under side of the honey-board showed more bees clinging to the ends than the middle, and more bees were at the ends of the supers than at the sides. My bees seem to boil over more at the ends of the supers than at the sides, so there must be more bees there ready to come out.

When it came time to put on second supers all around, I found that the ends were

*I don't know.

just as far advanced in the first supers as any other part. In the second supers that are added, the more unfinished sections or baits the better, placed at the ends and sides. The third and fourth supers added are placed above the others, or underneath, depending on the honey-flow; but the location of the baits in the supers is not changed.

We would not think of putting a whole frame of honey in the center of the super, because we would not want such frame to receive brood; so if we use such frames from below for baits we put them at the sides of the super. In the same way we should not risk sections with drawn comb in the center. Then by locating the baits at the ends and sides, more bees are drawn from below, so that the crowded condition of the hive is relieved at just the right time, and swarming more likely prevented. At the time I put on the first super I put one-inch blocks under the hives, so that the bees are checked in their desire to swarm, in two ways.

By the above plan, general excitement is induced all over the super; and when all the sections are being drawn out, and honey found sparkling in all about the same time, there is no uncertainty as to when to put the next super underneath. There is no need of worrying about the middle of the super, for it will develop with the rest,—but no faster. If I can get bees in 4 and 6, and in 22 and 24, I find that the end sections are filled also.

In supers started with the baits in the center, the work must gradually spread to both ends; and as there is no inducement for the bees to build clear to the ends, they commence to cap a few sections in the center and swarm. On the other hand, if they start at both ends, with the baits, the desire to "close the gap" causes more excitement and heat, and the bees seem to forget to swarm, as there is no clustering out, and very few bees on the frames of brood. Supers with baits in the centers alone show a small cluster of bees on the fronts of the hives for days, and the colonies frequently swarm before the ends of the supers are reached.

But the worst objection to the center baits is that the queen will fill the combs, and little grains of pollen will be scattered all over. Then the bee-moth will locate in that super as soon as possible, whether the super is on the hive or in the store. A few years ago I had to take a drayload of supers from the store to the honey-house and fumigate the whole lot simply because the baits had been in the center. The farmers near by do not use excluders.

I use sectional hives, and keep the top section as solid with brood as possible. The baits that I use are, as near as I can get them, like the last two in the upper row of the engraving shown on page 262 of the 1908 edition of the A B C and X Y Z of Bee Culture, and 266 of the 1910 edition. Nearly all of them contain some honey. I have about two hundred of these unfinished sections this season, and wish I had more. I took 1080 4×5 sections from seven old colonies, and have about 1500 sections in all. Two of the colonies gave 189 sections each, which is not bad. I surely must have placed *some* of the baits where they did *some* good.

Last season I tried three colonies with baits placed as follows: In the first super put on I had the baits in the center at 11, 14, and 17. These were all drone comb. In the second super the baits were at 10, 15, 11, 14, 12, and 13, and these were partly drone and partly worker comb. In the third super the baits were at 11, 7, 9, 15, and 13, and these were all worker comb. About twelve sections of these baits contained more or less brood.

Bradshaw, Neb.

HONEY-STRAINERS DONE AWAY WITH.

A Strong Endorsement of the Settling-tank Method of Clarifying Honey.

BY H. F. STRANG.

A discussion of settling-tanks and strainers has been asked for by the editor; and as I have been a user of the settling-tank method for about eight years, it may be that my experience will be interesting.

I have owned bees for about thirty-five years, but never had much to do with extracted-honey production until about eight years ago, when W. Z. Hutchinson began to advocate so strongly the keeping of "more bees." At that time I had been sick for six or seven years; but my health was getting so that I could work a little, and I ran an apiary in Southern Michigan on shares. While the owner was a good comb-honey man, his extracting-outfit was many years behind the times; and I laugh to myself sometimes yet when I think of the difficulties I worked under the first fall. The extractor was old style, and we had to stop it and take the frames out to turn them around; but the fun came in when we strained the honey. We had a barrel to strain into with a framework made to set on top, in which to hang the strainer; and by the time we poured in the third pail of honey the strainer was usually so covered with cappings and specks of wax that the honey would not run through it except by constant stirring with a long-handled spoon. Between putting in about half the time stirring and the other half washing out the strainer, our extracting did not progress very fast.

It has been said that all discoveries are by accident or chance. My discovery of the settling-tank was by the merest accident. My better half used to help me in the extracting; but once in a while I would become so disgusted and use such language that she would leave me to do my own stirring and washing. One afternoon, when she had gone back to the house and left me to my own devices, I drew off into 60-lb. cans nearly all the honey that we had stirred through

the strainer in a whole day's work. Then I picked out the largest strainer we had, and hung it in the barrel and went to extracting again. A lot of honey ran through; but when the strainer clogged, as it did very soon, I kept on pouring in the honey until finally the bottom fell out of it and all the honey not yet strained, with the pieces of comb (cappings and all) went down into the strained honey in the barrel. Then I felt so disgusted that I followed my good wife to the house after pouring in what honey I still had in the extractor, so as to be sure to make a good job of it. I expected that I would have to dip out the whole contents of the barrel the next morning, and warm it up and go through the stirring process again to get it through another strainer.

The next morning, when I was standing and looking at the outfit and dreading the job, the thought came to me that I might skim off the bits of cappings and wax and save having them to bother with; so I used a long-handled skimmer and removed all of the wax and cappings to a pail. Then, noticing how clear the honey looked below, I commenced to draw it off from the bottom of the barrel and pouring it into cans through a large funnel, so there would be no chance for any bits of comb or wax to get the start of me. To my surprise I found that I could draw the honey down to within about three or four inches of the bottom of the barrel before any scum or bits of wax ran through the gate.

I was not sure that the plan would work every time; so when my wife came out to help me I told her what I had done (not mentioning that the bottom had fallen out of the strainer, so that the whole plan was an accident); but when I suggested that we would not bother any more with strainers, but just let the honey strain itself, she said she knew we would have the whole barrelful to dip out and warm and stir through the strainer just as usual. However, I did not believe in crossing bridges before I came to them, so I extracted a barrelful and then went to work at something else. I visited that extracting-room several times during the afternoon, and just before going to bed I skimmed off all the wax I could with the skimmer and poured it into the uncapping-tank. The next morning I found out for sure that I had solved the straining part for good, and the next season the owner of the bees had two galvanized-iron tanks made, each of which would hold all that we could extract in a day. I found that, unless the honey was very cold and thick, it did not need to stand over twelve hours at the most; but in case of very thick cold honey the two tanks might be beneficial, so that there would be room enough to hold two days' extracting, allowing the honey to stand twenty-four hours in each one. In the morning, before I commenced drawing off the honey from the bottom of the settling-tank, I always skimmed off what I could from the top and poured it into the uncapping-tank.

I think it was about two years after this that Mr. Townsend began advocating a gravity strainer; but I think he found it too complicated, as I see he is now using the settling-tank, although having a float. I have tried the float, but can not see what benefit it is.

After having used the settling-tank plan so long, I surely would not go back and bother with strainers. With hot knives and good fat combs, extracting has lost so much of its unpleasantness that I am going to sell my farm next fall, hunt up a good location, and put my whole time and energy into extracted-honey production.

I may say that, after years of trying all shapes and sizes of hives from the Danzenbaker to the twelve-frame Jumbo, I say, "Hurrah for the ten-frame Langstroth for an all-around hive!"

Lakewood, Mich.

QUEEN-EXCLUDERS INDISPENSABLE.

The Opinion of a Twenty-four-hundred-colony Man.

BY CHAS. EDSON.

The general run of honey is improved by using queen-excluders. A party called on me recently who owns two thousand colonies. I always thought him a wideawake bee-man; but I changed my mind when he told me he did not use excluders. I am in hearty sympathy with the opinion expressed by Elias Fox, page 631, Oct. 15, 1909, when he said, "I would about as soon be without bees as without excluders."

In the same article Mr. Fox stated that he did not think nurse bees take honey from field bees. I can not agree with him in this, for, though they may not in a light honey-flow, I believe they surely do when they are robbing.

HOW TO STOP ROBBING.

A most excellent way to stop robbing, when extracting honey, is to fill seven or eight wet combs with water and set them where robbers can help themselves in supers; and, when the water is all gone, fill the combs up again. In a short time the robbers will give no further trouble, because they will all be full of water and the nurse bees will not accept further kindness.

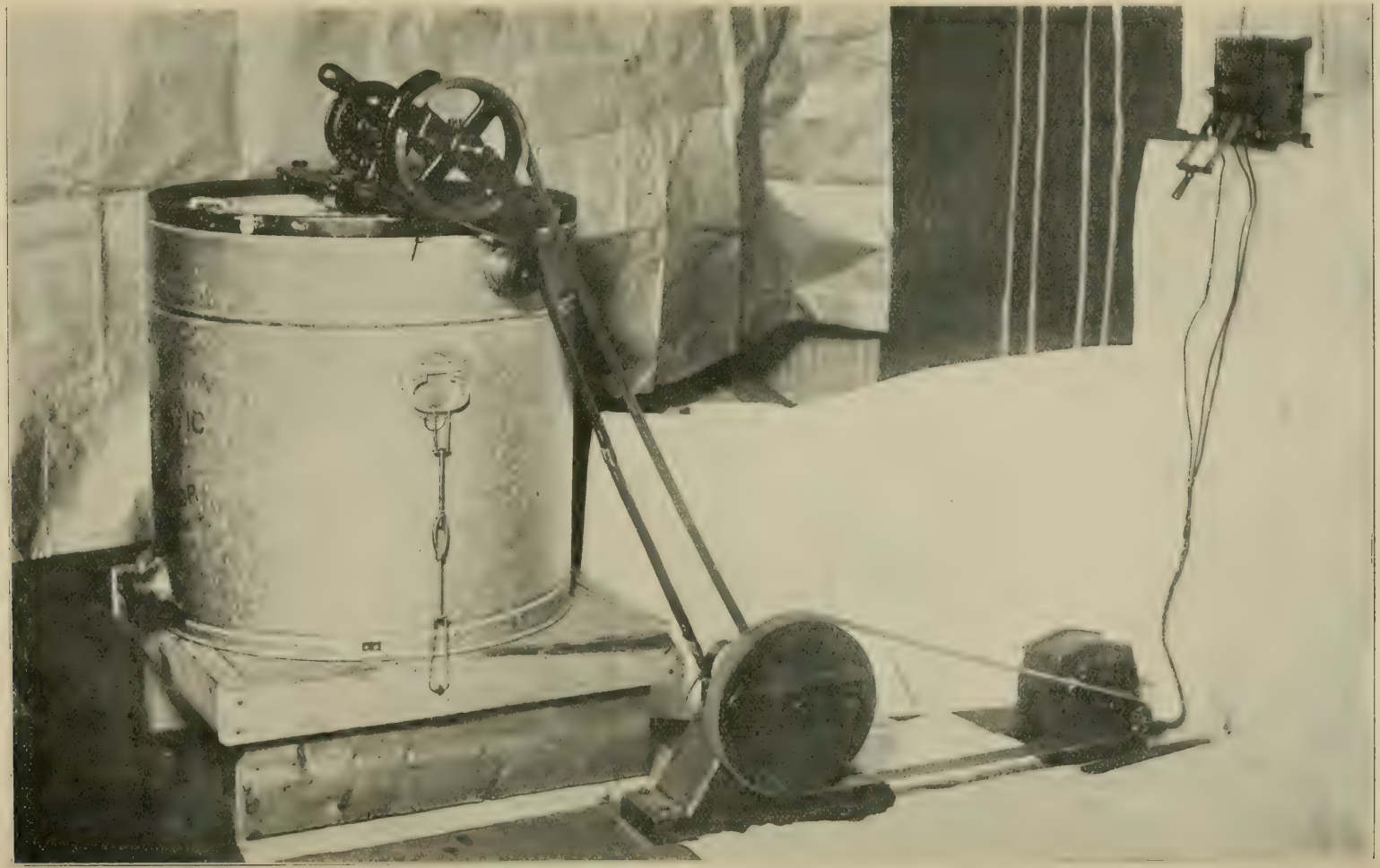
Grafton, Cal.

[Mr. Edson runs about 2400 colonies, so he ought to know whereof he speaks. We should be glad to hear from him further, as we regard him as an expert.—ED.]

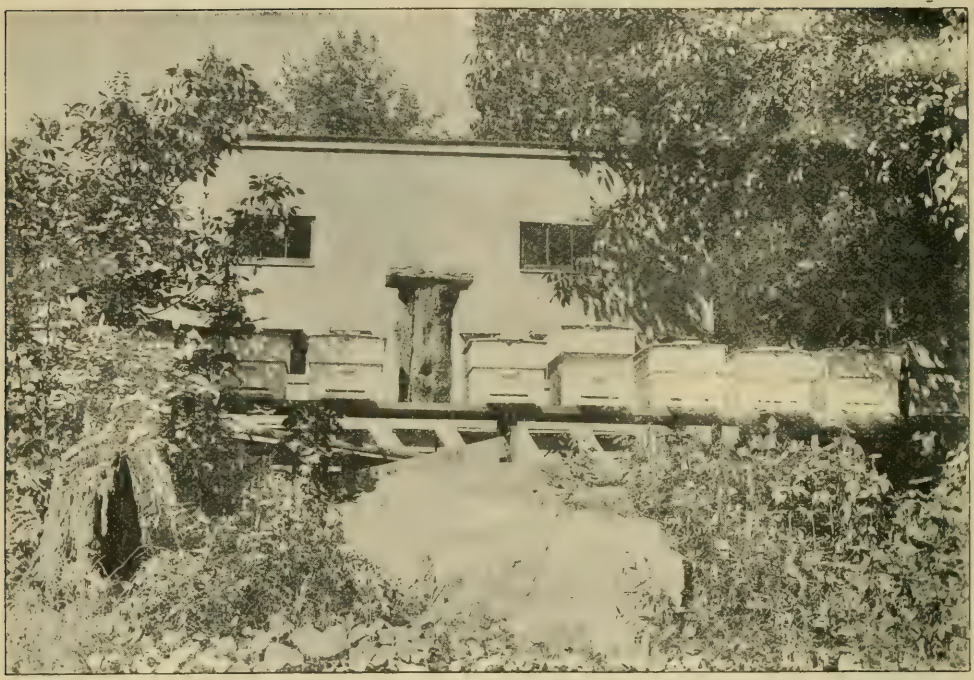
Motherwort a Good Honey-plant.

Motherwort is one of the best honey-plants I have ever seen. It begins blooming here in the mountains early in May, and to-day, Nov. 5, you can still find my bees work ingon it. It grows about 3 feet tall in large clusters. It will grow on any kind of land, but does better on rich sandy soil. Drouth has no effect on it. This plant is known here by many different names. The honey from it is of a light orange color.

Scholten, Mo. OTIS A. GRIFFITH.



ONE HALF HORSE-POWER ELECTRIC MOTOR DRIVING FOUR-FRAME AUTOMATIC EXTRACTOR.



DR. BIGELOW'S APIARIAN LABORATORY AS IT STOOD ORIGINALLY IN STAMFORD, CT.

EXTRACTING HONEY WITH ELECTRICITY FOR POWER.

BY A. D. SHEPARD.

As I have seen nothing in the bee-journals about operating a honey-extractor with an electric motor, I decided to send you a photograph of my automatic four-frame extractor equipped with a ½ H. P. electric motor for power. Instead of using a very large pulley on the extractor shaft, I used a countershaft as shown. The pulley on the motor is 2 inches in diameter, which belts to the 12-inch pulley on the countershaft. The small pulley on the latter is 3 inches, which belts to the 8-inch pulley on the extractor shaft, this reduction being just about right for the speed of the motor.

By this arrangement I still have the use of the idler for regulating the speed of the extractor, which I regard as very satisfactory. After most of the honey is out of the combs and the speed of the reel is a little too high, I loosen the idler a notch, allowing the belt to slip slightly, so that I have what I call a happy medium in speed.

The motor is a second-hand one, which had been in use before only a short time. I paid $40.00 for it, the original selling price being $55.00 or $60.00. The countershaft cost me $4.25, and the extra belting $2.12. Our city engineer estimates that it costs me about 15 cts. for electricity per thousand pounds of honey extracted. The electric-power plant is owned by the city, which perhaps makes some difference in rates. I find that this little motor "beats elbow grease all holler."

River Falls, Wis.

MOVING AN APIARIAN LABORATORY.

BY EDWARD F. BIGELOW.

Readers of GLEANINGS have been made familiar with my apiarian laboratory, which, for a few years, was located on Grove St., in Stamford, Ct.

In the early part of 1909 a resident of Sound Beach suggested that I should move my entire experimental outfit to that place, which is the next station on the main line of the railroad west of Stamford, and about twenty minutes' ride by trolley. Between the old and the new location there is a distance of only about three miles. But while this suggestion connoted many advantages, it revealed some rather appalling obstacles. One was the task of moving. The laboratory was constructed for eighteen interior colonies, with external experimental benches for as many more. At first my friend offered to build a new structure for experiments; but upon more careful consideration we decided to move the entire building and the colonies within it. It was also found advisable to move the pet-house, or, more strictly speaking, the zoological part of the experimental plant. Then arose the problem of method; but, fortunately, a contractor

was found who had a truck large enough to carry either of the buildings.

Barnum's or any other circus would not have attracted more attention with a man in an open cage and a tiger driving the horses in the procession than this larger cage attracted with me inside of it in company with about a dozen colonies of bees. Our professional apiarists, of course, know that this was a simple matter in theory; but it was not found to be so simple in practice. The shaking of the building on a truck without springs was much greater than had been anticipated, although the road was smooth. Two hives, in spite of firm nailing, were literally shaken to pieces, and the insects came swarming out, the most astonished bees that I ever saw. Their amazement was almost ludicrous, and (for them) an entirely new experience. They alighted in clusters on various parts of the apiary; but they were so frightened that they forgot to sting. I scooped them off the sides of the building with my naked hands and put them back into the hives. It seemed almost impossible for them to sting; and it was as impossible to convince and soothe the driver, who sat at the front on the sill of the open door. So far as the horses were concerned, it seems rather risky, as I now think of it, to have about a quarter of a million bees within this rattling, shaking cage; but experience proved that they were absolutely safe, because every bee was too greatly frightened even to protect itself.

The photographs show the process of hauling the buildings out of the yard and loading them on the truck.

The third photograph shows the structure safely located at our experimental plant at Arcadia, Sound Beach, Ct., and the continuation of the work of experimentation, with the writer in the act of transferring the queen and some of her bees from the large hive to the miniature hive named Pearl Agnes in honor of my daughter. These hives have been in steady use during the summer, and have proved very convenient for manipulating small numbers of bees, and for exhibiting them to visitors.

Arcadia, Conn.

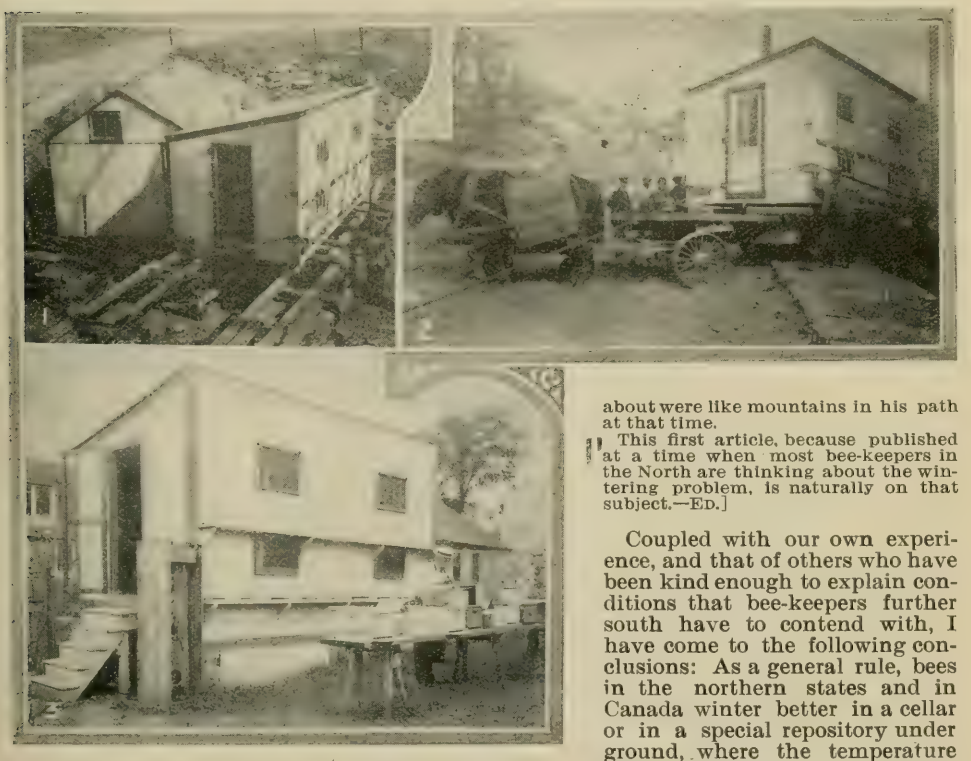
BEE-KEEPING FOR BEGINNERS, ILLUSTRATED.

Cellar Wintering in Northern Michigan.

BY E. D. TOWNSEND.

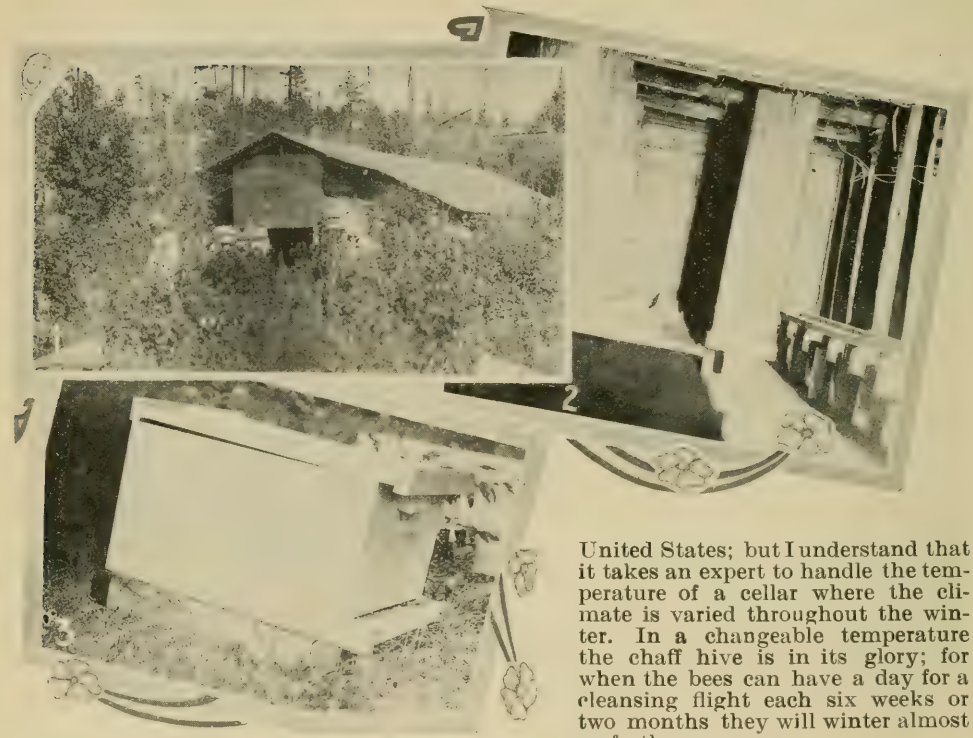
[We have engaged Mr. Townsend to write another series of articles for beginners especially, in which "moving pictures" will illustrate almost every point. Mr. Townsend says that, when he looks backs to the first few years of his experience as a bee-keeper, he can see that most of his dismal failures were on account of ignorance of the common principles. In other words, the little things that now seem to him almost too trivial to write about were like mountains in his path at that time.

This first article, because published at a time when most bee-keepers in the North are thinking about the wintering problem, is naturally on that subject.—ED.]



MOVING THE LABORATORY, BEES AND ALL.

Coupled with our own experience, and that of others who have been kind enough to explain conditions that bee-keepers further south have to contend with, I have come to the following conclusions: As a general rule, bees in the northern states and in Canada winter better in a cellar or in a special repository under ground, where the temperature can be kept near the 45-degree



ONE OF E. D. TOWNSEND'S BEE-CELLARS, OUTSIDE VIEW AND INTERIOR, ALSO HIS METHOD OF VENTILATING A HIVE THAT IS TO BE PLACED IN A CELLAR IN CLAY SOIL.

mark all the time. In the states a little further south, where the bees can have a flight every six weeks or two months during the winter, chaff hives or special packing-boxes containing from four to six inches of chaff at the sides and eight inches at the top are better adapted to the conditions. Still further south, where bees fly each month in the year, no packing is required; but, instead, a good cover that will not leak, and an abundance of stores, is all that is required for successful wintering. In this connection it is of importance to know that, the further south the bees are, the more honey they will consume during the twelve months of the year. In the North the extra surplus is laid up for winter use; while in the South, not only the winter stores have to be retained for the use of the bees, but even more has to be provided for the long summer drouth or the interval known as the "starvation period."

It is to be presumed that fairly good results with chaff-packed hives can be secured in the territory above mentioned for cellar wintering, if conditions are favorable; but, generally speaking, better results will be obtained in this cold region in the cellar or special repository, as stated. It is equally true that fair results in cellar wintering can be secured in the milder portions of the United States; but I understand that it takes an expert to handle the temperature of a cellar where the climate is varied throughout the winter. In a changeable temperature the chaff hive is in its glory; for when the bees can have a day for a cleansing flight each six weeks or two months they will winter almost perfectly.

It is not unusual for bees in this northern location to be confined to their hives from 90 to 120 days without a flight. In order to stand this long confinement, the bees out of doors would have to be in ideal condition, and they would have to have an abundance of good stores, as well as outside protection from the prevailing winds, and more than the usual amount of packing.

The first view in the illustration shows our bee-cellar in Charlevoix Co. This cellar is 14×32 feet, inside measurement, and 7 feet deep. It is wholly under ground except the hatchway, which has double doors, with about 4 ft. between the two doors, this space representing the amount of earth in front of the cellar each side of the hatchway. As the cellar is built in the side of a knoll, all but the front is naturally under ground. In the hatchway, a foot from the inner door, a partition with loose boards is built and filled in with straw during the winter.

Eight feet from the back end of the cellar a ventilator 17 inches square is placed. This is shown in the second view. The lower end of the ventilator is about a foot from the cellar bottom, and it extends up through the covering of the cellar, but not through the roof. This is not used much in the winter; but in the summer it is left wide open to dry out the cellar.

Two rows of benches, to set the hives on, are also shown in view No. 2, which gives an idea of half of the back end of the cellar.

Two more benches are on the opposite side of the row of cedar posts that support the center of the roof.

As stated above, the cellar is all under ground—the cover (22 inches thick) being the least protected place about the building. There is no cement used in the walls, cedar posts being set every three feet, and inch lumber nailed outside. This allows the earth to come close to the bees—a construction which we consider much better than a cement wall. A neighbor built a cellar, the walls of which were of stone laid without mortar. In order to make them stand, the stones were laid sloping slightly out; but experience showed that this was not necessary, as some of the later-laid portions stood just as well, although built very nearly perpendicular. After the wall was finished, almost even with the surface of the earth, logs from the forest were cut and laid across close together. Then the cracks between the logs were closed with small trees and finally straw and earth over the whole thing to a thickness of two feet. A roof and hatchway similar to ours completed the cellar, as good as could be made for the purpose of wintering bees.

A dry sandy knoll is much preferable to a clay soil for a bee-cellar. This reminds me of another neighbor, who lives in a low level country, whose cellar is not only very damp, but in the spring, as the snow thaws off, it is nothing unusual for him to have to wear his rubber boots and wade in several inches of water when he removes the colonies in the spring. This bee-keeper used to lose a good many bees until he discovered that, if he removed the covers entirely, and, instead, used two or three thicknesses of old carpet over the hives, the trouble was overcome.

We rent several cellars for outyards, and so we have experience with different soils and different conditions. It sometimes happens that we can not get cellars to our liking, several of them being in soil that is part clay. For such cellars we loosen the covers on the hives, as shown in view No. 3, until the end cleat rests on the back of the hive. This V-shaped opening at both sides forms about the same ventilation as is secured by replacing the covers with carpets as mentioned above.

Remus, Mich.

BEE-KEEPING IN NEW MEXICO.

Bee-keepers of the Pecos Valley Convene at Roswell.

BY H. C. BARRON.

The illustration shows a part of the members of the Pecos Valley Bee-keepers' Association, at their meeting at Roswell, in October. I am sending a copy of our weekly paper, which contains an account of the convention.

Hagerman, N. M.

[We are glad to see so full a report of a bee-keepers' meeting as was contained in *The Messenger;* for, the more the general public knows about bees and bee-keeping, the better.

Among the most important matters taken up at this meeting was a petition to the General Freight Agent of the Eastern Railway of New Mexico, for a lower rate on honey. Mr. Barron, in his letter, writes that this petition was granted.

As there are, no doubt, other points where similar conditions exist, we are publishing herewith this petition in full:

PETITION.

To the Hon. J. Brinker, General Freight Agent of the Eastern Railway of New Mexico:

At a convention of the Pecos Valley Bee-keepers' Association, held in Roswell, N. M., the fifth day of October, 1910, we respectfully petition you for your aid in securing for us a lower rate on honey from the towns of Roswell, Dexter, Hagerman, Artesia, and Carlsbad in the Valley to Chicago, Ill., and KansasCity, Mo. We have now much more honey than we can sellathome, and we can easily increase our productand desire to do so. We wish in the future to be sure of selling all the honey we can produce, and we feel com-



CONVENTION OF THE PECOS VALLEY BEE-KEEPERS' ASSOCIATION, ROSWELL, NEW MEXICO.

pelled to ask for lower rates to the large honey markets of Chicago and Kansas City.

Among our western honey-producing States, Colorado takes first rank, and we would come in competition with its immense honey product.

We understand that the distance from Denver to Kansas City and Chicago over the Santa Fé railroad is virtually the same distance as those cities are from Roswell.

The carload rate from Denver to Chicago on "comb honey in boxes with glass fronts" is 97 cts., and on "extracted honey in tin cans, boxed," is 75 cents per cwt.

We earnestly desire to obtain the 97-cent rate to Chicago that Denver honey-shippers pay on comb honey in boxes with glass fronts.

We also ask for a 66⅔-cent rate to Chicago on extracted honey, that being $200 per carload of 30,000 pounds, which is about two-thirds of the rate that we have asked you to make on our comb honey, and it is about (and perhaps above) the average proportional rate from other States. For example, the California rate on extracted honey is just one-half as much as its rate on comb honey. This we have just learned from the Santa Fé railroad office in Chicago.

Another reason why we desire a lower rate on extracted honey is, for some unknown reason to us, honey is darker in color here than the Colorado honey, and, though equal in quality, the price is invariably cut down from one to one and a half cents per pound on account of this amber color.

Another package mentioned in the Western Classification on which we should like proportional rates is on "comb honey in boxes," no glass.

We further desire rates to Kansas City that would be about proportional to what we have asked for Chicago.

It would be desirable, frequently, to send both comb and extracted honey in the same car to make up a full carload. This is done elsewhere, and each kind is billed out at its own rate; and we ask that this feature shall be arranged to accommodate us. We have been assured that you have taken a kindly interest in helping out various industries in the Pecos Valley. And now that we are in need of help we come to you for assistance, and shall be ever thankful for such aid as you can give us.

On behalf of the convention.

R. B. SLEASE, President.

HENRY C. BARRON, Secretary.

A committee was appointed to secure the names of large shippers in the valley for the purpose of annexing them to the above petition.

The convention also petitioned the county commissioners to fix the price of colonies of bees for taxation at $1.00 per colony. Mr. Barron writes that this petition will also probably be granted. All this goes to show that the "New Mexicans" are hustlers, and that when they go after a proposition they go after it to win. A pull, a long pull, and a pull all together, counts for bee-keeping as for any thing else.—ED.]

FULL SHEETS VS. STARTERS OF FOUNDATION.

The Melted-wax Plan for Fastening Foundation in Sections.

BY LEO ELLIS GATELY.

Not only is the foundation we use of necessity pure beeswax, but in the process of manufacture it is freed from all dirt and sediment, becoming more refined than the average article. Beeswax itself will not withstand the high temperature from a colony without sagging unless it is entirely freed from this dirt and sediment. In my opinion it is highly important that we emphasize to consumers the fact that no other wax has yet or probably ever will be found which can be used as a substitute for this purpose.

It is impossible to estimate the actual value of foundation in comb-honey production, as so much depends upon the extent to which bees are naturally secreting wax; also on the volume of the honey-flow, etc. The extra amount of surplus usually secured when full sheets are used, over and above that obtainable with small starters, I have found to vary from 5 to 25 per cent. Taking into account the fact that bees are at times involuntarily secreting wax, the foundation still affords a great saving, for this involuntary secretion is rarely more than sufficient for drawing out foundation into comb. The amount of honey consumed in the elaboration of comb is not as important, however, as is the saving of time, which foundation makes possible in providing storage room.



GATELY'S METHOD OF FASTENING FULL SHEETS OF FOUNDATION IN A WIDE FRAME OF FOUR SECTIONS.

In the production of comb honey the use of full sheets of foundation cut to fit will result in a larger proportion of fancy honey than by any other method. The two sections of honey appearing in the engraving show well the usual difference resulting between the use of full sheets and starters. The sections containing the full sheets may thus be placed in a higher grade, although the eating qualities are identical.

The illustration also portrays our method for putting in foundation by the melted-wax plan. The foundation is not put in until after the sections are placed in the



A STUDENT OF F. MAURUS MASSE, BUCKFAST ABBEY, S. DEVON, ENGLAND.

wide frames, when they can be handled four at a time, making the work neither slow nor tedious. It is advisable to cut the foundation ⅛ inch less than the depth of the section, as this amount of leeway is just enough to make up for any possible sagging; and it also facilitates the work of putting in the foundation. It is sheer folly to attempt to fasten full sheets on three sides of a section unless each section is subsequently to remain in exactly the same shape until the foundation has been fully drawn out. With wide frames, having a nailed top-bar, this condition is easily and naturally met, as the frame at all times holds the sections perfectly true and square.

Fort Smith, Ark.

THE QUESTION OF HONEY PRICES.

BY JASPER LILLIE.

I have read with interest the article by F. L. Pollock, page 552, on "What is the Cost of Honey to the Producer?" and also that of Orel L. Hershiser, page 663, in which Mr. Hershiser differs widely in opinion from that of Mr. Pollock. There is certainly great variance in the prices of honey; and any plan by which this wide-spread irregularity could be remedied would be a boon to both the producer and consumer of honey.

It would seem that Mr. Pollock endeavors to show what the average expense and average income would be in an apiary of 200 colonies, taking that number, as he says, "as about the limit of one man's ability."

Mr. Hershiser seems to overlook or ignore this *average* proposition, and bases his criticisms on the fact that a large apiary can be operated at less expense per colony than a small one, and in doing this he makes some statements that are, to say the least, surprising. For instance, he says a plumber did a small job for him and charged 60 cents per hour; this I would consider a light charge, as most skilled workmen in our locality, when called out on a small job, charge $1.00 per hour; but, at the same time, if that man were open for a job I could hire him for $2.50 or $3.00 per day and get a skilled mechanic. It is hardly to be supposed that any one running an apiary would depend on going out and hiring a man by the hour to do work needed in his apiary; if he did, that apiary would soon change hands, or cease to exit.

Again, Mr. Hershiser says, "The apiarist with from 350 to 400 colonies will have an expense account but slightly larger for his greater number of colonies than the man with 200."

Now, suppose the man with 400 and the man with 200 colonies were both running for comb honey, and each had supers ready to be removed and replaced by new ones; suppose the apiaries had equal conveniences for doing this work, and suppose, for the sake of easy count, that one man could take out and replace ten supers in one hour; now suppose each apiary starts a man on this job and each pays $3.00 per day. Of course, it costs the 200-colony man $6.00 and the 400 man $12.00. This I should consider something more than a "slight difference."

It is true that a large manufacturing concern can turn out goods cheaper than a small one, as a 500-barrel flour-mill can turn out a barrel of flour much cheaper than a 50-barrel mill; but it is also true that the 50-barrel mill is often running at a good profit when the big mill is shut down by a dull market. So with the honey trade. The 400-colony man often finds the honey market glutted, and is compelled to hold or sell at a sacrifice, while the 75-colony man may, right in his own locality, be selling all the honey he can produce, at a good profit. This serves to some extent to equalize the per-

centage in profits of big and small dealers. Taken all in all, the Pollock suggestion seems in principle to be a good one; and, if properly carried out, might go far in settling the vexing question of *the price of honey*.

Franklin, Tenn.

OPPORTUNITIES IN PEDDLING HONEY.

BY THOMAS P. HALLOCK.

[While the author of this article, who is the Advertising Man for GLEANINGS, has always been in the ranks of the consumers rather than of the producers of honey, his enthusiasm over the possibilities of honey-peddling for bee-keepers who have the time and inclination to follow this practice is to be excused in the face of a knowledge of facts. Mr. Hallock is an experienced salesman, and has gained a wide acquaintance with practical bee-keepers through his connection with the publishers of this journal.—ED.]

One of the most sensible suggestions on how to create a larger and more appreciative market for honey which I have ever read or heard is contained in a leaflet distributed by the publishers of GLEANINGS IN BEE CULTURE, entitled "Peddling Honey." Doubtless many of the readers of GLEANINGS have read this little story by Dan White, a plain, practical farmer who built up a valuable honey-business; but for the benefit of all I want to repeat the following, which embodies the best of his several suggestions:

I got into the town just before dinner time; and after eating a good meal at a boarding-house I filled my pockets with the Root honey leaflets and took one honey-can and commenced business. I started down a street and called at every house. After ringing the bell, or rapping, a lady would open the door and look at me with more or less suspicion. I would say, "I made the call to ask you if your family were fond of honey."

They would generally answer yes, but believed they would not buy any.

"Well," I would answer, "but I am not selling honey to-day. I am giving it away, and should be glad to give you some in a sauce-dish."

Some would look astonished; others would smile and say, "That's funny," but in *every* instance I was invited in. I would pour out the honey, then hand out a leaflet, telling them to read every word of it. "You will find it very interesting; it will tell you all about honey — how and why we extract it, etc. Then here is a postal addressed to me; and should you decide to want a 12-pound can, put your name, street, and number, on the card, drop it in the office; and when I deliver in about ten days you will get a can of honey."

Well, there were enough cards put in the mail within five days to take thirty cans of honey. I promptly made the delivery on time, taking along twenty extra cans that sold about as fast as I could hand them out; and since then I have received orders for 50 more cans from the same town.

There, Mr. Beekeeper, is a plan for building up a honey business, and a thoroughly good and practical plan it is.

If I were going into the business of producing honey I believe I should endeavor to be both the honey-producer and the middleman. I would sell my honey, in so far as I possibly could, on the "Hive-to-Home" plan, and I would cultivate a substantial class of patronage too, and get the top prices for my first-class product.

One way I believe I should try, if you are interested to know, is this: I would get a first-class, down-to-date wagon of the milk-wagon type — easy to get in and out — well painted and nicely arranged for carrying my comb and extracted honey in good condition, and with my name and address painted on either side and on the back of the wagon. Then I would start out to build a business on practically the same lines as suggested by our friend White.

May be it would be a good plan sometimes to carry a small observation hive with me in the wagon at the start, until my customers come to appreciate the connection between my honey and *real* bees. I would want them to trust me — to feel that I was selling them the purest honey bees can make, and to save their honey orders for me. I would have labeled packages and jars, and a leaflet telling a brief story of my apiary, showing a picture of it, and containing several honey recipes as well. I believe that, by following such plans, and watching conditions, and persevering, I could establish a honey route which would bring a considerable revenue to me — more, without question, than I could expect to derive from the sale of my honey through any easier method.

Other opportunities — some of them of broader scope — are suggested in this plan. In the large cities an experienced bee-keeper who knows honey and has some capital to start could maintain several honey-routes and supplement the sale of honey produced in his own apiary with that obtained from other bee-keepers in the same and distant communities. This could be done at a good profit; and that the plan is entirely feasible none will deny after comparing the prospective profits with those to be made on the distribution of milk peddled in large cities by hundreds of independent milkmen as well as by the dairy companies.

THE EASTERN NEW YORK BEE-KEEPERS' ASSOCIATION.

BY STEPHEN DAVENPORT, SEC.

The third annual convention of the Eastern New York Bee-keepers' Association was held Dec. 8, at Albany. President W. D. Wright occupied the chair.

Owing to the recent National convention at Albany the attendance was not as large as otherwise would be expected. Many who are usually present, and who attended the National convention, were absent at this time; and yet there was a larger attendance than at the last annual convention.

The secretary's report showed an enrollment of 95 bee-keepers as members, 34 of whom had joined during the year.

The treasurer's report showed a favorable condition of the treasury, with a handsome balance on hand.

On motion of C. B. Loomis, of Albany, the secretary was directed to address a communication to *Colliers' Weekly* to refute the canard concerning artificial comb honey.

W. D. Wright, of Altamont, as president;

S. Davenport, Indian Fields, as secretary, and M. A. Kingman, East Greenbush, as treasurer, were reëlected to their respective offices. Audubon Johnson, Delanson, was elected first vice-president, and C. W. Hayes, Brookview, second vice-president.

S. Davenport and W. D. Wright were elected delegates to the annual convention of the New York State Association of Beekeepers' Societies.

The contents of the question-box were quite limited; but there was animated discussion of the few questions presented, interspersed with wit and humor to the entertainment of the audience.

In answer to one query, the president stated that the best time to put bees in the cellar, from his experience, was from the 1st to the 10th of November.

The question was asked, if a larger hive than the eight-frame Langstroth were not more desirable. This led to a lengthy consideration of the subject of the best hive for practical use, during which the Adams hive of 16 Gallup frames parallel with the entrance was suggested and described by G. H. Adams, of Schenectady. He had used this hive for twenty-five years with the best results, and has had but little swarming. The merits of this hive were ably advocated by N Lansing, of Troy. It seemed to be fully conceded that a larger hive than the eight-frame Langstroth is more desirable.

It was decided that the next semi-annual convention should be held in Albany in the spring.

There had been repeated disappointments in the efforts to secure addresses or papers on specific subjects for this occasion, and much anxiety was felt for the success of the convention; but it proved to be one of the most enjoyable conventions in which the association had ever assembled.

Indian Fields, N. Y.

LIFE SKETCHES OF NEW CONTRIBUTORS.

A Brief Outline of the Career of O. B. Metcalfe, "The New Mexico Chap."

BY H. H. ROOT.

This year we have planned to give brief sketches, by way of introduction to our readers, of some of our newer contributors who have been engaged to prepare special articles for 1911. The subject of this sketch first began writing for GLEANINGS under the *nom de plume* of "The New Mexico Chap," but later came out under his true name. He has been engaged to prepare a series of illustrated articles on bee-keeping in Mexico, and also to make extensive contributions to our series of "moving pictures."

Mr. Metcalfe was born Jan. 2, 1878, in New Mexico, and was raised in that Territory and in Colorado. From the age of ten to seventeen he worked with sheep, cattle, and goats, later trying the poultry business, following modern practices. Now that he is in the bee business, he frankly says he would never think of changing back to any other occupation.

In his seventeenth year he entered a special class in the preparatory department of the New Mexico College, with a previous training of six months in a private school, and some work at home where his sister taught him, as best she could, between intervals of his sheep-herding and working on the farm. During his college life he did all kinds of odd jobs to earn his way, and in 1903 graduated with a debt of some seven hundred dollars which he paid off by collecting botanical specimens the summer following. Having been awarded the scholarship from the scientific department at the same time he received his degree of B. S., he returned to New Mexico College in the fall of 1903 and took up graduate work with soil, physics, and forestry as major subjects. After receiving the degree of M. S. he began another plant collection, which he finished in the summer of 1905, having served during the year 1904–'5 also as an assistant in the scientific department of the college.

In 1907 he joined forces with his present partner, Mr. H. L. Parks, and 300 three-frame nuclei were bought by way of a start in the bee business. Five dollars each was paid for these, the money being borrowed at ten per cent.

The season of 1908 was the first honey season for the 300 nuclei. These were built up well, and quite a bit of surplus taken from them. That fall, 1200 colonies were bought, the money to pay for them being borrowed, as before, at ten per cent. At the present time the young men are doing well, for they have kept the interest paid up, and have paid a good part of the principal as well, besides putting several thousand dollars' worth of improvements into the bees and outfit. This speaks well for the bee business, beyond question; but during the same years and in the same locality others have had more or less of a failure, so that the record speaks even better for the ability of these two who have chosen the bee business as their life work.

Mr. Metcalfe says that, while he would not quit the bee business for that of a producer in any other line, he advises beginners not to go into bees on an extensive scale unless they expect to get back of the proposition with lots of courage and energy, and a large supply of optimism to tide over bad years; for he thinks that there are perhaps few other lines of business which look so gloomy one week and so much like getting rich quick the next, or *vice versa*.

With the above short outline our readers will better appreciate the writings of this newer contributor to our columns. The article which follows is the first of the series on Mexican bee-keeping, the other "chapters" that will appear later being well illustrated, for Mr. Metcalfe has a faculty of making not only good word pictures, but good pictures with his camera as well.

BEE-KEEPING IN THE HIGHLANDS OF MEXICO.

BY O. B. METCALFE.

With a view to locating bees in Mexico, and of procuring for GLEANINGS some data as to what sort of proposition bee-keeping on the high tablelands of Mexico really is, the author, during the latter part of August, entered the republic at Laredo and went by the Mexican National R. R. to the city of Mexico, stopping over wherever it seemed that there might be a chance of getting information on the subject. From Mexico City a short trip was made on south into the Cuerna Vaca country, and the return trip was made back up the old Mexican Central. The data I collected I will give without exaggeration and without prejudice. Of the queer old country with its quaint and romantic beauty, nothing will be said, except that, to any man who can afford it, the trip is worth while.

At Laredo the trip began through a semi-arid region, where the main plant life was the great flat-leafed prickly pear (*Opuntia Wislezeni*) and mesquite, with here and there a scattered growth of creosote bush (*Larrea tridentata*).

To an Eastern bee-keeper, perhaps few places would have looked less like a good location for bees. Nevertheless, if there were a valley running anywhere through this strip in which alfalfa or perhaps cotton were raised by the hundreds of acres, it would be the finest kind of bee-range, for all three of the plants are honey-bearers, and there are few plants that yield a better honey or more of it than the mesquite.

Just after the mesquite flow the creosote bush comes out with its thousands of bright-yellow flowers, and furnishes enough nectar for the bees to keep up brood-raising and to store a little bluish-yellow honey. The cactus also furnishes considerable honey in some localities. This semi-arid region is not, however, a practical location for bees unless it is supplemented by some irrigated plant, as the bees seldom store more than enough to summer and winter on from natural sources; and when the mesquite fails they sometimes starve.

At Monterey I had the good fortune to meet a Mrs. Allen, whose husband was a bee-keeper in Colorado some years ago, and who had taken it up in a modern way at Monterey. Unfortunately, Mr. Allen had died the year before; and his apiary had gone to pieces, part of the colonies having died out, and some more washed away in a big flood. However, his wife had taken some part in the business, and was able to tell me the things I wanted to know most. She still had some fine honey, both comb and extracted, by which I saw that honey of excellent quality could be raised in that locality. Bees do not suffer from spring dwindling at Monterey as they do further south in the wetter parts. Mr. Allen got an average of 100 lbs. of fine white comb honey per colony before Oct. 1, and a good fall flow of dark stuff from the sugar-factories. It seems that the Mexicans do not get the pulp as dry as the American sugar-refiners do, and that, after the pulp has turned black, the bees work around it and bring in a syrup which is blacker than New Orleans molasses, and not so good. All comb honey must be taken off before this dark syrup begins coming in or else the bees will fill any unfilled cells with it and spoil the sale of the sections. Some of the sections Mrs. Allen showed me had been finished at the corners with the dark syrup.

As regards market, the fine white sections brought 40 cts. each in Mexican currency, and the extracted about 15. This is an equivalent of 20 and 7½ cents American money, and in these articles all prices must be divided by 2 in order to get the equivalents in American money. The above prices were good enough for honey, and the wax brought $1.00 per lb.; but the trouble was, there was a very limited market for the honey, some trouble being experienced in selling the output from about ten or fifteen colonies—this, mind you, in a city of one hundred thousand. The Mexican is not a honey-eater, honey being used more as a medicine than as a food. On this account there is practically no market for it in Mexico except to foreigners.

Mrs. Allen claims that their light honey was mostly made from orange, mesquite, and a white syringia which grows wild all over the hills. She complained that the expense of estabishing an apiary in Mexico was very heavy. Among the interesting things she told me was a description of a colony of stingless bees which Mr. Allen had caught in the hills and brought to his house where he kept it hanging in a tree for several years. From the description, these bees made a nest something like the old-fashioned hornet, and of the same material. Very much unlike the hornet, they had no sting, and would not fight at all. The honey was white and pretty, but did not have the taste of honey-bee honey. I was much interested in these stingless bees, and hoped at least to get a picture of them, for I had several times heard of them; but they had washed away with the rest of the bees.

About twelve miles south of Monterey the Mexicans keep quite a number of bees in box hives and use another box inverted on the brood-nest box as a super. They understand that they are to leave what is in the lower box for the bees. The honey, they sell cheap; but the wax is not for sale, as they treasure it to make candles for the Catholic church.

Mesilla Park, N. M.

To be continued.

Wild Aster.

The worst weed pest we have here is one of the wild asters—*Aster tradescanti*. Do bees ever work on that kind of aster?

Oakland, Ill. WM. COX.

[We don't know. Can any one answer?—ED.]

Heads of Grain

from Different Fields

A Scheme for Strengthening Nuclei and Introducing Queens; Reversing to Get Solid Combs and to Destroy Cells.

1. Could a queen be introduced to a full colony by this method? Leaving the undesirable queen undisturbed, place a queen-excluder upon the hive, and on top of this queen-excluder place an extra hive-body containing a three-frame nucleus and the queen which you wish to introduce (a little later) to the colony below. This method of strengthening the nuclei is all right so far according to the late Mr. Alexander. After leaving the three-frame nucleus over the colony for some few days, kill the queen below. Cut out all queen-cells that are started by the bees below, and take off the excluder, permitting the queen to go below.

2. Bees generally place their queen-cells on the bottoms of the combs, do they not? If that is so, why wouldn't such a scheme as this be efficacious in hunting for queen-cells in reversible-frame hives? Supply full sheets of foundation; and after the bees have drawn it out, reverse all the frames but one. In this way you have nine solid combs, and one frame with space between the bottom of the comb and the bottom strip of the frame. Wouldn't they be most likely to draw out their queen-cells on this frame where they have plenty of room? This frame could be marked on the upper side of the top-bar for easy identification, so that, in looking for swarming preparations, this need be the only comb removed.

Strafford, Pa. A. M. PARKER.

[1. We see no reason why you could not introduce a queen by the plan you propose. If we are not mistaken, Mr. Alexander himself introduced queens in this manner when he worked the plan for strengthening weak nuclei.

2. In the early '80's, many bee-keepers were excited over the possibilities that might be accomplished by reversing. One of the strongest arguments put up at that time in favor of inverting combs was to get them built up solid to the end-bars and bottom-bars; and there is no denying the fact that this can be accomplished. Another claim was made, that the process of inversion would destroy swarming-cells; that the most of the cells would be along the bottom edge of the comb; and when the hives or combs were inverted the cells would be destroyed—that is to say, the young baby queens would die because they could not live "t'other side up." But, unfortunately for the advocates of this scheme, the idea did not work as well in practice. While it is possible and probably true that some cells were destroyed by inverting, if we remember correctly too many queens would hatch to make this plan for the prevention of swarming at all feasible.

You will, therefore, see that the idea that you propose could not be relied on.—ED.]

How to Produce Both Comb and Extracted Honey at the Same Time.

I have been thinking of using the ten-frame hive for extracting with Hoffman frames; but I should like a hive that I can run for extracted and comb honey at the same time if I wish to do so. I have seen in GLEANINGS where some bee-keepers do. I wish you would tell me all about it. I certainly should be pleased to read up on the subject from different bee-men under "Heads of Grain." When I use sections I wish to use 1½ x 4 x 5. Can I use them in connection with extracting-frames?

Converse, Ind., Dec. 23. J. F. MILLER.

[Your decision in favor of the ten-frame extracting-hive is entirely correct. When one runs for comb and extracted honey both, you may use about 75 per cent of comb-honey supers and 25 per cent of shallow extracting-supers. If the season, however, is very short, and there is danger of unfinished sections at the close of the flow, the proportions may be exactly reversed. Perhaps it would be safe to say that those who produce both comb and extracted honey use about half and half of each style of super. At the beginning of the flow, extracting-supers are put on first. When they are about half filled they are lifted up, and comb-honey supers are placed beneath, one for each hive. When the bees are well started in the sections the extracting-supers may or may not be removed. In some cases they are given to sulky colonies that show a disinclination to go into the supers. Such colonies can often be induced to go above when extracting-combs are partly filled with freshly stored honey. Other extracting-supers may be tiered up on a hive or hives, the bees of which do not make white cappings suitable for sections. It very often happens that some of the best workers in the apiary will store a large amount of honey, but the cappings of the combs will be so close on to the honey that it will have a water-soaked appearance. Such colonies as these should be run entirely for extracted. They also answer the excellent purpose of starting work in extracting-supers, and these partly filled supers may then be used to good advantage to place on sulky colonies.

When the season is pretty well advanced, the sections, as fast as they are sealed, are taken off the hive, and extracting-combs are put in their place to catch the tapering-off of the flow. You thus avoid unfinished sections. You are wise in deciding in favor of 4 x 5 sections.—ED.]

Two Strong Colonies Desert Hives in the Fall, Leaving Honey in the Combs.

I had three colonies, and took off extracting-supers in September. At that time every hive had what seemed to me a good stock of vigorous bees, and the upper parts of frames in the brood-chambers were filled with capped honey. After extracting, the empty frames were put out to be cleaned by the bees. This work they were very busy at while it lasted. Other work kept my attention from the bees until the beginning of November, when I took the hives to the cellar, and it was then I got my surprise. My two parent hives (eight-frame Langstroth), the ones I wintered over in 1909-'10, had not a single bee nor any brood—not a vestige of any thing in the comb but some capped honey in the upper half of each frame. The only hive with bees was the *one* swarm I secured, and they seem strong enough. Now, what went wrong in the two hives? Where could the bees go, and what made them go?

O'Connell, Ont., Dec. 6. W. M. SHIELDS.

[We are as much at sea in regard to this as you are. It seems very strange, to say the least. If only one colony disappeared in this way we could explain it better, for in that case it might be that *that* one had been robbed out considerably by the others, being weak, and that the few bees that were left simply left the hive on account of being an abnormally small cluster. It is possible, but not probable, that this was the case with both of the colonies. What makes us think this is not the case is that there was capped honey left in both hives. It would hardly look as if any robbing had been going on. You say that both of these colonies were comparatively strong when you removed the honey. Perhaps in the process of cleaning up the combs afterward the bees of these two colonies, being rather old any way, perhaps, literally wore themselves out fighting for the honey in those combs that you placed outside to be cleaned. We know that it is very hard on bees to fight for honey in this way, and perhaps this is an explanation of the trouble. However, we can not be at all sure.—ED.]

Proper Size of Entrance for Wintering.

I am trying to winter four colonies of bees in a shed, closed, except at the hive-entrances, with about four inches of planer-shavings above, below, and all around the hives. One colony is on eight Danzenbaker frames. The others are in 1½-story Danzenbaker hives with six brood-frames and six extracting-frames each. The covers are sealed; the bottom-boards, ⅞-inch side up; entrances, ⅜ x 5 for small colony; ⅜ x 6 for two others; ⅜ x 7 for strongest. For about three weeks the temperature has rarely gone above 32°, with a range of from 5 to 15 at night; yet there is a constant gentle murmur from all of the hives, and from one hive bees will emerge if approached quite closely. I don't find much discussion as to handling bees wintered outdoors after they have been prepared for the win-

ter; and, if it is not too much trouble, I should like to find out whether I ought to enlarge the entrances, and whether the bees' present activity will be likely to result in such a consumption of stores as to cause bad wintering.

Brookline, Mass., Dec. 12. LORING P. SEARS.

[It very often happens that, in the case of a very powerful colony, the inside walls of a hive are covered with quite an amount of frost. This is due to the moisture from the breath of the bees condensing and then freezing on the walls. There is a possibility that your entrance is too small. By enlarging it slightly the moisture will be carried off better; or there is a possibility that the side walls of your hives are too cold, this being due to insufficient packing at the sides. If you increase the amount of packing material in and around the hive, you would probably eliminate the frost inside. It may be necessary to enlarge the entrance also.—ED.

Alexander Plan for European Foul Brood.

I have read the various articles by Dr. Miller and others on European foul brood, and, to my mind, these writers know nothing about the disease that my old employer, E. W. Alexander, did not know. They are now traveling the same path that he followed when he was developing a cure. He found that, the longer the colonies were queenless up to 25 and 26 days, the more certain the cure. Mild cases can sometimes be cured by short periods of queenlessness, and often by simply requeening. I know one colony, in fact, that cured itself.

I advise anybody who has European foul brood to get Mr. Alexander's actual plan as published in GLEANINGS in 1905 and follow it to the letter. A first-class Italian queen in as strong a colony as possible, that has been queenless 26 days, is what is wanted. During the 26 days the bees clean out the disease, and the first-class Italian queen is to keep the colony in shape so that it will be kept free from disease, and in condition to gather honey.

Sloansville, N. Y. R. V. COX.

Bees Dying in a Cigar-box.

I had a very strange thing happen last summer. I was caging some young queens preparatory to introducing them into full colonies. I used ordinary Benton cages, putting in four escort bees with each queen, and placing the cages in a cigar-box I carried with me. After caging half a dozen, I picked up one of the cages and found the queen and the four escort bees dead. What caused these bees to die? I had been working only about twenty minutes.

The queen and bees were in good condition when placed in the cage. There was plenty of honey in the nucleus from which I took them, and the cage had been supplied with fresh candy before placing them in it.

San José, Cal., Nov. 28. J. W. KALFUS.

[We can not imagine why this queen and the four escort bees should have died in the way mentioned. Could it be possible that the odor of tobacco was strong enough in the cigar-box, combined with a possible lack of ventilation, to stupefy the queen and bees in this one instance?—ED.]

Building Cells the Other Side of Perforated Zinc.

By placing a tight-fitting division-board in the brood-nest, putting, say, two frames with eggs, some honey, and all the bees thereon next the hive side, would queen-cells be started? or would perforated zinc have the same effect? I am aware that frames placed *above* zinc will cause cells to be started; but my point is to get cells built without in any way interfering with the usual hive work of storing and brood-rearing. The subsequent care and disposal of the cells is an independent matter. When cells so obtained were removed, the removal of the division-board would be a very simple performance and without any disturbance, or that is the way it appears to me.

Hoboken, N. J. C. D. CHENEY.

[A tight-fitting division-board for making two separate colonies in one hive will accomplish the result sought much better than perforated zinc. Of course, one side is supposed to be queenless, and the other you can have queenless or not, as you like. With a perforated zinc division-board such as you describe, the bees will build cells on the queenless side of the hive *providing* cells are already started. You can not get them to start cells in the first place, nor, for that matter, can you get them, unless there is a good honey-flow, to start cells in the upper story with perforated zinc between the two stories. In any case, in order to do much work in cell-building in a lower story the bees should be queenless, and should be fed a small quantity of syrup daily. For further particulars on the subject you are referred to queen-rearing in the A B C of Bee Culture.—ED.]

Separating Cocoons from Old Combs.

Could I soak old combs, containing cocoons, a day or two in water, then put them in the extractor and throw the cocoons out, leaving the comb clean again?

Fraser, Idaho. F. F. GEORGE.

[It is impossible to loosen cocoons to any appreciable extent by soaking the combs in water. Perhaps a few of the looser ones might fly out in the extractor if you soaked the comb several days, but we think that not many of them would.

It is better to continue using combs right along, even though there are a good many layers of cocoons in the cells. However, if the combs become so thick and the cells so small as to leave too little room for young bees they had better be melted up, and the wax rendered out of them. For the very best results, extracting-combs should not be used that contain many layers of cocoons, although many of the most successful producers prefer to have brood reared in the extracting-combs a few times to make them stronger.—ED.]

The Somerford Method of Forming Nuclei; what is Done with Old Queens?

I should like an explanation to the article appearing in the A B C of Bee Culture, entitled "Nucleus —Confining to keep the bees in," by W. W. Somerford. He says, "Remove the queens or cage them after getting the brood-nest well filled with brood. Wait ten days after removing the queen. . . . . Leave or loose the old queen on the old stand," and the bees from it will work straight ahead. Now what I want to know is, what is done with the queen in the mean while? How do you keep her from starving while the nucleus is being formed?

Columbine, Col., Nov. 16. T. W. WILSON.

[When Mr. Somerford wrote the article describing his method of making increase he probably took it for granted that his readers would understand that a queen could be caged in her own hive for a considerable length of time, and her own bees would take care of her. When he spoke about removing the queen he implied that those same readers would cage or introduce her in some other colony. In the next edition of the A B C book we will see that a suitable explanation is made.—ED.]

Alfalfa in Texas.

Will you please state whether alfalfa and sweet clover yield honey in Louisiana and Texas? From what can I learn the sources of honey in those states, especially the southern part of Louisiana? Does *Lespeza striata*, or Japan clover, yield honey? What hives are most popular in Louisiana or Texas?

Plainfield, O., Nov. 24. W. E. DEAN.

[Alfalfa does not usually yield nectar outside of the irrigated regions; but after it has been in a locality for some years it will secrete some honey. This will be found to be true in parts of New York. Sweet clover, so far as we know, yields honey everywhere in the United States. We are not able to advise you with reference to the other clovers mentioned.—ED.]

Only One Division of a Sectional Hive Used for a Brood-chamber.

If only one section of a sectional hive is used for the brood-nest, and a honey-board is placed on top with one or more section supers above, will the bees store pollen in the sections? I do not mean to use this shallow brood-nest all the while, except when there is a honey-flow.

RICHARD A. WEATHERWALKS.

Pompton Lakes, N. J.

[Under such conditions there is apt to be considerable pollen in sections; but this can be largely overcome by placing a comb containing pollen on each side of the brood-nest.—ED.]

Health Notes

By A. I. Root

TAKING YOUR MEALS IN THE OPEN AIR.

Sleeping outdoors is right in fashion just now, and thousands of people are getting health and strength and manly vigor by doing so. Now, I have not heard anybody say very much about having our *meals* in the open air; but I believe that children sometimes in their play have a little repast out under the apple-tree. Well, it just occurs to me that perhaps I am "breaking the record" by not only having my supper *under* the apple-tree, but getting it *from* the apple-tree. For five or six weeks, at just five in the afternoon I go out to an apple-tree in our dooryard where there are beautiful luscious apples just getting ripe; and I have a supper of fruit, and nothing else, and it agrees with me to a dot. I do not think I ever enjoyed any supper so much in my life as I do these fruit suppers.* By the way, my good friend, have you got a nice apple-tree right close by your home, where the children can have plenty of fruit without any assistance from the middleman or middle*woman?* Just think of it—instead of paying a dime for three apples on a fruit-stand, I simply reach up, while standing on the ground, and pluck the luscious fruit. Is it not a "short cut" in very truth, from "producer to consumer"? Let us do a little figuring. A lot of you think it not extravagant to pay 25 cents for a supper. Well, this apple-tree we call the Mann† apple; and it has the peculiarity of ripening its fruit gradually. From first to last there are nice apples on this tree for nearly sixty days. Well, this tree would usually give me sixty suppers. At 25 cts. each this would be $15.00; and as Mrs. Root and all the children and grandchildren help themselves to these apples whenever they feel inclined, we will say that what they consume is worth $10.00 more, or $25.00 from one apple-tree in one summer (or fall) of apples. Can't *you* afford to have an apple-tree?

And while I am about it, why don't you stop paying rent and get a little piece of land that you can call your own? A quarter of an acre or less would do for some sort of little home, and yet give room for an apple-tree. Suppose you get right about it now. The good wife and the children will join in with you, I am sure, and will contribute the nickels they have been in the habit of paying out for gum and candy at the soda-fountains.

TWO MEALS A DAY.

Some of you may feel inclined to joke me after reading the above, in view of what I have said about two meals a day; but T. B. Terry says a few nice mellow apples are so easily digested, and so quickly out of the way, they can scarcely be called a meal. A few times I have been persuaded to have a few crackers and a little cheese with my apples; but I rest during the night very much better without *any thing* but the fruit I have mentioned. Now, here is something which I clip from the *Plain Dealer* in regard to two meals a day instead of three. It comes from one of the great addresses delivered before the Mississippi Valley Medical Association:

DETROIT, Sept. 16.—Well-cooked vegetables, rice, and meat, as opposed to New England mince pie and Boston baked beans, has made "the graceful, self-controlled Turk the superior of the nervous, lank New Englander."

This was the contention laid down before the Mississippi Valley Medical Association yesterday by Dr. Fenton B. Turck, of Chicago.

"Diet has more to do with the making of great men or the deteriorating of the human race to the level of the brute than any thing else," declared Dr. Turck. "Compare that armor-plate mince pie diet indulged in by all America with the two sane meals a day that are enabling Turkey to produce the finest specimens of physical manhood in the world."

Later.—I shall have to explain to our readers that the above article has been in type for some time, waiting for a place in our pages; and just now, Nov. 1, as I am starting out for my southern home, I have received a tremendous backing to my little plea for at least one meal a day on apples alone. It comes about in this way: Once in my life I had the pleasure of seeing President Taft, and of hearing him speak; and, more than that, I have a very good friend who has had several personal interviews with our President; and on a quite recent occasion he had an appointment for a short conference with President Taft. He reached the place of meeting about one o'clock, and was informed by the attendant that the President was eating his dinner; but when the President learned who he was that was waiting for him he said, "Bring Mr. B. right in. Tell him it is my request." Well, when Mr. B. commenced to apologize for intruding during the dinner hour he found the President's dinner consisted of—what do you suppose? Why, it was just nice mellow apples and *nothing else*. When my good friend uttered an exclamation and said, "What! is that your idea of what a dinner should be?" the President leaned back in his chair, threw back his head, and laughed heartily, declaring that his idea of

*It occurs to me that a caution should be put in right here. If you undertake to make a full meal of apples at five o'clock as I do, it will not work at all if you eat apples or other fruit between meals during the day; and where you have one fruit meal, as a rule you had better abstain from fruit, sauces, and pie, etc., at your two other meals. There is such a thing as getting too much fruit, as you have doubtless often found out. Children especially have to be looked after in regard to this matter. This excellent health I am enjoying now is obtained, and *kept*, by carefully abstaining from putting *any thing* in my mouth whatever except pure water between meals, and having breakfast and dinner with little or no fruit. When nature gets accustomed to such a program, and knows what to calculate on (if I may use the expression) every thing works nicely.

†Prof. W. J. Green, of our Ohio Experiment Station, has just been here, and says the tree is not the Mann, which is a late winter apple. He took specimens, and will try to name our tree later on.

a good dinner was just nice mellow apples and nothing else."

Now, friends, I do not suppose it makes much difference *what* meal in the day shall be the fruit meal; but I do believe that one meal of apples alone would conduce greatly to the health and longevity of the whole human family. It might transpire in the end that some of you city chaps would have to get outdoors and *learn* to grow apples; but I think it would not only give you better health but more enjoyment than you ever had before in your life. And, by the way, is it not a wonderful thing once more to notice how "great (?) minds run in parallel channels"? Of course, when you take *avoirdupois* for a comparison there is not much similarity between the President and myself; but we *both* "like apples."

Just one thing more. Below is a clipping (I do not know where it came from) that indicates that the immortal Weston also eats his apple every day.

Weston keeps cheerful, looks on the bright side of life, and—eats his apple every day!

GOING WITHOUT YOUR SUPPER (OR BREAKFAST).

I think it will pay you, friends, especially those who are suffering from indigestion, to get *World's Work* for October and read the article headed "The Way to Health; my Experience with Fletcherism," by C. M. Cady, Professor of English Language and Literature, Doshisha College, Kioto, Japan. It is true the writer mentions omitting breakfast instead of supper; but I suppose it amounts to about the same thing. In my case I prefer omitting the last meal of the day so that digestion may be finished up and cleaned up before I lie down for my final rest. I want to make two extracts from the article as follows:

I made up my mind, with great fear and trembling, to try Mr. Fletcher's own plan of omitting the breakfast. I feared, because I had broken down twice before my classes, and I dreaded that experience again.

I went to school on Monday morning without eating any thing. I got through the first hour all right, but the second hour I began to feel "gone," and the craving of the stomach for food became very strong. Instead of eating, I drank two glasses of cold water; that braced me up to get through the third hour; at the end of the third hour I drank three glasses of cold water, and so got through the fourth hour without trouble. Then I found that a very light lunch left me without any distress, and that I could sit down and do some writing. This was encouraging, because it was the first time that I had been able to do this for more than two years.

The second day I repeated the first day's experience, but with less and less discomfort on account of the absence of food in the morning. The third day was very much better than the other two; on the fourth day it never occurred to me, so far as my bodily feelings were concerned, that I had not had my regular breakfast. Evidently my hunger in the morning was purely what Mr. Fletcher calls a "habit-hunger," for it was absolutely and completely removed by drinking.

Now, nothing, I think, could be more encouraging than my experience in this regard. It is not usual for a man to pull up after such serious breakdowns—four times repeated—but the fact was, as I now believe, my great trouble was largely due to overeating; the excess food simply poisoned my whole system, and the poison was the depressing influence. My experience has been similar to many others, that the intellectual life has been wonderfully increased.

As soon as I was on my feet ready for work, new and ever-widening opportunities for action and influence came my way—opportunities that were never dreamed possible, and for the taking of which I had never had the strength either of body or of mind. *Now* they are entered upon with promptness and handled without hesitation.

Before this last recovery, I seemed to be shut up mostly to the negative side of success—the finding out of what I could *not* do. Since last December, this state of things has turned quite about, and I have the positive enjoyment of seeing things that I touch *move*, and move, too, in the way that I push.

I wish to call attention particularly to the closing paragraph. Since I have omitted suppers, not only a new vigor but a new faculty to accomplish difficult things has come into my life. As Professor Cady puts it, "I have the positive enjoyment of seeing things that I touch *move*."

SOMETHING BRIGHT FROM FLETCHER.

We clip the following from the *Woman's National Daily* for Oct. 28:

WOULD YOU LIVE LONG AND CUT COST OF LIVING IN TWO? THEN CHEW, CHEW, CHEW, CHEW, SAYS HORACE FLETCHER.

CHICAGO, Oct. 27.—Would you live to a ripe old age, with every sense and every function and faculty alert and active? Would you cut down the price of your food one-half and the amount one-third? Would you devote a little more than half as much time to sleep as you now devote, and awake fully refreshed? Would you, now? Would you really eliminate your taste for liquor and tobacco, and still further cut down the cost of living? Would you, in short, entirely rehabilitate yourself, your whole body, your mind, your faculties? Then Fletcherize. Horace Fletcher, the world-famous exponent of the science of eating properly, told how to do it in a lecture on "The Gateway of Human Health and Efficiency."

"Masticate every mouthful of food until no vestige of taste remains in it before swallowing," is the rule he laid down. He claims that proper eating solves even the question of sociological reform. "Nature certainly intends well toward men; therefore nature certainly placed some responsibility upon men. If men, if the human race, learn to eat properly, then the day will come when there will be no necessity for social reforms; and when that day comes, my work will be done.

The above suggestion in regard to sleep probably refers to the fact that some people eat so much that it makes them sleepy and dull; and the further suggestion that the craving for liquor and tobacco is caused by overeating, I heartily indorse. Right along in this line somebody has suggested that plenty of apples is the best thing to induce an intemperate man to forget his cravings for liquor.

MORE PROFIT FROM A FARM OF TWO ACRES THAN FROM ONE OF FIFTY.

Mr. A. I. Root:—For a number of years I have taken your journal. I don't keep a bee: but the reading just suits me, especially the Florida articles. I have relatives living in Polk Co., by the name of Lillibridge. They conduct a postoffice by the same name. I am a veteran of the civil war, 65 years of age. I get a small pension. I am told that I am as active as many men of 40. I use neither rum nor tobacco. Some years ago I owned a fifty-acre farm. I gave it up, taking a little place of two acres in the thickly settled portion of this town. I get more clean money from the two-acre place than I did

from the fifty-acre farm. I raise fancy berries which are sold right at the door to peddlers who supply the summer residents. As an example, last summer ordinary berries sold at 25 cts. for two boxes. Mine brought 20 cts. My first berries bring me 25 cts. at wholesale. I make my own fertilizer, and that is one secret. Another is, I set in August and get berries next June which average 20 to the box; but in your last issue I find the Florida growers have me "beaten to a standstill;" that is, you set plants in October and get berries in January. Why? I now want to ask some questions. You claim that you are comparatively free from catarrh, while my life is made miserable by it. Some years ago a man asked of the editor of the *Rural New-Yorker* this question, "Could a man farm it in the North, gather the crops, and go to Florida and raise another?" I don't think the question was ever answered. Distance lends enchantment. I have had some literature sent me by the Seaboard Air Line, also by the North Tampa Land Co. My people in Polk County keep writing for me to go there. Now, this passage keeps recurring to me: "Prove all things; hold fast to that which is good."

I hate to be idle. I had not taken a vacation in five years until I took a week off this fall; but I remained away only three days. Now, if I take up this task of raising two crops a year the two most prominent reasons will be, first, to get rid of my catarrh; and, second, to keep busy.

Now, for the questions:

1. Is it necessary to have irrigation? If so, do you have to go down 400 feet? and if so, what would be the cost?

2. Could a man dispose of, say, 20 crates per day locally?

3. Can I get the right kind of pickers?

For over thirty years I have been in the berry business. My berries are picked early in the morning by schoolchildren. The berries shine like diamonds. Other people pick their berries and keep them till the next day, and then they look like an old piece of liver.

And now, Mr. Root, in all kinds of business it is the small things that pay. In reading GLEANINGS it is easy to see who are the successful ones. I hope you will not think I am too presuming in writing to you, but I felt impelled to.

East Hingham, Mass. GEO. A. DOUGLAS.

My good friend, the readers of GLEANINGS want that "secret" about fertilizers. As you will see by our strawberry-book, the finest berries I ever grew were from plants set as you mention, in August. My nearest neighbor, Mr. Rood, sets his plants in August and September, and gets berries from the same before Christmas; but he grows his own plants right near his fruiting-ground. He gets his original stock, from which to grow *plants*, from the North in March and April, or earlier.

For five winters I have had very little trouble here from catarrh; but for the past ten days I have had some of it. I think it came from passing *three* nights in the poorly ventilated Pullman sleepers. I noticed the question you mention in the *Rural*, and rather decided the trouble would be to find a man (say like my neighbor Rood) who could stand it to run "high-pressure gardening" twelve months without any "rest up," instead of six months or less. I think you can do it (at least after a little experience) if you can keep up your enthusiasm both winter and summer, *without* any rest. Now for your questions:

1. Mr. Rood did some of his best berry-growing before he had an artesian well; but he had water in a shallow ditch that could be dipped up right through his long rows of berries. Artesian water is found at from 3 to 500 feet, and the cost depends on the size of the well—say 75 cts. per foot for 3-inch, and about $1.00 per foot for 4-inch.

2. In a town of, say, 2000 or 3000 people, I think you could market 20 crates a day at 20 to 40 cts. a box, depending on the season.

3. I think there are plenty of colored women and children who will do good picking if the boss is right on hand and holds them down to it.

THE SEARS AUTOMOBILE—SEE p. 674, AUG. 15, 1910.

My automobile was just two months on the way, and it did not show up until the shippers wired me that it was probably lost, and wired to know if they should ship another that showed up. An automobile is a queer thing to "get lost," it is true; and this long delay is, I am led to believe, very unusual, for two of my Ohio neighbors have just received, each of them, a carload of household goods, and they were only from ten days to two weeks on the way. Wesley and I, with the help of Mr. Rood's team and teamster, got it out of the car and hauled it down to our auto-house in one forenoon, and by next morning Wesley and I had it ready to start the engine; but we could not get it to "budge." It happened, luckily, that neighbor Rood had just bought a new Everet machine; and his chauffeur coming along at just that time, we applied to him for advice. He said:

"Drop a little gasoline into the pet-cocks of each of the cylinders."

We did so, and, "presto!" Off the engine went, a flying. I hereby give notice to the makers to make haste and put this simple thing in their instruction-book. Several times since, we have been obliged to resort to the same thing in first starting up on a cold morning.

Well, I have had the car now about ten days, and it has proved indeed "a thing of beauty," and *promises* to be "a joy forever." I have got stalled once, it is true; but it was on a dark rainy Sunday night, the second night after I got the machine, and I was going up a very sandy hill. The storm-curtains were all on; and as I could not see very well I got out of the track in the wet sand. I backed down to the bottom of the hill several times, but this only sank the wheels in deeper every time, and I balked always at the same spot. I finally walked about a quarter of a mile and found it was so rainy there was no Endeavor Society before the sermon, and three of the boys readily offered to help me out.

A little help at the right spot sent us up hill a flying; and before we reached the top the three were all aboard and we were making for the church.

Now, it was no more than natural that even *Endeavor* boys should (even on Sunday night) ask the question, "How fast will she go?" By the way, I am something of a boy myself, even if I am past 71; and it was so dark and rainy the streets were all clear of obstruction of any kind; and, tak-

ing it all together, we whizzed past the church before I knew it, and was wondering why the boys seemed so anxious to "get out" all at once.

Just as I had finished the above paragraph on my new typewriter, Mrs. Root suggested she thought it very unwise for me to rush into print with so good a report of that machine before I had made even one trip of any length over bad sandy roads. Some of you may remember the time years ago when I started out to write the chapter in the A B C book on bee-hunting. When I came to realize I really knew nothing, comparatively, about bee-hunting, I stopped my work, went and hired an old veteran bee-hunter, and, after laboriously tramping after him for several days, I wrote my "chapter." Well, my neighbor Abbott had been wanting to see some bees about ten miles away, across as bad sandy roads, perhaps, as any in this region. When we started out yesterday morning Mrs. Root said if we got back before dark she would feel very glad. Well, we made the trip easily, finding the bees in excellent condition (heavy with honey), and, after taking friend Abbott home, I was back at my own home before 2 o'clock; and the machine went so finely we called on another neighbor, then went to prayer-meeting in the evening; and I have just looked at the speedometer, and it shows the car made just about 30 miles yesterday, and many of the miles were over about as bad sandy roads as any you often find in Florida. The long trip really *improved* the running of the machine, and, I tell you, it "improved" *mightily* the "feller who ran it."

Some days ago the machine got hot, and we had to wait for it to cool off; and when I finally got home every thing was smoking at such a rate I was almost frightened, and began fearing the "air cooling" was not going to work so well after all. Being in a hurry, I told Wesley to look it all over and see to all the oiling arrangements, etc.

While he was eating his dinner he called to me:

"Mr. Root, there was a pretty good *reason* for the car getting hot. The belt was clear off from the fans, and they had not been running at all."

You see we had neglected to watch the new round leather belt that runs the "blowers" that cool the engine. They had first stretched and become loose, and had finally slipped off entirely, and I had been running the car perhaps a mile or two, with no help from the *fans* at all. I cut off a little of the belt and hooked it on in a minute, and since then we have had no trouble from heating; and, to my great relief, I found that getting the machine so hot had done no harm at all. You see every thing about it is made to stand a high temperature without injury.

As nearly as I can make out, the makers have a sort of "correspondence school" arrangement that enables them to care for their customers in a very Christianlike way. Here is one of their recent letters:

There is sometimes a little trouble about water slopping on to the friction parts; but this dries off very quickly, and it is for only a few feet that your friction slips. Water does no harm whatsoever to the friction-wheel unless it gets thoroughly soaked, as the friction created by the wheel coming in contact with the aluminum disc quickly dries any damp places on the wheel.

We wish to advise you that the proper way to run the car is to run it with the speed-lever forward, and cut down your supply of gasoline. You will be able to make the same speed in this manner that you would with your speed-lever retarded and throttle clear open. Then, too, it is liable to heat your engine to run on low speed too far. This is what caused your engine to get warm when running home the other day.

On fairly level roads you should run with the speed-lever advanced and the throttle open; and we wish that you would try this, as we are especially anxious to have you start out right with your car.

Now, we want you to write us, Mr. Root, whenever you experience any difficulty with your car, as we should much prefer to offer you advice from this office as to the proper method of running your machine than to have you take it to inexperienced garage men who invariably give the wrong advice, and get you into more trouble than ever. If you will take it easy, however, and follow the instructions given in the instruction booklet, we know that you will be able to run the car all right, and hope to hear from you in the near future, telling us of your experience with the machine.

On good roads it is an easy matter to make 25 miles an hour; but that is faster than I care to ride, as a rule. With fair roads from 12 to 15 miles can be kept up, without trouble, all day. After I had run it a few days I was very agreeably surprised to find it would start with the magneto as well as with the batteries; so we might almost say we have an automobile that not only dispenses with the necessity of water, has no "cogwheels" to get dry and make a racket, but can be run (at least as a rule) without the need of troublesome batteries.

Later:

A. I. R. AND HIS NEW CAR NEW YEAR'S DAY.

Oh! but that new auto *is* a "daisy." There is nothing to "forget" about it. Just "jump out" when you get there; and when you want to "go" again, it is all hitched up, and no lack of "muscle" to grind out the miles, sand or no sand.

TEMPERANCE IN ARIZONA.

Some time ago I informed the readers of GLEANINGS that in Arizona they had a queer sort of law, to the effect that temperance people had to have two dry votes to one wet vote to get saloons out of Arizona towns. The letter below informs us that the law has been amended so that the majority can now rule.

Mr. A. I. Root:—The last legislature amended the local-option law by allowing a majority to rule; but later it segregated the towns, allowing them, in case of elections, to vote separately.

We had an election on the 17th, taking in our entire valley and Graham County. We beat the saloon crowd in each of the three towns, and the county went dry about four to one. I will try to send you the printed returns. This will close eight more of their crime-making dens. We carried every voting-place, and one was 106 to 2. Two voting-places had no wet votes to count. When I bade you goodby at the train in our little town I promised you that we would fight them as long as they were in town.

Safford, Ariz., Oct. 28. W. E. GLASCOCK.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. Root, Assistant Editor | E. R. Root, Editor | A. L. Boyden, Advertising Manager
A. I. Root, Editor Home Department | J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX | FEBRUARY 1, 1911 | NO. 3

Editorial

Ohio bee-keepers are reminded of the State convention to be held in Cincinnati, at the Grand Hotel, Feb. 16 and 17. Fuller particulars given in editorial notice Jan. 15.

SHIPPING CARLOADS OF BEES TO A WARM CLIMATE TO PASS THE WINTER.

We take the following from the Los Angeles *Examiner*, which will explain itself:

THREE CARS OF BEES ARRIVE; UTAH HONEY-GATHERERS SHIPPED TO CALIFORNIA TO ESCAPE COLD WINTERS.

San Bernardino, Dec. 15.—Three carloads of honey-bees arrived in this city yesterday from Utah. They are the property of M. E. Miller, John Chantry, and George Hale, Utah bee-men, and they will winter in the vicinity of Colton and Highgrove. The bees are unable to survive the cold Utah winters. Next spring they will be taken north.

We shall be pleased to have a full report of the success of this experiment from either of the interested parties.

AN EFFORT IN MICHIGAN TO GET A NEW FOUL-BROOD LAW PASSED.

We received the following notice from E. D. Townsend, President of the Michigan Bee-keepers' Association, regarding the effort that will be made toward getting new foul-brood legislation in that State. We hope that no bee-keeper who lives in Michigan will put off writing these letters, for the expressions of the people have great influence, as every one knows, with the legislators. Let no one imagine that, because his bees have never had the disease, they never *will* have it. Foul brood is spreading at an alarming rate, and very stringent measures are necessary to stamp it out.

ATTENTION, MICHIGAN BEE-KEEPERS!

At Grand Rapids, last November, at our State meeting, a legislative committee was appointed to draft a new bill pertaining to bee-diseases in Michigan, and introduce it to the Legislature now in session. At this date, Jan. 9, the proposed law is nearly ready to introduce, it being along the line of the one proposed by Dr. E. F. Phillips, of the Apiarian Department at Washington. We are asking for considerably more money in the shape of an appropriation and the privilege to appoint several inspectors instead of one, as our present law provides. There are but two or three months in the year suitable for inspecting bees, and one inspector can do but little in this limited time. We should have ten men ready to start out next spring, and *we will* have them provided we can get this law passed.

Hon. Geo. E. Hilton, who represents the bee-keepers, will go to Lansing this month (January), and introduce the bill. Now, the object of this notice is to ask every Michigan bee-keeper to write both his Representative and Senator, now at Lansing, to lend their support to the bill. If this is not done, we might as well do nothing, for Gov. Osborn has already sent a message to the Legislature advising economy in all branches, and it will be a hard pull, at best, to get this bill through.

Remember, brother bee-keepers of Michigan, we are depending upon *you*, and you alone, to get this measure through, for our task will be a hopeless one unless we all lend a helping hand and keep "digging" at our legislators until they simply have to vote for this bill to get rid of us. Let us all remember our duty.

Fraternally yours,
E. D. Townsend.

APICULTURE AT SYRACUSE UNIVERSITY.

We understand that the Zoological Department of Syracuse University, under the direction of Prof. W. M. Smallwood, plans to give a short course in apiculture early in May. The University is now adding courses in agriculture, and the course above mentioned will be one of the first of the special courses open to students.

The plan for the first year includes about four lectures, to be given by some of the leading bee-keepers of the region. These lectures will be followed by demonstrations of the actual manipulations of bees, diseases of bees, etc. The University is fortunate in having, within a few miles radius, some of the best bee-keepers in the State, and we feel sure that these men will be delighted to assist in any way possible.

While a few of the State agricultural courses have had courses in bee-keeping, this is probably the first time that any other educational institution has given such a course. Bee-keepers have not been awake to the desirability of such courses, but there can be no doubt that, if well-trained zoologists have their attention called to the problems of bee-keeping, it will result in investigations of great interest and value to the practical bee-keeper. We are pleased to express our approval of this movement, and we congratulate especially the bee-keepers of New York State on this advance. We feel sure that the interest in the course will warrant its continuance.

BEE-KEEPING IN NEW ZEALAND.

Bee-keepers of this country are apt to pay little attention to the industry as carried on in other parts of the world, especially in those countries that we do not hear so much about. Bee-keeping in New Zealand, however, is in a very healthy state, and an able apiarian department is conducted in the *New Zealand Farmer, Stock, and Station Journal*, which, by the way, is larger and better illustrated than any other farm paper that we have ever

seen. In the December issue, a large clear engraving shows the twenty-six members of the newly formed North Otago Bee-keepers' Association, of which John Allan is president. This association holds field days and regular conventions, and is as up-to-date as any association in this country. At a meeting held on Nov. 5, during a discussion on the question of foul brood, the McEvoy treatment was endorsed as one that gave the greatest benefit. After this followed a demonstration of fixing foundation in frames. The question of the disposal of the honey-drop was also taken up in detail.

MORE PROOF THAT FARMERS ARE NO LONGER "KILLING THE GOOSE THAT LAYS THE GOLDEN EGG."

ONE of our subscribers, J. R. Mintle, of Glenwood, Iowa, has sent us a clipping from the *Mills County Tribune*, on the subject of sweet clover. One of the local attorneys, who owns a ranch in Northern Nebraska, is reported as saying that his cattle are being fed from a stack of sweet clover, and that they not only like it, but are doing well on it. He plans on putting in ten acres of sweet clover in the spring. A near neighbor has a forty-acre patch.

One of the Professors from the State Agricultural College, at Ames, Iowa, in a recent address at Glenwood, stated that sweet clover would soon come into more general use, as farmers have ceased treating it as a nuisance, as they did formerly.

OUR DEPARTMENT EDITORS.

ON page 71 of this issue we present a picture of each of the department editors, some of whose faces may, perhaps, be unfamiliar to our readers.

Dr. Miller and G. M. Doolittle, whose departments appear each issue, need no introduction, for they have been considered sound authorities in bee culture for scores of years, we might say—at least for considerably more than twenty years. And for years to come the writings of these two will live on, extending and perpetuating their good records. Whenever we think of these two old friends we understand a little more clearly why it is that some men never die.

Wesley Foster, Mrs. Acklin, and J. L. Byer, whose departments appear in the first issue of each month, are the newer members of our staff. Mr. Foster has appeared before our readers long enough to show that he has made good. Mrs. Acklin, whose department, "Bee-keeping in Southern California," started last summer, has also proved that she is alive to the bee-keeping interests in her territory. Mr. Byer, who takes Mr. Holtermann's place in furnishing "Notes from Canada," as mentioned in our Dec. 15th issue, appears for the first time as head of the Canadian department in this issue. We have known him for some time as an occasional contributor, and we are sure that his comments will be no less valuable, coming, as they will, from now on, every month.

Louis H. Scholl and J. E. Crane, whose departments appear the second issue of each month, have also been with us long enough so that our readers know them to be safe counselors. Mr. Scholl stands rather high in the world, being nearly six and one-half feet tall; but Mr. Crane, though not so large has shown himself to be a good "sifter."

EUROPEAN FOUL BROOD; MORE PROOF OF ITS EUROPEAN ORIGIN, AND HENCE THE FITNESS OF THE NAME.

EVIDENCE is beginning to accumulate, showing that European foul brood, or what we formerly called "black brood," is more or less common in England and on the Continent. Indeed, there is a possibility that it is the common brood disease in Great Britain. After carefully analyzing the writings of some of our European authorities, particularly of our British cousins, we are convinced that, when they speak of a "mild type" of foul brood, most of the larvæ dying before they are sealed, they are unwittingly describing European foul brood; that when they give the symptoms of the more advanced stages, after the brood dies when sealed up, they are describing the genuine foul brood, or what we call American foul brood. Let us take, for example, two or three references. Turning to Dzierzon's "Rational Bee-keeping," English edition for 1882, page 273, we find the following:

FOUL BROOD IS OF TWO KINDS.

There is one kind that is mild and curable, and another kind malignant and incurable. Both kinds are, however, contagious.

The curable occurs in this way: More of the larvæ die still unsealed, while they are still curled up at the bottom of the cell, rotting and drying up to a gray crust that may be removed with tolerable ease. The brood which does not die before sealing mostly attains to perfection; and it is only exceptionally that foul-brood cells are met with sealed.

This is exactly reversed in the malignant kind of foul brood. In this the larvæ do not generally die before they have raised themselves from the bottom of the cell, have been sealed, and begun to change into nymphs. The rotten matter is, therefore, not found on the cell floor, but on the lower cell wall. It is brownish and tough, and dries up to a firm black crust, both in consequence of the heat prevailing in the hive, and of a small opening bitten in the depressed cover. This matter the bees are not able to remove; and when they are in some strength they can at most get rid of it by entirely biting down the tainted cells and making fresh ones.

It is a marked characteristic of European foul brood that most of the larvæ die *before* they are sealed. In other respects the second paragraph exactly describes the disease. The last paragraph undoubtedly refers to American foul brood.

Again, we turn to Samuel Simmins' book entitled "A Modern Bee-farm," edition 1904, page 103. In speaking of the cure for foul brood he says:

Cheshire considered that the queen should not be removed; but, on the contrary, if it is intended to save the combs I have found the first step toward a rapid recovery is made by deposing the reigning queen and giving a young and vigorous queen bred from clean stock, when the entire attitude of the bees is changed, and great determination and energy take the place of the former utter inability to clear out the foul stuff.

If the disease begins in the early spring and is not noticed, it is very likely the colony will go down at a rapid rate, while the remnant will not be worth troubling with, and should be cleared out by fire after sulphuring the bees. This should be done in the evening when all the other stocks are quiet, taking care to foul as few things as possible. Burn all you use that are not of much value, and the rest disinfect thoroughly.

European foul brood shows up strongest in the spring or early summer. Observe, also, that Simmins refers to the possibility of curing by changing the queen and substituting a vigorous queen (a part of the Alexander treatment for European foul brood). He also mentions the ability of the bees to clear out the "foul stuff." We have our doubts whether colonies, unless very powerful, will clean ordinary American foul brood out of the combs; but there is no doubt now but that they can and do remove the grubs dead of European foul brood.

Again, we turn to a card sent out by the British Bee-keepers' Association, showing a photograph of what looks like the old-fashioned American foul brood in an advanced stage. On the reversed side of the card we find the following:

1. *How to recognize Foul Brood in its earliest Stage.*—Healthy brood is recognized by being compact, and the larvæ of a pearly whiteness. When young they are curled up at the bases of the cells in the form of a C. If any of the larvæ are attacked by the disease, instead of being curled up and plump they are extended horizontally in the cells, are flabby in appearance, and are of a pale yellow color, changing to brown, and begin to decompose. They then dry up, leaving only a dry brown scale on the side of the cell. (For "chilled" brood the dead larvæ turn gray and not brown.)

2. *Later Stage.*—When the larvæ die after the cells are capped over, here and there cells will be found with cappings slightly indented, and darker than those of healthy brood. The cappings are also frequently perforated with irregular holes.

3. *Advanced Stage.*—This is well illustrated in the photograph of a comb badly affected. It will be seen that the capped cells are in irregular patches, indented, and most of them perforated. If the capping of a cell is removed, and a piece of stick introduced, a putrid, ropy, sticky, coffee-colored mass will be found—all that remains of the larva—often emitting a most disagreeable stench.

The disease is extremely contagious, and prompt measures should be taken to prevent its spreading by medicating the food with naphthol beta and by using naphthaline as a preventive.

The first paragraph, referring to "early stages," is an exact description, so far as it goes, of European foul brood. The next two paragraphs, referring to "later" and "advanced stages," clearly describe American foul brood.

In Cowan's "Hive and the Honey-bee" we find practically the same description, and very possibly the foul-brood card of the British Bee-keepers' Association was written by Mr. Cowan himself.

Still again, we find quite a conflict of opinion among several of these European writers. Some of them, including Cowan, Cheshire, and Simmins, recommend drugs of various sorts; others appear to believe that they have no value. In this country, at least, practically all of our authorities have agreed that any form of medicine or spray applied to the combs of American foul brood is a waste of time and material; but, so far as we know, these same authorities, in this country, have never tried germicides of any sort on the European type of the disease, and there is a possibility that they may have some value. The fact that some of our friends across the water persistently recommend them for the disease they have is significant.

And, again, let us turn to the testimony of the bacteriologists. Chene and Cheshire (English) discovered a microbe that was apparently always present in the foul brood that they examined, and Cheshire later called it *Bacillus alvei*. Dr. G. F. White, of our Bureau of Entomology, Washington, D. C., always finds this microbe in the European type of disease, but rarely in the American, if we are correct. Burri and Maassen, eminent European bacteriologists, have described a disease which is certainly our European foul brood, and no less an authority than Erne recognizes our claims with reference to the cause of American foul brood; namely, that it is *Bacillus larvae* (White), and not *Bacillus alvei*. Malden, another eminent British bacteriologist, whose paper we recently reviewed in these columns, page 542 of the Sept. 1st issue of last year, confirms the work of our own Dr. White, and, apparently accepting our terms for the two types of disease, uses the names European and American.

A recent article by Mr. Samuel Simmins, author of "A Modern Bee-farm," above mentioned, who appears to have in mind American foul brood, seems to be really describing the European type of the disease. He tells of the value of requeening with vigorous Italian or Carniolan stock, and says that it is not necessary to destroy the combs. He also refers to the value of certain drugs, particularly "izal," as one that will effect a complete and permanent cure.

Taking all the evidence together, we are forced to the conclusion that at least *some* of our European authorities, especially in view of their conflict of testimony, have been describing two different diseases; that when they refer to the ability of the bees to clean out the combs, removing the dead grubs, they unwittingly refer to European foul brood. In various references we find they make mention of what they call chilled brood. While we have chilled brood in this country, from certain described symptoms it appears that our British cousins are talking about European foul brood.

Possibly our friends across the water may take issue with us; but the exact work of *their own* bacteriologists is very significant as pointing to *two types of disease*—significant, further, because these same scientists seem to confirm Dr. White's work in many very important respects.

It remains to be seen yet whether *Bacillus alvei* is really the microbe responsible for European foul brood; but the fact that European scientists have found it so often in their specimens of affected brood indicates that they must have and have had a great deal of what we have named (and correctly so (as we view it) European foul brood.

Stray Straws

By DR. C. C. MILLER, Marengo, Ill.

F. DUNDAS TODD, page 22, speaks of a follower in ten-frame hives. Have manufacturers really made that desirable addition?

OLIVER FOSTER'S first bees were bumblebees, p. 6. So were mine; only, instead of being on a window-sill, mine were in a haymow.

THE HONEY-EXTRACTOR was invented in 1865 by an Austrian, Major Franz Edler von Hruschka, who was born at Vienna in 1819, and died at Venice, Italy, 1888.

"WHAT KIND of a mile?" I am asked, p. 32, is meant, where the bees were four or five minutes getting over ¼ mile. It was given in meters, and I translated it into U. S. miles.

A. SNYDER, when he wants to talk honey to a grocer, sets on the counter an observatory hive, six by eight inches in size. That secures the attention of the grocer at once. —*Review*, 310.

J. L. BYER said at the National convention that it is necessary to have a large stock of extracting-combs in order to get a good crop of honey, and just as necessary in order to get a crop of *good* honey.

A VERY OLD brood-comb weighed 36½ oz.; a new one that had not been bred in weighed 11 oz. That means that there might be a difference of about 16 pounds in the weight of two ten-frame hives, each containing the same amount of bees and stores. Some colonies have probably starved because heavy old combs fooled the bee-keeper into thinking they had stores enough.

C. B. PALMER, you say, page 38, that I didn't know where to put baits when no excluder is used. Well, I do now—put 'em just the same as with an excluder. You are mistaken in concluding that I used an excluder. Never. There may be no law in Nebraska against your way of doing, but I wouldn't do some things you do. I wouldn't use a bait *partly* filled with comb, and I wouldn't have a drop of honey in it. I wouldn't use a bait in any super after the first; I'd use them all in the first. Generally I have only baits enough to put a single one in the first super, and I put that in the center. With my way I never knew a queen to lay an egg in a bait.

R. V. COX, you advise, p. 52, to read Alexander's treatment for European foul brood, and "follow it to the letter." But do you follow it to the letter? You say "queenless 26 days," and then "a first-class Italian queen." He says, 1905, p. 1125, queenless 20 days, and then "a ripe queen-cell or a virgin just hatched." He says the old queen may be given after 27 (not 26) days, but advises against it. Mr. Alexander deserves great credit as a pioneer blazing a way through a pathless forest; but if any one finds a way only half as long, do you think it is disloyalty to Mr. Alexander to follow the shorter way?

MR. EDITOR, you say, p. 52, for cell-building, to feed queenless bees syrup daily. Will feeding make any difference when a heavy flow is on? [Of course, it is not necessary to feed up when a heavy honey-flow is on. One of our queen-breeders says he much prefers not to have a heavy flow. He can secure better results when the bees are fed moderately or when the yield of honey from natural sources is only moderate. A flood of honey upsets cell-building to a great extent.—ED.]

"IF THE COMBS become so thick and the cells so small as to leave too little room for young bees they had better be melted up," p. 52. That scares me. It will be 50 years next summer since I began keeping bees, and I never yet melted a comb because old. Do you suppose my cells are too small? How shall I tell? Would you advise me to melt up all my old combs? [You are putting up a hard question; and yet if you will take our statement literally it will not necessarily imply that you will have to melt up your combs. Authorities do not quite agree; but the majority seem to think that when the cells become too small, by reason of accumulations of cocoons, the bees remove the surplusage until the cells are large enough to admit of the rearing of brood. Assuming that to be true (and we believe it is), you would not have to melt up your comb. In the quotation, page 52, we are not assuming that it would be true, but only making the statement that, *if* the size of the cells is reduced by many years of brood-rearing, combs with such cells should be melted up.

We may say we believe it would be a good practice to melt up all old combs since brood diseases have become so prevalent all over the United States. Experience shows that disease lurks for years in old combs, and then when conditions are favorable it will break out. Let us suppose a case where a comb contained the spores of American foul brood; that those spores were covered with several layers of cocoons; that the bees remove several layers of cocoons in a certain season, exposing the spores covered up for years. What happens? An outbreak of the bee disease. That this is not an idle theory was proven at one of our outyards, where we had American foul brood some 15 years before. All of a sudden foul brood began to break out in that yard. An examination showed that it appeared only in those hives that had some of those original combs. We then began melting up every one of those combs whether disease showed up or not, and, presto! foul brood stopped coming back. We know that diseases that infect the human family may lie in old garments for decades; then why not in "old garments" occupied by baby bees?—ED.]

Bee-keeping in Southern California

By Mrs. H. G. Acklin, Glendora, Cal.

The State Association convention has been postponed till this month. Too many other irons in the fire the latter part of last December.

According to tradition, black sage must needs have an off year occasionally; and as last season was an "off" with a vengeance, may be this year will be a good one if Jupiter Pluvius regards us favorably.

It seems that my own town, too, is getting its "fill" of apiaries. A friend in the real-estate business told me recently that two men had been looking through the foot-hills for a bee location, and went home without finding a suitable place.

During the holiday vacation the four colonies of bees back of our friends' house at the beach were as busy as Minnesota bees are in summer time. They kept right on attending strictly to business, paying no attention to me whatever as I went prowling around their hives.

While at one of the beaches around holiday time a man came to our friends' house saying he had caught a swarm of bees and wanted a "gum" to put them in, as they were then in a nail-keg. A runaway swarm of bees just before Christmas! What do you know about that?

Does it pay to sow seeds of honey-producing plants in our canyons? I infer that it does from meeting a bee-keeper who had a snug little sack full of such seed for a bee-keeping friend. I inquired the names of the plants from which the seeds were gathered, but he did not know, saying there were two or three kinds in that one sack.

I note, p. 718, that Mr. Gibson is in favor of leaving the latch-string out for tidy bee-keepers. But how shall we know till the whole transaction is done whether the new comer will flavor his honey with dead bees or not? But to me a mature bee in honey is not as repulsive as larvæ. Of all the apiaries I visited last season, only one was in working order; consequently my knowledge as to the neatness of our bee-keepers is limited.

One could never imagine the great number of bees kept in this country by taking a trip on the steam-cars. They are clustered behind hills and up canyons till I never expect to see an apiary from a railroad train any more. So it was on a recent trip to Redlands. We saw only one little cluster of hives, and I felt sorry for the poor bees left there on those stones.

Mr. B. G. Burdick, President of the State Association, met us at the station, and took us directly to his home, where we had a cordial welcome and a warm supper. The next day I changed my mind as to the number of bees in the vicinity of Redlands, as Mr. Burdick took us sailing around over hills, through valleys, and up canyons. That bee-keepers are gradually being driven further and further back into the mountains was evident everywhere. Eight-horse teams pulling heavy disc plows were following each other around steep hillsides, preparing the same ground for a crop that formerly was covered with button or black sage. Mr. Burdick's apiary of 250 colonies is located in Live Oak Canyon, a pretty spot; but the ground is cultivated on one side nearly up to the hives. He is planning to move the bees further up the canyon.

One novel feature about the place is a honey-house built from parts of old Harbison hives, and it is a pretty fair honey-house too. One thing I liked about it was the way in which extracting-supers are managed. Two doors in the back lift up, and are just near enough the ground so supers from a wheelbarrow can be shoved in easily. Inside there are smooth strips nailed to the floor for the supers to slide on. Empties are pushed out the other door in the same way, and loaded on the wheelbarrow, without much lifting. One advantage in this way of manipulating supers is that the front door of the honey-house is shut most of the time, keeping out the throng of bees which sometimes follow the supers.

If I remember correctly, this yard is six or seven miles from Redlands, and not near orange-groves, although the principal crop, which was good for this year, was orange honey. The principal forage around here is orange and sage; but there are many minor honey-producing plants and shrubs on the foothills and mountains.

Every town has its "bee-man," and Mr. Burdick seems to enjoy that peculiar distinction in this little city of beautiful homes. Frequently he is called upon to remove swarms of bees from some of those handsome houses, and has to be very careful to leave the buildings in as good condition as he found them, which must be a difficult task, considering the almost impossible nooks and corners into which the bees go. Whoever has the good fortune to visit Redlands must, of necessity, see the parks and other beauty spots. From Smiley Heights the view is magnificent. Looking across San Timoteo Canyon some large apiaries can be seen. R. H. Burdick, son of B. G. Burdick, has an apiary of 250 colonies in this canyon. Mr. and Mrs. E. D. Bullock, who have an apiary of 250 colonies in Moreno Valley, twelve miles from Redlands, called at the Burdick home in the evening.

Bee-keeping Among The Rockies

By WESLEY FOSTER, Boulder, Colo.

I certainly should like to have a winter nest constructed as the illustrations Editor Root shows in the January 1st issue. There are plenty of empty cells in our combs, but there is a lack of sealed stores arranged in proper relation to the brood or clustering nest.

Referring to what I have said regarding retail packages for extracted honey, I will add that the Mason jar is the most economical jar for honey, for the reason that it can be used the second time. But it is not a suitable jar for shipping, and *the cap will not hold the honey* so it will not leak. A plain jar with a tight cap about the size of the pint Mason jar is about the best size for honey. Since taking the picture shown on page 17, and writing the article, I have seen honey put up in the tall thin bottles that olive oil is so often sold in. These packages hold six or eight ounces, and were marked at 25 cts. On inquiry I found that many customers thought they held as much honey as a pound comb of honey. The consumer was paying from fifty to sixty cents a pound for an average grade of extracted honey! The glass bottle would cost as much as or more than the honey it contained when bought of the producer.

I have a two-frame nucleus, which, however, is but little smaller than the average colony this winter, that I am wintering in an observatory hive placed in our dining-room window. They have an exit through the sash and are shielded from the light except when some one wishes to look at them. They are a source of interest to the children, and I am curious to know how they will come through the winter. Their stores are mainly sugar syrup fed to them in October, half sugar and half water by weight. I notice a few hard granules on the bottom of the hive that they can not manage. There is about a quart of bees, and from Nov. 19th to Christmas day those bees ate just 16 ounces of their stores. That is a trifle less than a half-ounce per day. So far but very few dead bees have been carried out, not over fifteen or twenty, for their exit opens out upon our porch, and if any dead bees are dragged out they are easily seen. A half-dozen dead bees is all that I have seen so far. They do not seem to be anxious about flying when the weather is rough outside, even though their hive is in a room that has a temperature of from 65 to 70 degrees Fahrenheit.

WHY COMB HONEY IS USED MORE THAN EXTRACTED IN COLORADO.

Taking the markets of Colorado as a whole, I believe that four pounds of comb honey is eaten to one of extracted. There are two main reasons for this, the first being that comb honey looks so much more attractive on the table, and is more of a delicacy, while the extracted honey seems more of a syrup. The second reason is that people fear adulteration; in fact, there are many who hold this opinion against almost any thing that one can say. Here is where we must get in our house-to-house work, and educate the people to the fact that there need be little fear nowadays of adulteration of bottled honey. We can do this by telling the housewife the methods and appliances used in raising extracted honey. So many think that, because extracted honey is so reasonable in price, this is proof that it is adulterated. A well-known writer unmuzzled his ignorance by voicing this idea not long ago in one of the large monthly magazines. How prone we are to ascribe wrong motives to the other fellow when the fault lies in our own ignorance!

THE CAUSE OF THE HIGH WINDS IN COLORADO.

The gray, level, buffalo-grass-covered plains slope away to the east of the Rocky Mountains for five hundred miles. The altitude of this great plains region ranges from five to six thousand feet at the foot of the mountains down to two or three thousand feet, five hundred miles east of the Rockies. The whole area is semi-arid, and the irrigated portions take in but little more than the river valleys, which, when drawn on a map in their comparative size, look like small fine tracings or narrow ribbons drawn across this great wide region. This gray expanse draws the warmth of the sun's rays on our bright days, which succeed each other almost indefinitely during the fall and winter. Now, as this plains region becomes warm, the warm air rises, and the cooler air from the mountains rushes down from the snow-capped ranges and foot-hills and across these plains at a terrific speed. If it were not for the rarity of the air much damage would be done; but this light air does not exert the pressure that heavier-weighted air does. However, many windows are blown out of houses, roofs lifted, and, of more concern to the bee-keeper, the covers blow off the hives, the hives tip over, and piles of supers left out are scattered in every direction. A single brick is not sufficient to hold an average cover on unless the bees have it firmly sealed. Colonies of bees that are light in weight are often blown over.

Now, this wind has some advantages, for it does not begin till there has been a snowstorm on the range for one or more days. While this snowstorm has been going on in the mountains the plains have been warming up from the many days of bright sunshine. This brings about the rush of cold mountain air from the snowy peaks out to the plains. This wind will blow from one day to two weeks, and will drift the snow into the ravines and gulches in the mountains, saving it in the deep drifts till it is needed late in the next summer for irrigation.

Notes from Canada

By J. L. Byer, Mt. Joy, Ont.

Those moving pictures showing Mr. Metcalfe's assistant at work are good; but it seems to me, by the bend in the operator's back, that the hives are too low down for comfort. This is a fault in too many yards, including some of my own, and in the future I want to have the hives higher than they have been in the past. A man can work all day at a job if he can be upright most of the time, without getting fatigued; whereas if he has to be stooped over most of the time, half the amount of work will tire him.

Somewhere in our house, search would reveal one or more pairs of trousers with the legs scorched on the inside below the knees, It is not necessary to say that said scorchings, and burnt holes sometimes too, have been the subject of inquiry on the part of a certain woman in the household. Imagine with what elated feeling the writer read to this woman the words of Mr. Metcalfe, page 791, Dec. 1, where he says that, if a man came to him asking for a job to take off honey, and he noticed that his overalls were smoked and scorched between the knees, he would say "yes" without asking him a single question. It might not be out of the way to add that one time, at least, the damage was more than smoke or scorching, and that a fair-sized *flame* was in evidence before the fire was extinguished.

That picture showing the interior of Hans Matthes' house, page 15, Jan. 1st, certainly gives one a cosy feeling. The open fireplace and comfortable old-fashioned chairs around the table remind one of many homes in this locality some years ago, as this section was originally settled with Dutch who came here from Pennsylvania. As I showed an aunt of mine the picture, she at once remarked, "Those chairs are just like those grandfather used to make;" and I might add that at all sales where a few of these articles of furniture are now offered they bring good prices from people who make a fad of saving up old-fashioned things as relics. We have but one of these chairs in our home; and I confess that, although not a relic-hunter, yet it would take quite a price to buy that chair, as every time my eye rests on it I am reminded of the dear departed grandfather who made it years ago. This same grandfather, by the way, was a very successful bee-keeper when bee-keeping was hardly looked upon as a specialty as it is now; so it will be seen that, whatever bee-keeping blood the writer may have in his veins, it has been inherited.

The Dominion Railway Commission which has had the express companies of Canada on trial, as it were, have handed in their judgment, which is sweeping in its denunciation of the accused. The tariffs are declared to be altogether too high, and many of the provisions attached to the printed contracts to be unfair to the shippers. The companies are given three months to revise and formulate new rates and contracts, and to hand the same to the Commission for their inspection at the expiration of that date. The officials of the companies met in Montreal; and, although some of them were inclined to kick at the verdict, yet they wisely concluded to accept the ruling in view of the fact that they could not well do otherwise. We notice that the chairman of the Dominion Commission, J. P. Mabee, and Martin A. Knapp, Chairman of the Interstate Commerce Commission of the U. S. A., have come to an agreement regarding the control of railways crossing the boundary, and this is certainly a good omen toward the successful formation of an international commission in the near future that would have the same power over *all* the express companies, as the Dominion Commission now has over the Canadian companies. This is of interest to the bee-keepers; for if any class of producers have to pay the price with a vengeance, we certainly do. The powers of the Dominion Board are supreme, and it is only by the show of the "big stick" that heartless corporations can ever be brought to time.

In stepping into the breach caused by the retirement of friend Holtermann from this department, it is with a feeling that perhaps we are "biting off more than we will be able to chew," and certainly if left entirely to our own devices such an outcome is but a logical conclusion. However, we feel that many bee-keepers on this side of the line will give us their active support; and to such we would say that at all times it will be a source of pleasure to us to have items of news sent in; and if any one has practical suggestions to offer as to how this page can be made of more interest to the apiarists of Canada in particular, these will be thankfully received and given due consideration. At the same time, be it understood, the editor has given me a free rein, and liberty to meddle in the affairs of the people in other parts of the country — in fact, has even given me the privilege of differing with *him* on any matter whenever so prompted — a privilege pretty sure to be taken advantage of quite freely, and we warn the aforesaid editor to keep his "blue pencil" well sharpened. Mr. Holtermann was often able to give extracts from the different German bee journals; and I am sorry to say that, from now on, as long as we are in charge of the department, extracts of that nature will be conspicuous by their absence. While the writer has quite a percentage of German blood in his veins, yet he is not familiar enough with the language to speak it, let alone make intelligent interpretations of printed matter. Perhaps some of our German friends will come to our aid.

Conversations with Doolittle

At Borodino

TIME OF DAY SWARMS ISSUE, ETC.

Would you tell us about what time in the day the prime swarm and after-swarms issue? My neighbors and I do not seem to agree. I claim that prime swarms issue only between the hours of nine in the morning and three in the afternoon; while one of my neighbors claims he has had prime swarms out as early as six in the morning and as late as five in the afternoon, and some of the others are inclined to share this opinion.

Prime swarms usually issue between nine in the morning and one in the afternoon, if the weather is fair, right along day after day; but if there comes a rainy time, with clouds and cool winds, swarming is delayed, and then prime swarms are almost as erratic as after-swarms. Several times during the past forty years I have known swarms to be kept back by bad weather, when the colonies were rich in stores, till the young queens began to "quahk" in their cells. When young queens are thus mature, and the swarming fever has not been satisfied, I have known of one or two prime swarms coming out as early as a quarter of five in the morning. This was a nice, clear, warm morning, following a full week of weather when the bees were shut in by bad storms.

Again, under similar circumstances, I had two swarms come between five and six o'clock in the afternoon, when it cleared off so the sun shone out warm and bright, for the first, at about 5 P.M. But under such circumstances there seems to be a division among the bees, a part of them taking sides with the young quahking queens, and the others with their old mother, so that, when such prime swarms issue, under the conditions given above, there are fewer bees with the swarm, and more with the ripe queen-cells. If the weather continues fine, I have known what is called a "second swarm" to issue two days later, with one or more of these young queens, and a beginner having no experience along this line, when such a state of affairs exists, rushes into print declaring that second-swarms often come two days after the first one.

Then cases are not infrequent when a colony, nearly or quite strong enough to swarm, loses the old mother-queen just before the swarming season, on which loss the bees start a lot of queen-cells to replace her. On the maturing of these cells, the flow of nectar becoming abundant, the bees are almost sure to swarm with these young queens; and in this case the first swarms do not hold to usual hours any more than do after-swarms, but come out at "any old time." If my memory serves me rightly, I once wrote about such first swarms with a young queen, calling them "prime swarms," when Dr. Miller straightened me out in great shape by telling the public that only swarms having the old or mother queen with them could be properly called *prime* swarms. And Dr. Miller was right in the matter. As I now understand it, a prime swarm must always be a *first* swarm; but a first swarm is not always a prime swarm.

And this leads me to say that an after-swarm always has one or more young virgin queens; but *all* swarms issuing with one or more virgin queens are not *after-swarms*. Regarding the time of day when after-swarms issue, as hinted above, there is little dependence to be placed upon them, for they come at any time between five in the morning and seven at night. However, if the weather permits continued nectar secretion, with a clear sky, the majority of such swarms will come between 8 A.M. and 4 P.M., while fully half may be expected between 9 A.M. and 1 P.M.

WAX FROM OLD COMBS.

This same correspondent wants me to tell how to render very old combs that are partly filled with pollen into wax. For such combs I know of no better way than the water plan. I prefer to put such combs in a sack made of burlap, tramping the sack as the combs are put in so as to break the cocoons as much as possible; for with very old combs these cocoons, spun one after the other, as the multitudinous generations of brood are perfected, become so thick and hardened that, without some care, they hold most of the wax in the septum of the comb from coming out, even with water rendering. An old kettle is the best thing I know of for the desired purpose. Set it on three stones so you can build a fire under it and fill it two-thirds full of water. Now build a fire; and when the water boils, carefully lower the tied-up sack filled with the old tramped-in combs into the water. Allow it to rest for a few minutes till the water penetrates all through it, then with an old hoe press and roll the sack over for about five minutes, when it will appear nearly empty.

If you have more comb, bring out the mouth of the sack, untie and fill again, going through the same working and squeezing with the hoe as before, and so on till the sack becomes two-thirds full of refuse or you have all your comb in.

Now provide a piece of plank rounded somewhat to fit the bottom of the kettle, nailing another piece to it with the grain of the wood running in the opposite direction, so it will not split. Then nail through both to the end of a piece of scantling about one-third longer than the kettle is deep. Put the rounded-plank end on the sack, thus pressing it to the bottom of the kettle; and after hanging a heavy weight on the upper end of the scantling, and propping it in an upright position, allow the fire to go out. The next morning you will find the wax all nicely caked on top of the water in the kettle.

[This plan of rendering will work all right on a small amount of comb, so that lots of time can be given one batch; but if there is quite an accumulation of comb to render, a good strong press will be found to yield a greater quantity of wax in a much shorter time.—ED.]

General Correspondence

THE WINTERING PROBLEM IN ONTARIO, CANADA.

A Good Depth of Sealed Honey above the Cluster a Necessity; the Winter Nest Not as Important as Plenty of Honey in the Upper Part of the Combs.

BY J. L. BYER.

Notwithstanding the fact that many writers have claimed that the wintering problem has ceased to be a *problem*, yet every once in a while (perhaps our own experience) we hear of heavy losses both in outdoor and cellar methods, proving conclusively that the matter of wintering of bees in the northern sections of the country is still an important subject. That there are still widely different opinions on this very important phase of bee-keeping was brought forcibly to the mind of the writer as he read with much interest that article by the editor, p. 19, Jan. 1, entitled, "The Winter Nest of a Colony."

Now, while I do not profess to be an authority by any means on the matter of wintering bees, yet some hard knocks in the way of winter losses when they could be ill afforded have taught me a few essentials of successful wintering outdoors in "our locality," and it may seem a bit strange on my part to have to confess that, when I saw that engraving entitled "An Ideal Comb to Form a Winter Nest," I involuntarily remarked to myself, "Why, that is the very picture I would desire if I wanted an illustration to show what constitutes a *death-trap* in the way of outdoor wintering in a country with cold winters like ours."

Before going any further I wish to say most emphatically that, if we found a colony of bees in a Langstroth hive with the center combs like the one illustrated, having a depth of only about two inches of honey under the top-bars in the middle, we would put on a feeder about the first of October, or earlier, and give the colony at least 15 lbs. of syrup made on a two-to-one basis. *Then* we would feel that the colony was in an ideal condition for *wintering*, and quite likely the matter of an "ideal winter nest" would never be given a thought.

Please let it be understood that what I have said and may say further is for conditions as we have them here in Central Ontario, about fifteen miles north of Lake Ontario, where the bees frequently go for four months, and sometimes five, without a flight, the thermometer dropping for a day or two at a time to 20 below zero. However, I can not see how a warmer climate would make any difference in this matter; and, indeed, from the nature of the arguments of the editor the very opposite should be the case.

I have already called that comb a "death-trap," so now it is either my duty to retract or prove that I have reasons for using such an expressive term when in an argument with so well posted and able a debater.

In the first place, I wish to make it understood that I have not the slightest doubt but that thousands of colonies are wintered each year on combs much in the same condition as the one illustrated, simply because that is the natural condition the combs will be in, provided there has been no late fall flow of honey nor artificial feeding. On the other hand, that same condition of combs here in Ontario is responsible for at least 50 per cent of the winter losses, with the possible exception of winters when honey-dew or other poor stores are present in the hives. Last winter was mild, and the bees had an opportunity to have quite an early flight in the spring; consequently, losses from any causes were almost *nil* so long as there was enough honey in *any* place in the hives to keep the bees from starving. Other winters in the past have told a different story, and from all indications the present winter is going to be an "old-fashioned" one, and I look for heavy losses wherever the bees were not well prepared in the fall, and allowed more than two or three inches of honey below the top-bars in the center combs of the hives.

The statement is made that colonies often starve right in the brood-nest when honey is only a few inches from the cluster. That is quite true. I have seen dozens of cases where the honey was all gone *over* the cluster, and the bees dead while there was honey at the far *ends* of the combs; yet I have never once seen a colony dead with honey *above* the cluster. I have very serious doubts that a strong colony of bees ever perished in such a condition, as the very nature of the problem suggests to my mind that it would be an almost impossible occurrence.

This past fall and winter up to the present (Jan. 7) has been very cold, and the bees have not had a real good flight since the latter part of October. Assuming that colonies have gone into winter quarters with the center combs having but two or three inches of honey beneath the top-bars, what will happen toward spring or even in February in some colonies if the present cold weather continues? The honey will be consumed from both sides and above the clusters, but much faster from *above* than from the sides, for the colder the weather the more rapid the consumption of stores above the cluster. By the time mentioned, many colonies will be right at the top of the combs with all the honey above them consumed, so that they will have to depend on drawing from the sides for future maintenance. With a real cold snap comes the contracting of the cluster *away* from the honey, and then the colony starves. Very often the bees thus stranded gorge themselves on pollen; and even if some of them survive starvation till the weather moderates, dysentery later on claims them as victims. This is a

very common condition here in Ontario, and I have not the slightest doubt that nearly all bee-keepers here in this Province who winter outdoors, or who have visited apiaries wintered outside, will bear me out when I say that I have not misstated conditions in any way. The remedy is obvious. See that the combs in the center are filled with good stores at least half way down; pack the bees away comfortably, and don't worry about the clustering-space for the bees.

In view of my experience, and what I have noticed with others, I can not put the stress on the "cold slabs of honey" idea that some do; and while the theory advanced seems reasonable, yet results are more convincing, and I think we are prone to forget that a very *small* clustering-space is necessary in real cold weather. Indeed, the writer of the article we are commenting on says that the cluster of a strong colony will be reduced down to a space about equal to that of the doubled-up fist. Personally we incline to the view that no strong colony gets into a space *that* small; but the smaller the cluster, the stronger the argument that only a small clustering-space is necessary. That bees do not at will come up among sealed combs in moderately cold weather is a mistaken idea — at least, my bees do not refuse thus to accommodate themselves. A few days ago, when the thermometer was below zero I carefully lifted the corner of different sacks of packing on top of the hives, and, turning up the quilts, looked down between the frames. The frames in these hives have top-bars but ⅞-inch wide, so a good view could be obtained. All the colonies thus examined showed bees in from six to eight spaces, and the clusters in the most of them were about half way or more up the combs—said combs being 12 inches deep. Above the bees the sealed stores showed in evidence plainly; but in so far as I could see with such a slight examination, the bees were for the most part below the honey. To-day the weather is milder (20 above zero), and a visit to those same colonies shows that the bees are clustered right under the cushions at the top of the combs, so at least four or five inches of sealed honey are covered by the bees with the weather as it is.

This past fall, while talking with H. G. Sibbald, one of our most successful winterers, he told me the amount of feeding he had done to his 450 colonies in preparing them for winter; and while I do not feel at liberty to state the quantity, yet all can rest assured that it is not likely there is a comb in the whole outfit that is empty of stores half way up to the top-bars. I do not think he is worrying about the matter of clustering-space, and it will be a big surprise to me if he loses a single colony from any cause in the line of stores. Then what about friend McEvoy? He limits the number of combs for the bees, and has every comb *solid* in September, so whatever clustering-space in the way of empty comb the bees have is made after that date. His record in wintering is too well known to need any comment.

This article is too long already, and I will close by repeating that all a set of combs like the one illustrated needs to make them an ideal winter nest is the addition of 15 or 20 lbs. of sugar syrup about Oct. 1st.

Mt. Joy, Ont., Can.

[There are two conditions that might cause our correspondent and ourselves to come to different conclusions. The first is, that it is somewhat colder in Canada than in the locality to which we referred; second, we judge by what he says that he has absorbing cushions on his colonies, and not the sealed cover, which we use. At all events, we have every reason to believe that, under *like environments*, if the two of us could look over the same set of bees we would come to exactly the same conclusions; and, even under different conditions, we see evidence in Mr. Byer's article that goes to show that bees prefer the winter nest *if* they can have it. For example, turn to the third from the last paragraph. When the thermometer was below zero, Mr. Byer says, "So far as I could see with such a slight examination, the bees were for the most part below the honey." Exactly! and just what we have contended all along. When it turns very cold they will seek out these empty cells below the honey if they can find them. When it warms up they will move up on the sealed honey, just as Mr. Byer describes. There is no difference between us on these points.

In the next to the last paragraph he refers to Mr. McEvoy as having "every comb solid in September; so whatever clustering-space in the way of empty combs the bees have is made after that date." This is our practice, when we have time to feed early enough; and so far Mr. McEvoy is doing what we would do. It is probably true in Mr. McEvoy's case, that the clustering-space is made *after* the combs are fed up solid; for from the first of September till it turns continuously cold the bees can make quite a nice little winter nest; and in our locality they will form one about like the one we illustrated in GLEANINGS by about Dec. 1. If the bees are fed early enough (and all bees should be fed early when possible) they will make their own clustering-space, and that clustering-space will be about right as cold weather comes on.

The fact that bees in a natural or undisturbed state will make this space shows that we ought not go contrary to nature.

In one place our correspondent has misread us. He quotes us as saying "that the cluster of the strong colony will be reduced down to a space about equal to that of the doubled-up fist." What we actually said was this: "When the temperature pulls down to below zero, a strong colony will be compressed into a space about equal to a doubled-up fist." Notice, we put in the condition. But we will frankly say that what

we meant was the *double fists*, and we supposed that was the language until we saw "doubled-up fist" instead. At this point we stand corrected; but on the importance of the winter nest, and letting bees make it, and feeding the bees early enough so they *can* make it, we do not take back one word —especially so as our correspondent describes the conditions in his hives exactly as we find them, viz., that when it is cold his bees go down below the honey. And why? for the *very* purpose of getting their bodies together. When the weather warms up, the cluster spreads on the sealed honey just as they do in Medina.

We should be glad to have this question discussed by those correspondents who have opened up their bees during mid-winter, time and again, to see how the clusters are placed. In the mean time, while we have had letters confirming our position regarding the winter nest, we place just one of them, from a fellow-countryman of our correspondent, before our readers. He evidently has much the same conditions as those surrounding Mr. Byer; and yet his experience has been exactly ours as the reader will observe. He writes:

THE WINTER NEST BETTER THAN SOLID COMBS OF HONEY.

BY J. I. BEAUHRE, C. E. F.

I have read with interest the article by E. R. Root, "The Winter Nest of a Colony," page 19, Jan. 1. I have had similar experiences for a good many years, viz., that bees wintered on combs as described by Fig. 1 came out every year ahead, both in condition and amount of honey consumed, of those that were wintered on solid combs of honey. It seems to me that the bees spend more of their energy in heating these thick combs of honey. Bees will not waste their vitality in generating heat when they are separated by only a thin wall. But if they are wintered on combs that are solid with honey from the top-bar to the bottom-bar they will eat more honey in order to generate the necessary heat needed to warm up this solid mass.

Some bee-keepers notice this condition in wintering bees, but they do not pay enough attention to it; and some, even if they do pay attention to it, are not able to find out the cause.

A few years ago I read an article in GLEANINGS about the wintering of bees on solid combs of honey. If I am not mistaken it was a very hot argument between C. P. Dadant, Dr. C. C. Miller, G. M. Doolittle, and several others whose names I do not remember. Being much interested in this I started out the following winter to find out for myself. The preceding fall I had six eight-frame colonies, three of which had solid combs of honey, and the other three, combs, as described in Fig. 1, p. 19. At one time I thought that the colonies in the last three hives would run short of stores: but on the 1st of April, the following spring, when I got them out of the cellar I was surprised to note the difference. The three colonies of lot No. 1, wintered on solid combs of honey, had eaten nearly twice as much. The colonies in lot No. 2, the preceding fall, weighed less than those of lot No. 1; but after wintering over, they had more honey to continue brood-rearing. The temperature in the cellar ran between 43 and 46 degrees all through the winter.

Since that year I have always tried to get the brood-nests in the same shape as decribed in Fig. 1, and I have always had success. Each of the combs next to the wall on each side of the hive is nearly solid with honey, the next two combs in the same order have a clear spot of about five inches in height and 8½ inches in length, the top having the form of an arch.

Ottawa, Can.

[Our Mr. Bain, who has had much experience in wintering bees outdoors at Medina and elsewhere, says he has repeatedly found that bees have died where the winter nest has been disturbed or eliminated entirely, just as cold weather came on. We have repeatedly observed the same thing; and Mr. Beauhre has had the same experience.—ED.]

NON-SWARMING STOCK.

An Extended Record of the Progeny of a Queen Whose Colonies Rarely Swarmed.

BY E. S. MILES.

In the fall of 1896 I purchased two queens of a well-known breeder, and introduced them to a couple of weak colonies, one of which, however, starved the winter following, as this was before I knew that a weak colony would consume nearly, if not quite, as much stores as a normal colony. The other colony came out strong in the spring, built up rapidly, and did so well in every way, besides storing more surplus than the average, that I was very favorably impressed with the queen; and when the bees wintered again perfectly, and were able to secure enough for a living, while all of my other colonies had to be fed between fruit-bloom and clover, I decided that this queen was the one I wanted for restocking my yard.

As this colony had not swarmed, and showed no signs of it, I was compelled to try my hand at queen-rearing. Up to this time I had been a believer in nature's ways, as a great many writers at that time laid great stress on the value of queens reared under the natural-swarming impulse, explaining further that the only perfect queens were those reared by nature's methods, etc. However, I then had the good fortune to get a copy of that masterly book, "Scientific Queen-rearing," by G. M. Doolittle, in which we are told how to rear the best of queens without violating nature. So I de-

termined to rear some queens from this colony by the Doolittle plan.

The season proved poor, and I was bungling in my operations, so that I succeeded in getting only three colonies that season, headed with queens from this stock. The next winter I lost the original colony through a blunder; and as the season following was not very good I did not make much increase, but did get three more queens from the best of the first three queens that I reared the season previous. However, it was a couple of years before I began to notice that the colonies having these queens seemed not only capable of getting a living when common bees had to be fed, but that they did not swarm.

For about ten years after starting with this strain of bees, and until I probably had forty or fifty colonies of them, I had no swarms whatever, while fifty per cent or more of the colonies having queens of other stock in the same apiary swarmed, although they had the same treatment in every respect.

It should be mentioned that I make no effort to control the mating. I always try to prevent a heavy production of drones of undesirable stock, yet sometimes there were a great many common drones flying.

From 1901 to 1903 inclusive I reared a few queens from colony No. 74, whose queen was a granddaughter of the original queen. I may have lost the record of a few colonies, but I have a complete record of eighteen colonies whose queens were reared originally from No. 74. Of these eighteen, during 1901, '2, '3, fourteen did not cast a swarm, the other four swarming once each—three of the four casting swarms only when conditions were more than ordinarily favorable for swarming, and when all colonies of common stock were swarming excessively.

Of the progeny of No. 74 I selected No. 32 for a breeder, and I have before me the record of 79 colonies with queens from this No. 32, which were reared during the seasons of 1904 to 1907. Of the 79, 62 have not swarmed to date; 14 have swarmed once each, and 3, twice.

Now while it can not be truthfully said that this stock is exactly non-swarming, yet it must be remembered that, during all this time, I purchased and brought into this apiary over 50 colonies of common bees, besides having 25 or 30 colonies of various grades of hybrids. I have also purchased of breeders over two dozen Italian queens of different strains, and in addition to all these drawbacks I have not tried very hard, as I said before, to prevent common drones from flying.

Among these colonies that have not swarmed are some that have superseded their queen themselves, a few of which have done this more than once. For instance, the breeder No. 74 that was reared in 1900 was superseded in 1904, and the second was superseded in 1908, the third queen still being in this same colony. No. 132 is a daughter of No. 74, reared in 1903, and was superseded in 1907; and the second one is now in this same colony, and they have never swarmed. No. 9 is another colony which has the same record. No. 3, one of the first reared from breeder No. 32, never swarmed. She was superseded in 1909. No. 24 is one of the four daughters of No. 74 that I mentioned as swarming, yet this is hardly correct, for the original queen in No. 74 did not swarm, and she was superseded when four years of age; her daughter swarmed only when I was forcing the colony to finish sections by feeding. This season this same colony did not swarm, even under these conditions.

I also wish to say that, while I was breeding these queens, I was working primarily for bees that would do good work in sections, and that were not too cross. If I had been selecting queens especially for non-swarming alone I am quite certain I could have made more progress, for I was obliged to discard for breeders several colonies that were non-swarmers but had some other objectionable qualities.

Now, I have no queens for sale, and please let no one ask me whether I believe I can breed the tail off a sheep or cat, for I have never seen a bobtailed cat or sheep that had not been operated on with the knife; but I can produce a strain of hornless cattle if I have a good muley heifer. Likewise, if I tried to produce a non-swarming strain of bees I should want to start with a colony that would not swarm under normal conditions. I am convinced that a strain that is practically non-swarming is entirely possible. "Like produces like," whether color, shape, or disposition.

Dunlap, Iowa.

AN INCREASING DEMAND FOR COMB HONEY IN CARTONS.

The Opinion of a Comb-honey Dealer.

BY H. R. WRIGHT.

I should like to offer a few suggestions which may be of value to bee-keepers who have not yet ordered shipping-cases for the coming season. We know that there is an increasing demand for comb honey in cartons; and bee-keepers who use the proper style of cartons get the best and first sales. I do not recommend the closed thin paper-box affairs, for they have brought cartons into disrepute, as they are so quickly glued fast to the bottom of shipping-cases by the least dripping of honey, that they are generally torn to pieces when the honey is removed from the case. A stout, heavy, wood-pulp board carton, on the other hand, *with no top or bottom*, never sticks fast to the shipping-case. Such cartons pay for themselves in weight, as the buyer does not object to having the carton weighed with the honey. They need no glass front on the shipping-cases except on one section to show handlers the contents. Such cartons can be ordered of any paper-box facto-

ry to fit any particular size of section, and they cost about $3.00 a thousand.

No change is necessary, except that the shipping-cases must be a little larger. About ¼ inch more for each section is needed lengthwise of the shipping-case, also sidewise, if no wedging space is ordinarily left.

Any section that weighs a pound or a little under is all right. There are very few sections now that weigh over a pound. The cartons are especially necessary where plain sections are used, for the honey, being flush with the edge of the section, causes abrasion of the cappings in handling, so that, when the grocer wraps the section in paper, it almost invariably reaches the consumer in bad condition.

Twenty years ago we were the pioneers in advocating sections weighing not over a pound, and this made a great improvement and increase in the sale and consumption of honey. We should now like to see a standardized case of honey holding 24 sections, and weighing from 22 to 24 pounds net, all sections being enclosed in these substantial cartons. This would save a lot of work, and would cause a honey-package to be as standard and as well known as a barrel of flour, etc. Odd sizes and different styles, varying according to the whim or notion of the producer, cause lots of confusion in the trade. Moreover, wholesalers are seldom able to duplicate an order with the same style, etc.

Shipping-cases need no non-drip bottoms. Corrugated paper is best, but ordinary paper is sufficient protection when these heavy thick cartons are used.

Albany, N. Y.

ANOTHER COMMUNITY HIVE.

BY LEON C. WHEELER.

In a late issue of GLEANINGS a description is given of a community hive, and the editor asks if any one else has had any experience "along this line." Several years ago I built a hive with this idea in view; and while it is, of course, not the same as the one described, still it is the same in principle. The original idea with me was gotten from the Ferris hive described in GLEANINGS several years ago. Instead of simply putting two colonies together, as Ferris did, however, I doubled the dose as the fellow did who thought that, if a small dose of medicine was good, more would be better. My hive was made to hold 24 frames on a side with a division through the center; in other words, there were 48 frames in the one body.

Other divisions were made in each side to make it into either four or eight compartments as desired. The big division through the center of the hive, and also the other cross-divisions, were all made partly of wire cloth, thus giving a free passage of air throughout the hive and giving a common scent to all the bees. The first year I used it I started it with eight nuclei which built up till I had a hive running over with bees about the close of the clover-flow. The super I used was made to hold 26 frames on a side, or 52 in all, with free intercouse throughout the whole. This was accomplished in the case of the division through the center by means of little strips of wood set a bee-space apart, extending the whole length along the bottom and about 2½ inches high.

This super, which I put on at the beginning of the buckwheat honey-flow, was filled full, and I extracted 127 lbs., if I remember correctly—nearly as much as that obtained from all the other colonies in the yard—as this was a very poor year for buckwheat. Since that year I have used the hive only for rearing nuclei, for which purpose it is very good; but I am confident that one could get an enormous amount of honey from it by starting in the spring with fair-strength colonies. This would be especially true in a poor year when the ordinary colonies would store but little. I rather expect to try it again next year any way.

To avoid trouble with queens getting in the wrong entrance I made some small entrances at the sides of the hive to use when mating, which gave two entrances at each side of the hive, and I never had any trouble with queens getting in the wrong entrance. Of course, if one were to use this hive for honey he would have to have a special apparatus to handle the supers, or else handle by frames. This would not deter me from using the hive, however, if I can get the extra honey which my experience would seem to indicate that one might get by the use of this hive.

THAT UNIVERSAL HIVE AND SECTION.

This is a subject quite thoroughly discussed by men better posted than I; but my choice of a hive is the old reliable ten-frame Langstroth hive with Hoffman frames; and I prefer the 4¼×4¼×1½ plain sections. It would take quite a lot to hire me to change this combination, and I think you would find the same thing true in the majority of cases.

But we all have our own ideas, and I think you will find it's about like talking to the wind to try to get bee-keepers to see near enough alike to accept the same styles of hives and sections.

Barryton, Mich.

BEE-KEEPING IN MINNESOTA AND CALIFORNIA COMPARED.

The Profits in Either Locality About the Same.

BY F. A. GRAY.

For the past four seasons I have been personally operating my apiary in San Diego Co., Cal. I also have two apiaries in Minnesota, which, during this time, have been run by my two sons up to August 1 of each season, when I return to Minnesota and

take charge. I have been keeping bees in Minnesota the past fourteen years.

I can see no reason for giving southern California a black eye relative to the bee industry, for, on the average, large returns are secured every other year. I can not say why this is, but that has been the record of my apiary for the past twelve years, and a good year will give much more than any one season in Minnesota; but, taken as a whole, there is about as much profit in Minnesota as in California. In my vicinity the bees in California sell for about $3.50 a colony in two-story extracting-hives. In Minnesota I can get from $5.00 to $6.00 in a one-story hive.

At the present time I do not think that California is overstocked. We have bees enough, however, for the poor seasons; but in good seasons many more could be kept on the same territory. I would advise any one who wishes to locate in southern California to buy out an established apiary, as many are for sale. While the bees gather honey any month in the year, yet the surplus is obtained usually only during April, May, June, and July.

Many will be surprised to learn that the reason for a poor crop is on account of too cool a season. My apiary is eight miles from the coast, and some years apiaries twenty miles from the coast get honey when I have practically a failure, the reason being that their locality is warmer. Rain, no doubt, is quite a factor; but all the plants are dry-weather plants, and very often with a little rainfall a good crop of honey is secured. Warm balmy air with heavy fogs in the morning gives a heavy flow of nectar.

Mr. Gibson has touched on a very important factor controlling the price of honey, when he speaks of the importance of cleanliness, proper grading, and the crating of comb honey. Far too many go into the bee business who are not adapted to it. Having been told there is big money in bees they try it for two or three years, then realize their mistake, go out of the business, usually after experiencing a loss. Bees in any country must be run on a business basis, the same as any thing else. A yield in one season of twenty dollars per colony will get a lot of people into the business when they know nothing about it; but they think they can do the same the next season, when, in fact, this yield comes only a very few times in the life of an experienced bee-keeper.

Let no one be deceived about the amount of work required with bees in southern California, at least during the honey-flow. It is necessary to begin to extract on Monday morning, and keep it up until Saturday night, and during a heavy flow this is hard work. Tiering up does not answer here as in Minnesota, for the honey becomes too cold to extract unless it is close to the brood-nest. I have found that the bees can not be run the same in California as in Minnesota, for new tricks have to be learned. All these things, of course, cost money.

There are some good locations for bees in San Diego Co. at the foot of the mountains. However, they are so far from the market that I would not care to take them up. In locating an apiary, I know bee-men usually follow the golden rule—that is, doing to others as they would be done by. This certainly pays, for otherwise failure is the sure result. More capital is required in California than in the East, the reason being that there must be supplies on hand for a big crop; and if there is an entire failure the supplies must be carried over for another season.

Redwood Falls, Minn.

BEES AND COLORS.

Some Proofs that Bees are More Hostile to Black Clothing than to White.

BY M. E. PRUITT.

On one occasion we had dealings with an enraged colony, and I thought I would just pull a couple of black stockings over my hands (not being able to find my gloves at the moment), so that I could replace a couple of frames and put on the cover so that they would not so easily detect the scent of stings already received. Oh how I wished I hadn't! They just simply covered my hands; and when I retired from the field the color of my "gloves" was changed from black to pepper-and-salt.

The year before last I was wearing a navy-blue skirt, and the bees seemed to delight in puncturing it. I changed the navy blue for a light tan, and all was peace.

We have a Holstein cow; and every time she passes by the yard, and the bees are irritated, they invariably make for the black spots.

When we are hitching up the sorrel and the bay horse I notice they begin operations on the black mane of the bay. When we have the black horse and one of the others together, the black comes in for the most points.

Our white chickens are not molested when scratching in the yard; but the Minorcas are allowed to stay hardly long enough to locate a hunting-ground.

When bees want to sting a person they generally make for the shaded parts, such as about the eyebrows, behind the ears, and in the nostrils; and, oh what a tender spot that is!

Eola, Texas.

About that Wasp-nest in a Section of Honey.

In regard to that cut of a wasp-nest in a section of honey, page 16, Jan. 1, I will make these assertions: 1. That wasp was what is known as a mud-wasp or mud-dauber; 2. The nest was put there when there were no bees in the super; 3. The wasp never passed through the brood-chamber in its trips to and from its nest, as bees and wasps do not harmonize.

Rocky Ford, Col., Jan. 9. A. S. PARSON.



OUR DEPARTMENT EDITORS. SEE EDITORIAL.

THE OVARY OF THE QUEEN-BEE.

BY DR. BRUENNICH.

All human beings, as well as plants and animals, were once nothing but one very small cell composed of a membrane, a nucleus, and a little protoplasm. There is almost no difference between the embryonic cell of an elephant and that of a tiny fly. By continual division from that single cell, two are formed; then four, eight, sixteen, etc., until there are millions, and with the multiplication of the cells their qualities and offices begin to differentiate themselves until the wonderful being is built up. In the first little cell there is latently contained the whole future animal with all its varying psychic qualities. Is there on the face of the earth any thing more mysterious and wonderful than this minute cell, whose diameter is perhaps not more than $\frac{1}{200}$ of the width of a line?

Among the higher animals—insects included—the eggs are formed in a double organ called the *ovary*. With the help of the illustrations let us look somewhat closely at the ovary of the bee. The queen, beneath the back of the abdomen, possesses two ovaries, each of which is composed of about 200 fine threads of its own contexture. For the beginning, near the breast the thread consists of cells of the general character, the mother cells; then comes the differentiation into two different shapes, the *eggs* and the *dodder-cells*, which alternate to the end. The dodder-cells are made up of a conglomerate of little cubes of albumen, in the form of a lengthened egg. These are for the purpose of nourishing the eggs and furnishing the necessary reserve (albumen); for, as we all know, the little embryo lives and develops for three days on this albumen only, without the help of nurse bees.

To every dodder cell there belongs an egg, as the figures show distinctly. The eggs, like the dodder-cells, are very small at the beginning, but at the end they reach their full size; neither, however, changes in general structure. The egg consists of the little embryo (nucleus), the dodder-substance, and the membrane. The latter is formed of thousands of prismatic cells (epithel), with chitinous membrane, each with its kernel (nucleus), and represents an elastic, rather firm and fine skin which serves to protect the egg from outside injuries. Where the front end of the egg touches its nutritive cell there is a small hole where there are no epithelic cells, this hole effecting the communication between the dodder-cell and the interior of the egg. After the egg is expelled with its dodder-cell, this hole is the so-called *micropyle*, the only spot where the spermatozoids can penetrate into the interior. Immediately after this process (fecundation) the surrounding epithelic cells join closely together and thus shut the hole.

The eggs at the end of the thread are the ripe ones, which are successively expelled. In the meantime the others follow, their places being taken by new ones that are formed from the young embryonic mother-cells at the beginning of the thread.

The room between the different egg-threads is filled partly with blood and partly with a tight web of tracheas whose finest terminations spin around the egg and dodder-cells.

In dissecting a fertile queen the ovaries may easily be seen, for they are about the size of a pea. Without a magnifying-glass one may see the little moniliforms. The ovaries of an unfertile queen are not as easily seen, as they are less solid and much smaller, both the eggs and dodder-cells being shorter and thinner. But far more insignificant still are the ovaries of the worker bee, which normally can not be seen, for they are too minute. In case of a laying worker it is possible to find the ovaries with some preparation; but they are also very slender, consisting of only about ten of the above-mentioned egg-threads.

Rheinau, Zurich, Switz.

BEE-KEEPING FOR BEGINNERS, ILLUSTRATED.

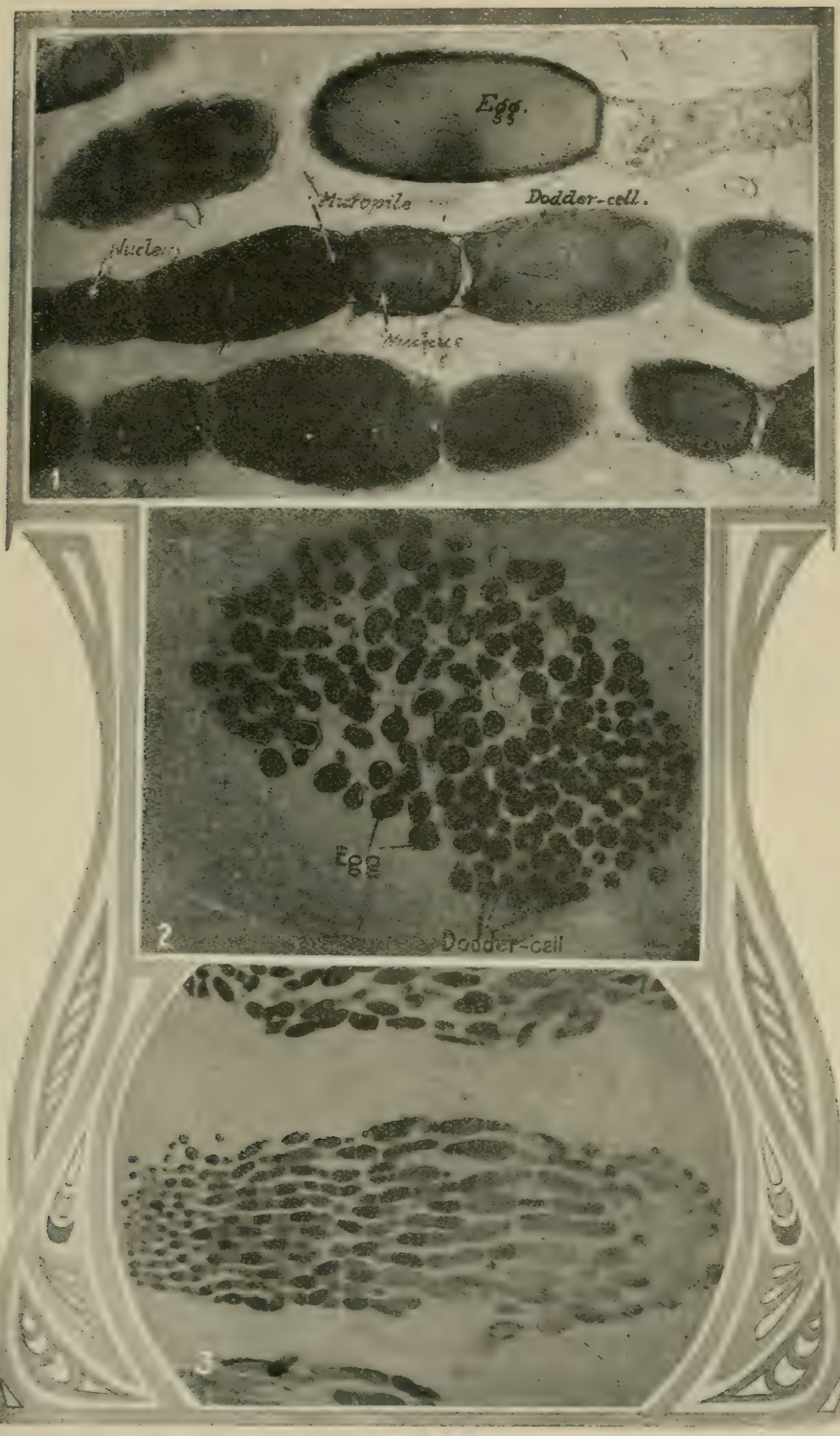
Ten-frame Hives the Best for Either Comb or Extracted Honey Production.

BY E. D. TOWNSEND.

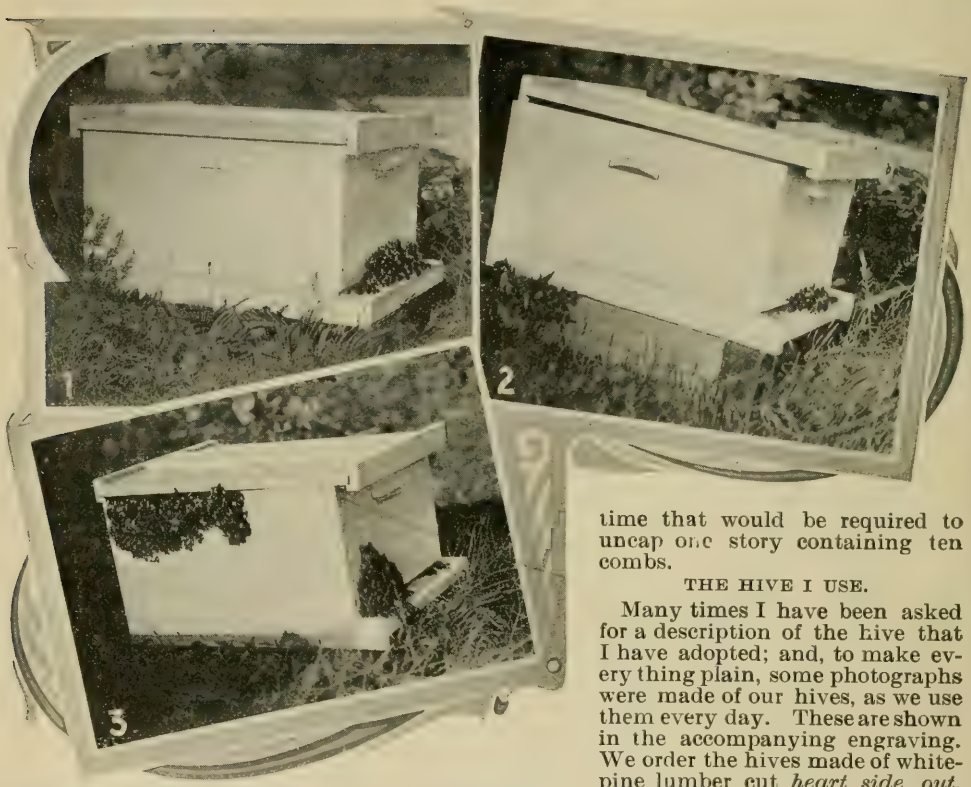
What hive to adopt is always an interesting proposition. A few years ago I thought that the solution of the question depended upon whether one produced comb or extracted honey, and at that time I would have recommended an eight-frame hive of Langstroth dimensions for comb honey and a ten-frame for extracted honey. Now, after having had experience with the ten-frame hive for comb-honey production, I advise that size for both comb and extracted honey production. A frame of Langstroth dimensions (17⅝ inches long by 9⅛ inches deep) is the one that I would recommend for either comb or extracted honey. If a frame shallower than the Langstroth is used, pollen is likely to be stored in the sections in the supers above. Of course, this may be avoided to some extent by an expert, as he is able to arrange the supers and manipulate them on the hives so that little pollen gets into the sections; but when these shallow hives get into the hands of the majority of comb-honey producers, trouble begins. A frame of Langstroth dimensions is as shallow as I should like to use in a brood-chamber, and deep enough for an extracting-super.

HOFFMAN FRAMES FOR BROOD-CHAMBERS.

We are now using both loose hanging frames and Hoffman frames side by side in the brood-nests; but we are now buying nothing but the Hoffmans, as they are better for our methods of management than the loose frames. A somewhat different style of frame is used in the super or upper



ENLARGED VIEWS OF THE EGGS AND DODDER-CELLS IN THE OVARY OF A QUEEN.



THE TEN-FRAME HIVE AS USED BY E. D. TOWNSEND.
Fig. 1 shows the old form, and Figs. 2 and 3 the new. The last two also show the cover raised for ventilation.

story, however, than in the brood-nest, for our extracting-frames do not have the wide end-bars that form the self-spacing feature of the Hoffman, but, instead, they are ⅞ inch wide clear around, including the bottom-bars, hence they are what is known as the hanging or non-spaced frames. Such a frame has no projections to hinder the uncapping-knife, which is a valuable point. Then one may use just as many or as few in the upper stories as he sees fit, as they are spaced by hand.

We use eight of these frames in our extracting-supers, which are 14¼ inches wide, the usual ten-frame size of hive. As the eight-frame hive is usually built 12⅛ inches wide, seven frames is a desirable number for such an upper story. There are several reasons for the wide spacing of the extracting-combs, the most important one being that the combs are thereby built out beyond the edge of the frame, so that they are "fat." Another reason is that, instead of ten, there are only eight combs to uncap and extract; furthermore, more wax is secured with the cappings than if only a very thin layer were removed with the knives, as in case of thin combs. In our experience, two ten-frame stories containing eight combs apiece may be uncapped in the same time that would be required to uncap one story containing ten combs.

THE HIVE I USE.

Many times I have been asked for a description of the hive that I have adopted; and, to make every thing plain, some photographs were made of our hives, as we use them every day. These are shown in the accompanying engraving. We order the hives made of white-pine lumber cut *heart side out.* This means that, if there is any warping of the lumber, there will be no spreading apart at the top and bottom of the corners—the opening, if anywhere, being at the center, where it is easily nailed up. The truth of the matter is, however, if the lumber is put together with the heart side out, and fairly well painted, there is no gap staring one in the face every time he looks at a hive. Most of the large hive-manufacturers have seen the importance of this, and, as far as possible, are cutting all material heart side to the weather.

Hive No. 1 in the illustration is of an older pattern, showing the old style of Excelsior cover and a ⅞-inch-thick bottom-board. Nos. 2 and 3 are of the latest pattern, and are of the style that we are now buying. They are regular stock hives as manufacturers list them, except that the longitudinal piece at the side of the bottom-board is made the whole length of the bottom-board.

Aside from the greater rigidity of this bottom, there is a much better opportunity for fastening the bees in while moving. As the width of the bottom inside of the side pieces is the same as the inside width of the hive (14¼ inches) pieces of lath 14¼ inches long are nailed securely, with 3*d* wire nails, to the front of the hive so that the edge extends down to the floor of the bottom-board, thus closing the entrance. This prevents the hive-body from "shucking" sidewise

while being moved; and, even if there is a slight movement lengthwise of the bottom-board, no bees can get out, as the entrance-block slides with the hive and is held in place by the above-mentioned side-pieces.

We use no division-board or follower in our hives, the inside furniture consisting merely of the ten self-spacing Hoffman frames as they are regularly listed.

We have some covers so built that a thin inner cover is necessary, so that two covers have to be handled at each opening of the hive. There may be some advantages in these double covers, but we have decided there is not enough in them to offset the extra work of handling two instead of one. The Excelsior covers as shown in the engravings are very good, and we are now buying that style exclusively.

VENTILATION DURING HOT WEATHER.

In Figs. 2 and 3 the covers are raised a little and slid forward until the rear cleat rests on the back of the hive-body. This forms a V-shaped opening the whole length of each side of the hive. This is the way that we ventilate our hives during the time between taking off the early white honey and the darker fall flow (in those locations where we get a late flow), and also in locations where no supers are put on the hives after the early white honey is removed. This ventilation is needed during the hot weather following the white honey-flow, for the colonies are rather strong in numbers at this time of the year; and if we were to crowd the bees into a single story they would cluster out on the front. We also follow this same plan for ventilation during extremely hot weather during the honey-flow.

While all, or nearly all, of our hive-bottoms are reversible, one side having a ⅜-inch entrance and the other ⅞, we use the ⅜-inch side exclusively, depending upon the ventilation at the top, as described, when needed, as we think that the smaller entrance is better at other times. It must be remembered that I am not writing for locations or states south of me, but for my own location, where there are but few hot days when there is need of more ventilation.

Remus, Mich.

BEE-KEEPING IN THE HIGHLANDS OF MEXICO.

Yucca-trunk Bee-hives; Running Bees for Wax Only; Bitter Honey.

BY O. B. METCALFE.

Continued from last issue, page 50.

My next stop after leaving Monterey was at San Luis Potosi. Here I soon learned, by making inquiry, of Mexicans about the park, that there were some bees kept in the city, but that in the low hot lands toward Tampico there are a great many bees and professional bee-keepers among the natives. However, I could not learn of a single modern bee-keeper in that region. It seems that the native bee-keepers run bees more for wax, the honey being of an inferior quality.

For a few cents I hired an old Mexican to conduct me to the house of a professional bee-keeper who spends part of the time in San Luis Potosi, and keeps a few stands of bees there, but who has the bulk of his bees at Liones. Figs. 1, 2, 3 were taken at his home in San Luis Potosi, and show, according to all accounts, the type of hive used in the Tampico region.

Fig. 1 shows the arrangement of the hives



FIG. 1.—YUCCA-TRUNK BEE-HIVES AT SAN LUIS POTOSI, MEXICO, SHOWING ARRANGEMENT OF HIVES ON SCAFFOLD ALONG ADOBE WALL.

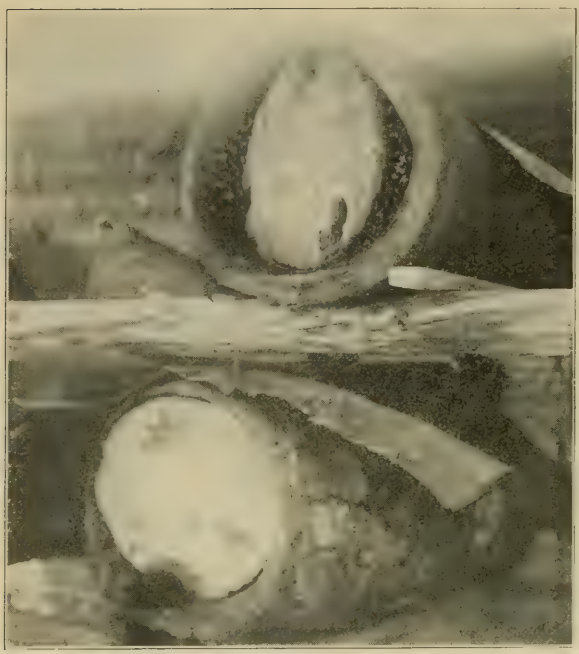


FIG. 2.—BEES CLUSTERED IN THE FRONT OF YUCCA-TRUNK HIVES AT SAN LUIS POTOSI, MEXICO.

on a rack against an adobe wall. They are commonly kept in this manner except that they are not always along an adobe wall.

Fig. 2 shows fairly well the structure of these Mexican hives. The trunk of a yucca or a small palm is cut off about four or five feet long, and hollowed out. In this the swarm is hived and a plug of the same material is set in front to keep out most of the weather. Over these spongelike hives some water-shedding substance is spread to prevent the rain from soaking them. Fig. 3 shows one of these hives with the end plug taken out and the bees smoked back so as to show the natural honey-comb. The bees build from their brood in the middle both ways; and when the hollow is full to both ends the Mexican bee-keeper is ready to "take off honey." Beginning at the large end shown in the cut, the operator keeps smoking the bees back and cutting out the honey until he reaches the brood. If he is a practical bee-keeper he leaves the honey in the little end for the bees at all times.

These yucca-trunk hives are much more practical than they would at first sight appear, and the owner of the ones shown in the cuts claims to get from them an average of from 180 to 240 lbs., according to the season. I can see easily enough that, with these hives, which cost nothing but a few minutes' labor, a great quantity of honey could be taken with little expense. If the honey were of too low a grade to sell, it could be fed back to the bees, and the wax sold at the good price it brings in Mexico. There were, however, some two or three carloads of honey exported from Tampico this year, and that shows that some of it, at least, is salable at some figure. As to the bees making from 180 to 240 lbs. per colony, I have my doubts; for, by talking a long time about times of taking honey, etc., with the old man I am speaking of, I surmised that he really got about half that amount.

As I have said before, this old San Luis Potosi bee-keeper has bees at Liones, about 100 miles away. He claims that at Liones the honey is made mostly from a weed which grows abundantly on the hills, and that it is so bitter it can not be eaten, and that, therefore, he runs his bees there exclusively for wax. So here I had found a bee-keeper who kept bees for the production of wax only. I was at once very much interested, for this was one of my Mexican get-rich-quick ideas; but as soon as I began to talk to this old man about his methods of rendering wax and preparing it for market I saw that the plan had been pretty well tried, for there seemed to be little that I know of modern wax craft that he did not know, even to the bleaching of beeswax in thin sheets by sunlight. They melt up the honey and wax after straining out what honey they can, and then dip off the wax, about as we do. The refuse is then transferred to strong sacks which are securely fastened by one end to a tree or post. A small strong stick to twist with is then folded in the other end, and the sack is wrung as long as any wax drips. As the pure wax begins to cool, wet boards are dipped into it and the thin scales of wax which adhere to them are scaled off and laid in the sun to bleach. In this shape it brings the best price for making candles to burn in the churches. They all shake their heads, and say there is no supplying the demand for this wax at $1.00* per pound.

Leaving San Luis Potosi early in the morning I had a splendid opportunity to study the flora as we traveled south toward the city of Mexico. Very soon after leaving San Luis Potosi the railroad is along the edge of a great valley in which there are many farms, and a few alfalfa-fields are seen here and there. Getting off at the numerous stations I learned that a few colonies of bees were kept all along. At Jaral de Berrios I was told that a good many bees were kept, but that the honey was dark and strong. The Mexican I was talking to on the station platform said that some ate the honey, but not many, and that it would not sell. He said they took the wax to San

* Equivalent to 50 cts. in American money.

Luis Potosi, and that parties there made the profit on it. At this point I noticed all along the foothills a growth of yellow weed—a strong shrubby perennial something like the yellow dock from which our bees make a strong yellow honey in the fall. I imagine that it is from this weed that the bees along this valley make the bad honey.

Further on, the railroad climbs out of the valley on to a high tableland country, and in places there were patches a few miles square completely covered by a diminutive sunflower. It did not grow over a foot high, but was evidently of the genus *Helianthus* with our common sunflower, and I should think that bees would do well on it in the fall.

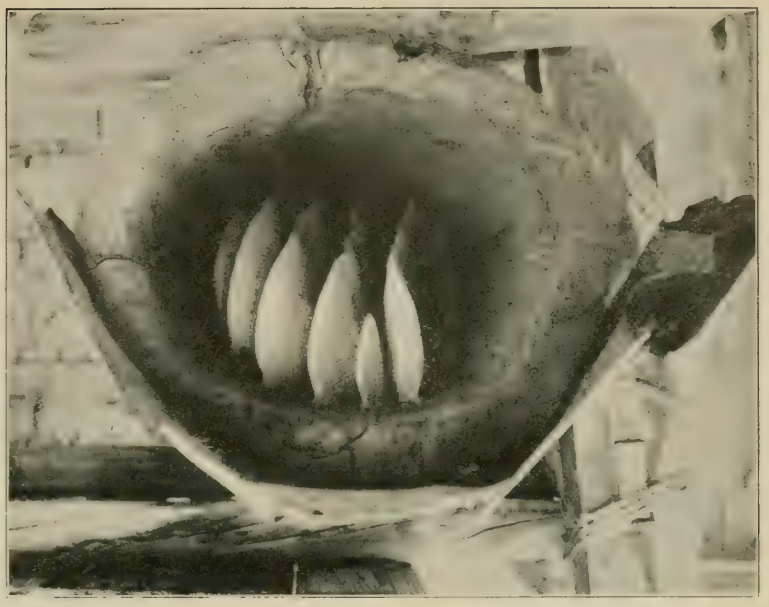


FIG. 3.—NATURAL HONEY-COMB IN YUCCA TRUNK HIVE, SAN LUIS POTOSI, MEXICO.

About the line of the state of Guanajuato, which is one of the most fertile states of the republic, among the highlands, I saw the first chayotillo plants, but not enough in any one place for a bee location. The chayotillo plant is, perhaps, Mexico's greatest honey-plant, and in another article I expect to discuss it and give a picture of it.

Mesilla Park, New Mexico.

EUROPEAN FOUL BROOD.

A Study of the Conditions and Environments which Have a Bearing on the Cure. An Explanation of a Great Many Failures.

BY F. B. CAVANAGH.

In Three Chapters. Chapter One.

When we located at Hebron, two years ago, it was with a certain knowledge that European foul brood, commonly called black brood, existed in the vicinity. At that time our law had not been passed providing for an inspector, and black bees were suffering considerably from the disease. One fact stood forth, however, that honey crops were still being secured, and this decided me in coming here. I took the chance, trusting to my past experience in shipping bees to abridge my supply in case the disease reduced the number of colonies. Friends thought the move a mistake, which it no doubt was from a rational standpoint. However, not being built on rational lines I wanted to "know" from actual experience—to "beard the lion in his den," as it were. I therefore shipped some 300 colonies into that diseased location, all of which were healthy. Believe me, though, that lion was the most ferocious monster I had ever met, and it had me badly scared before the summer was half over, although I did not cease fighting.

As I relate the following experience with European foul brood it is with the realization that I have been favored in many ways. Our foul-brood law, recently passed, has proven efficient under the splendid organized work of our inspector, Mr. Demuth. The disease has, by the application of advanced methods, and with Italian bees, proven more easy to cure than I at first anticipated. While we have secured but little honey during the past two years, I am glad to have had the experience of winning a real battle with the disease; and the following is given with the hope that it may help other bee-keepers to defeat the enemy.

During the spring of 1909 I made the following shipments: About April 20 the Aylesworth yard of three-banded golden Italians, Cyprians, Carniolans, and Caucasians; May 20, the George yard, from Wisconsin, which was excellent stock, about half dark hybrids and the rest three-banded Italians. June 5 I purchased the Berdine yard of 50 hives, about half Moore's strain and the rest dark hybrids. In all there were about 300 colonies, all of which were healthy.

The disease soon made its appearance in every yard; but in each case I was sooner or later advised by some neighbor that my

bees had robbed his hives. Also in every case, when inspecting later, I found these neighbors' yards diseased. My bees, being principally Italians, were easily identified, and lined to the nearest apiary. Realizing now that the location must be cleaned up if a permanent cure were made, I finally consented to act as deputy inspector, covering as much territory as possible surrounding my yards. This trip, unfortunately, caused some temporary bad feeling among neighbors who failed to grasp at once the intent of the law; but, happily, the work proved a success in eradicating the disease.

We used the McEvoy treatment entirely, and also required disinfection of hives by burning them out after burying the diseased combs. Black bees prevailed in these small apiaries; yet where the work was faithfully performed I know of no failures in the cure.

My story shall deal principally with experiments, systems, and results, actually obtained in my own and neighbors' apiaries. I shall draw some conclusions and advance some *theories;* but the latter, however, are given merely for what they are worth and with the earnest hope of contradiction and correction by any brother who may know better; for as yet we are too ignorant of this disease to be sure of theories.

Dr. Phillips and Dr. White, at Washington, D. C., are studying the disease from a bacteriological standpoint. It has proven a tough proposition, acting in most uncertain and unreasonable ways. As Dr. Phillips aptly remarks, "The man who knows the least about the disease, usually thinks he know the most." When the work at Washington shall have been completed, the exciting cause determined, and other intricate problems worked out concerning bacilli and spores, we may then learn things which will call for material changes in our treatment. We now know that, when we do certain things under certain conditions, the disease becomes cured; but having, perhaps, done several things, or having done the same thing under peculiar circumstances, we can, in reality, only conjecture the real cause of the cure. Until these problems shall have been worked out, therefore, we can not afford to accept too seriously a mere theory.

SYMPTOMS OF EUROPEAN FOUL BROOD.

Early stages show an occasional dead larva (unsealed) apparently about four or five days old, and which is slightly yellow or cream-colored. Sometimes the larva will extend the length of the cell in a partially dried-down dark-colored scale. Mature brood may be found hatching, but there will be scattering open cells in the midst where larvæ have died and been cleaned out. The unsealed larvæ are invariably the principal sufferers.

Advanced stages show only an occasional young bee hatching and but little sealed brood; some cells will be found containing dead larvæ with the cappings broken into, and the diseased combs filthy and ill-smelling. The majority of cells will be found unsealed, containing dead larvæ in all stages, and varying from a yellow to a dark *muddy* color. The older larvæ slump into a shapeless irregular mass on the bottom or side of the cell, while the younger ones are sometimes curled up in a natural position. In rare cases the mass will rope out for about half an inch, but never any thing like American foul brood. Also the diseased matter occasionally assumes a salve-like granular appearance. It is then almost chocolate-colored and ill-smelling, and it lies on the bottom of the open cell.

Where the disease has been treated, mild returning cases may be detected most surely by a scattered appearance of the brood. This condition is usually found among Italians which are doing a good job of cleaning out dead larvæ, but whose queen is not up to standard. Such colonies should in no case be overlooked, for they are not only unprofitable, but they are sources of future danger and contagion as well.

ELEMENTS OR SOURCES OF CONTAGION.

Infected honey is, no doubt, the principal cause for the spread of this disease from one apiary to another. In my yards, in every instance it was started through easily traceable robbing. Mr. Simmins, an English authority on European foul brood, suggests that the infection may be carried on the bodies or feet of the robbers by reason of their fighting in masses over filthy brood. He also suggests that honey might be mixed with material from diseased cells if these combs were extracted. No doubt honey on the market might be thus infected; but I dislike very much to think that any bee-keeper would violate a pure-food law, and, furthermore, a law of common decency, by extracting and selling honey from combs containing diseased material. However correct this theory may be, I feel satisfied that there are times when honey may be infected in other ways than the above, and I offer the following examples as positive proof that colonies *under certain conditions* will contract European foul brood from diseased honey. One bee-keeper in southern Indiana fed his bees honey which was purchased of Mr. Alexander about the time the disease was in his yards. Another case was brought to my notice where a small dealer in honey allowed the bees to clean out cans in which he had purchased honey. The infection which was started in the apiaries of these men was clearly of this origin, for no such trouble had ever been known in the vicinity of either. Admitting, as we do, that these men were extremely careless, let us forever explode the theory that the germs of European foul brood can not be carried and transmitted to bees through the medium of honey.

During the inspection of Indiana, in 1909, our force found that about one-half of the new swarms from diseased apiaries carried the disease with them, or at least they showed it at the first hatching of brood. Was the disease carried in honey? did the nurse bees carry it? or was it transmitted in some other way? Those who have had experience

are entitled to several guesses on these questions.

Another element of contagion we found in old combs which had contained diseased larvæ when the bees had died. A small bee-keeper had sold hives having a small piece of this comb attached for "a starter," and which proved to be a fine "starter" for foul brood, and that with the first hatching. Remember, then, that, while combs can be cleaned out and safely used by methods I will give later, until this is accomplished they must not be used from a colony that has died in a diseased apiary—at least, not for hiving new swarms thereon.

Disease is spread in the hive through the nurse bees eating the juices of the dead larvæ while cleaning them out. I have seen as many as three at a time doing this, and, as Dr. Miller suggests, the infected milky fluid is no doubt fed back to other unsealed larvæ, thus giving them the disease.

Here we have at least three mediums of contagion—honey, old comb, and diseased larvæ. How many more there are is difficult to surmise; but it seems certain that the disease is transmitted through the air from one hive to another. Frequently I have found one-half, more or less, of a row in an apiary where nearly every hive was diseased, while the remainder of the row were almost entirely free from the trouble. Also some very weak colonies in the George yard, which were practically used up by poor wintering, followed by long confinement in shipping, became the worst diseased soon after the strong colonies had developed the malady from robbing.

Hebron, Ind.

To be continued.

THE HAND SYSTEM OF CONTROLLING BEES.

How to Manage when All Colonies are Strong May 1.

BY J. E. HAND.

I have received the following inquiry from a subscriber whose home is in New York. As there may be others who would like further information along the line mentioned in his letter I will reply here. The communication is, in substance, as follows: "I am especially interested in the Hand system of controlling bees as described in recent numbers of GLEANINGS. Now, Mr. Hand, in case you had 100 colonies in sectional hives *all* strong May 1st, with a fair prospect of a copious honey-flow, how would you manage them for the production of comb honey with no increase?"

In the first place, the condition that you mention, that of having 100 colonies *all* strong May 1, would be an abnormal one for the latitude of New York, where bee-keepers as a rule consider themselves fortunate if 75 per cent of their colonies are in that condition by May 15. At least that is the condition that usually prevails in Northern Ohio, which is considerably south of New York. However, if we had 100 colonies in the condition mentioned May 1st or 15th, we would lose no time in giving them each a third division to increase the capacity of the brood-chamber; if nectar were being gathered in excess of present needs I would provide also a super of extracting-combs above a queen-excluder, for these strong colonies must not be allowed to contract the swarming fever at any time, and especially at this stage of operations.

When the harvest from clover has nicely begun, and the prospect bids fair for a copious flow followed, perhaps, by another from basswood, let no one wait until the bees are on the verge of swarming, but nip the swarming impulse in the bud in the following manner: Assuming that each colony is provided with a double switch-board, place the top division, containing honey and bees, but no brood, down on the vacant side of the switch-board beside colony No. 1. Exchange the central comb for a comb of brood and bees from No. 1, including the queen. Upon this division place another, containing frames filled with foundation; put on a queen-excluder and a super of sections, and throw the switch. In 48 hours practically all the flying bees will have joined the new swarm through their accustomed entrance, and all that will be left in No. 1 will be a hive full of brood and a lot of young bees that have not yet flown from the hive, which will be sufficient to care for the unsealed brood. However, if the nights are cool, and it is feared that some of the brood might perish for want of bees to maintain a normal temperature, one of the safety-valves on the side should be opened a few days before shifting, to retain sufficient bees to meet the exigency, so that no brood is lost.

In about a week there will be a considerable force of young bees flying from No. 1, which are in turn switched over to re-enforce the swarm, which will be continually increasing in numerical strength during the next three weeks. At the time of making the second shift, place a specially constructed bee-escape in the entrance of No. 1 back of the switch-lever, which is pushed up tight against it. The exit from this discharges the bees close to the main entrance, into which the returning bees from No. 1 must enter, since no bee can again enter that hive. When the brood has hatched and the bees have all been transferred to the swarm automatically, the hive and combs may be used as desired.

If there is any foul brood in the apiary, this system will eradicate it without any extra manipulation, and without interfering with the honey crop; in which case, however, we would use full sheets of foundation in both divisions of the new hive and make sure that the comb of brood came from a healthy colony. Thus by working in harmony with the instinct of bees we pay tribute to nature. The swarming instinct is satisfied, and the bees are placed in that highly desirable psychological condition

that is essential to best results in honey production, and which can neither be produced nor maintained in any other way.

In case full-depth hives are used we would place upon the hives early in the season a full-depth upper story of extracting-combs above a queen-excluder, which, at the beginning of the harvest, is used for a new brood-chamber exactly as above described.

The secret of successful swarm control is not in swarm *prevention* (a thing that exists only in the minds of brainless philosophers), but, rather, in swarm *control* by *forestalling* the event by substituting the artificial for the natural.

Birmingham, Ohio.

BEE DEMONSTRATIONS ONE OF THE FREE ATTRACTIONS AT A STREET FAIR.

BY M. E. BOND.

At our street fair last October I gave demonstrations with bees every day, a feature which was advertised at 4 P. M. for each day in the printed programs, together with high dives, bicycle dives, etc., at other hours in the day.

My cage was 6 ft. square and 6 ft. high, and was made of inch strips covered with wire cloth. It was erected in the center of the street on a platform supported on trestles, which placed it above the crowd. For the demonstration I used a colony of black bees that I purchased from a neighbor; and as there was brood in all stages I made special explanations in regard to it, and the crowd seemed to appreciate it very much when I told about the time required for the bees to hatch, mature, etc.

Each day I shook the bees from the combs in a large pan, and tumbled them around in the pan until they would form in a ball, then put a ball of bees first in one hand and then the other, then in my hat, and finally I placed the hat on my head. I then threw my head back and shook the bees into my mouth, at which moment the crowd held their breath, thinking I would be stung to death. I had paper cones, like ice-cream cones, that I filled with bees and offered to sell, etc. I wore a thin gauze shirt with two-inch sleeves fitting tightly about the arms. It had a low neck, but there was little chance for bees to get under it. I also had bicycle-guards on my trousers, so that the bees could not crawl up.

By giving the bees a few puffs of smoke at the entrance before opening the hive I had no trouble in doing any thing with them that I wished. I made the demonstration for four successive days, closing the entrance in the evening with wire cloth and keeping it closed until I was ready to make the demonstration the next day. I was obliged to do this, as I kept the cage covered all the time.

Some said I had taken a vinegar bath, and others thought the bees were chloroformed. Some one started the story that I had clipped the stings from the bees; but when I offered them a handful they declined to accept them. I exhibited modern hives, together with tools and materials used; and the last day of the fair the street was so crowded for a block that many could not get close enough to see.

Winimac, Ind.

MINNESOTA BEE-KEEPERS' ASSOCIATION.

Report of State Meeting.

BY C. A. PALMER, SEC.

Those who attended the sessions of the Minnesota State Convention in Minneapolis, Dec. 7 and 8, 1910, returned to their homes happily conscious of having learned much in regard to obtaining more than ordinary crops of honey.

The program was certainly well stocked with pointers from professional men. E. L. Hoffmann, of Janesville, who secured, during 1909, from his 100 colonies, an average of 100 lbs. of honey per colony, was present, and explained his full method. Mr. Hoffman is an enthusiastic student of bee culture, and his knowledge of methods practiced by prominent bee-men of the country, combined with his own lifelong expericnce, makes him especially interesting as a speaker, and helpful in answering questions.

Dr. L. D. Leonard, of Minneapolis, gave an explanation of his method of getting rid of foul brood. Those who heard Dr. Leonard could not doubt that his unique methods solve this vexing problem successfully. It is a method very easy to follow, besides.

Both these papers were strengthened much by the fact that the speakers made use of actual hives with frames of comb and all other fixtures, except the bees, to make their meaning unmistakable. The talks were thus real demonstrations.

A great deal of interest was also elicited by the demonstration given by C. F. Greening, of Grand Meadow. He used small hive models to show his way of getting the greatest amount of honey from the smallest number of colonies with the least work, and also to show his plan of controlling swarming. An effective commentary on the success of Mr. Greening's methods was the fact that Lyman Smith, of Wayzata, who had Mr. Greening a year ago, put the plan into practice the past season, and was rewarded with 2000 lbs. of honey from only ten colonies.

A committee was appointed to consider needed changes in the State law concerning foul-brood inspection. Action was also taken looking toward the securing of recognition for the bee-keeping industry in Minnesota by the creation of a chair of apiculture in the Agricultural College.

The association endorsed the resolution passed by the National Association at the conclusion of President York's address at the Albany meeting. The Minnesota officers feel hopeful that the next National meeting will be held in this State.

St. Paul, Minn.

Our Homes

By A. I. Root

Who forgiveth all thine iniquities; who healeth all thy diseases.—Psalm 103:3.

For he knoweth our frame; he remembereth that we are dust.—Psalm 103:14.

Wherefore let him that thinketh he standeth take heed lest he fall.—I. Cor. 10:12.

A few days ago my heart was made glad by the sight (once more) of some of the familiar handwriting of our good friend E. E. Hasty, and here is the letter:

Brother Root:—Yesterday's Gleanings, where you confess to such a bad memory, moves me to write you about the subject. We too easily settle down in the belief that it can't be helped. I feel convinced that to a certain extent it can be helped. You are among the foremost (*a la* Terry and others) to help the body's disposition to go to the bad. Is the body of so much more value than the mind that it must have *all* the propping up, while the mind goes completely to pieces with no effort to save it?

Some three years ago or more my memory got into a desperately bad condition (*couldn't* shut the milk-valve before I strained the milk in); utter inability to get along with the daily duties of life seemed just ahead; and a solemn feeling that something *must* be done about it came upon me pretty strong. Not far from the same time I read some remarkable articles in a magazine written by a doctor in Philadelphia. The gist of the matter was that the failure of the faculties could be halted, and in some measure recovered—yes, better memory and better senses and better thinking be secured by persistent massaging of the head and neck.

Well, I went in pretty strong; have kept it up ever since, with brief intervals. As for results, I must admit that my memory is still pretty bad; but I think it is not so extremely bad as it was three years ago. And surely to have prevented the natural further deterioration for the three years between 67 and 70 is doing a good deal.

The why and wherefore of the thing was not put into very clear words in that doctor's papers; but I take it to be something like this: A refreshed and aroused condition of living tissues *tends to communicate itself* to tissues nearest by; and thus, although we can not massage the brain directly, we can indirectly.

And I take it that this is not a matter of a few days nor even a few weeks, but a matter comparable to the grinding of a pretty big facet on a diamond —those need not begin who have not persistence to keep on awhile.

The doctor seemed careful not to say one word about the *modus operandi*. I had to invent all that for myself. I think I did fairly well at inventing and learning a modus.

The time I chose was just before I got up in the morning, while still lying in bed—wouldn't do for two-in-a-bed arrangements. It is important enough to justify some changes to one-in-a-bed arrangements.

As for me, I use it in company with other massages and motions conducted at the same time, but having different objects in view. All of them, with the desirable intervals between, take about an hour. These which I am now recommending to you take about fifteen or twenty minutes.

One difficulty that I encountered at first was that the arms, having to work in an unnatural position, and higher that the heart, got bloodless and awfully tired too soon. That gradually improved until at present I seldom think of it. I used to make haste to straighten arms down aside, and let the blood flow into them again, while the rocking of my head was in progress; for forcible rocking of the head from side to side is one resource that I think very highly of.

But my experience with rocking seems to give a hint that it may be dangerous for some persons. My eyes would get suffused with blood by the bursting of little vessels. After the first few weeks there was no more of that—nature evidently strengthened her works to match her mauling.

This rocking exercise can't very well be done standing up—and that's the main objection to having the whole performance someother time or place. And if you *should* happen to *take* on this I will gladly tell you more about it.

Toledo, O., Dec. 6. E. E. Hasty.

I don't know how many times I have read the above letter over and over, and every time I read it it takes a mighty hold on me. By all means tell us more about it, friend Hasty. I think it must be about three years ago when *I* first began to feel I was "going to pieces" in regard to memory. There were certain things I could remember and other things I could *not* remember. For instance, my great and grievous trouble was (and to a great extent is even yet) to remember to put my letters in the mail-box when I went after my mail every day. Our postoffice is about a mile away; and every evening when I take up my eggs I go to the office; and as it is troublesome and untidy to tear open letters that have been once sealed, I do not seal any of my letters until I have looked over my mail to see that there is not a postscript to be added to one or more of them. Now, the trouble comes in here; even when young, and through all my life, whenever I give my whole undivided attention to any important matter I become more or less oblivious to all that is going on around me. This is especially true when I have some hard problem to solve; and I often say, "Just let me have this thing all by myself and I will make it come, you see if I don't." In taking charge of a great business, as I did for so many years, there were often times when I *could not* be let alone. A train was due, or a gang of men were idle until I could make a decision. Well, I discovered long ago that this pulling me off by force, as it were, from one thing to another, was exceedingly wearing on the nerves; and it is not at all strange that I finally broke down and had to call the boys home from college.

Now let us get back to the postoffice. When I began to open the letters of most importance, and give my mind wholly to the contents, I forgot every thing else; and if there was nothing to be added to any of the letters in my pocket I forgot all about them, and did this thing *over and over again*. I "turned over a new leaf," made a mighty resolution that I would never be guilty of such a silly trick again, and did all right for perhaps a couple of weeks, and then I was back at the old habit again. I think I had better confess to you that I worried and prayed over this thing (yes, *prayed*) until the sight of the postoffice almost threw me into a nervous chill, and then I went and did that *very same thing*, in spite of the "nervous chill." Once when I forgot some letters that were very important I went straight back to the office; and, although I was mad every foot of the way, I came home with the letters *still* in my pocket. There were a few other errands besides the letters, it is true; and by some queer feature of the matter I seemed capable of remembering every thing except to post the

letters I had taken so much pains to write. I seemed to be like the little girl who came in crying because she could not count the chickens. She said she counted them all but one, and that one ran about so "everlastingly" she could not count it. Mrs. Root laughed about it and said it was because I still had too much care and worry, and suggested I should stop trying to raise so many chickens, etc.; but I told her I should die sure if I was not kept busy at *something*.

After praying over the matter as I have told you, I soon began to see that this trouble was worse when I did not feel real well, especially when my digestion was bad; and when I dropped my suppers, as I have told you about at length, there was at once a very marked improvement. After I took up a daily sponge bath, as I have also explained at length, there was another very great improvement; and as I took this sponge bath I have practiced massaging, something as friend Hasty refers to, as nearly as I can make out.

I tried many expedients to overcome the trouble. For instance, I kept all my letters in my hand when I went into the office; but I was compelled to lay them on the desk when I opened my mail, and then I, *like an idiot*, went off and left them all on the desk, which was worse than leaving them in my pocket. Of course I could have carried my letters in my hand and mailed them before taking my mail out of the box; but I did not once propose giving way a single iota to this strange infirmity, for where would it end?

It has doubtless occurred to more than one of you that my account of battling with this infirmity sounds strangely like battling with real sin; and, to come right down to the truth of it, forgetting *is* a sin, and at times a most grievous sin. Witness the loss of life and limb that has resulted several times lately where a motorman has forgotten himself and run on some other car's time. Let me digress a little:

Years ago, before I became a Christian, I got to thinking one Sunday afternoon about a certain thing in my life that needed correction, and really *had* to be corrected. I remember vividly going out alone into the woods and sitting down on a log and thinking it over. After some serious meditation I arose, and, raising my right hand, took a solemn oath before God that *henceforth* and *for ever* I would be *free* from this thing that threatened my peace, my happiness, and my life. I have just been reminded of this incident by what our good pastor and others have been saying about "New Year's resolutions," as this is only the third day of January as I write. Do you remember when Peter said, "Though I should die with thee, I will not deny thee"? The Master said to him that Satan should sift him as wheat, and Satan "sifted" my poor proud self *within a couple of hours* after. I held up my head in a manly way in the woods, and declared *I* would be master henceforth, and not a foolish silly inclination, and I walked home from the woods with my head up, feeling manly and glad to think I was *through* with the conflict with evil. Do you wish to know how it turned out? Before the sun went down I was deeper in the "slough of despond" than I had ever been before. I was so completely whipped out and discouraged that for a time I gave up. I was like the intemperate man who said to me some years after, "Mr. Root, this is a horse I can not manage. When he gets me on his back I must go where he carries me. I really can *not* help myself." That "horse" did finally (as I told him it would) carry him to a drunkard's grave.

Now, dear friends, *here* is the great point of my long story. After I had said several times, "Now I know I will never do this ridiculous thing again as long as I stay in Florida," and then found myself back in my old tracks *before the day was gone*, I began to think of that scene in the woods of long ago, and to reflect on *how* deliverance came. When poor Peter stopped telling what *he* could or would do in his own strength, and said, as he did when sinking in the water, "Lord, save or I perish," *then* he became a great apostle of righteousness.

When I was forced to acknowledge that A. I. Root, with all his grit and vehemence, was only a frail willow twig in the hands of Satan, and when, instead of calling on God to witness what *I* would do, I sat at the *feet* of the dear Savior and depended on *his* strength and not my own, I got out of my troubles; and, more than that, helped others out.

Terry, Fletcher, Battle Creek, and a host of others are doing grand things toward helping us to care for, in a sensible way, these bodies of ours; but with all these helps let us remember Him who said, "Him who cometh to me I will in no wise cast out;" and I am sure this promise includes the forgetfulness of old people, even in such a matter as failing to mail the letters that are already in their pocket, ready to go.

I do not believe that out in the woods (or anywhere else for that matter, all by yourself) is the best place or condition for a New Year's resolution, nor for a resolution of any sort, to break away from sinful habits. Make your pledge in the presence of your good wife or sister, or, better still—yes, far better, in your weekly prayer-meeting, and let all your brothers and sisters in the church hear it, and ask them to pray for you. This is the common-sense way, and the one the Holy Scripture endorses.

At the close of a business letter my good friend Terry takes in a similar thought. Here is what he says:

Dear Mr. Root:—Glad you are well. Really it wouldn't look very well for you to be any other way. And I am glad, also, that you have a typewriter. It is well to keep up with the times—keep growing if we want to stay here. When we stop we stagnate and begin to die. God smiles on a progressive fighter—that is, if he lives in accord with the Creator's laws.

Hudson, O., Dec. 17. TERRY.

Do you see the connection? It certainly

would not look well for either Terry or myself to be caught *sick* after all we have said about getting well and keeping well. In the same way it would look very bad for one who had confessed his sin before his friends in the church to go back and be found guilty of the same thing once more.

Let us remember Him who is not only able to "forgive all our iniquities," but who, as well, "healeth all our diseases, and who also knoweth our frame. He remembereth that we are but dust." Let us also remember that beautiful little text that has for generations been learned by heart and repeated by thousands of children, "Wherefore, let him thinketh he standeth" in his own strength, "take heed lest he fall;" for the only strength that can carry us safely through all life's battles as well as through the failing faculties of old age, and not only through life but through death, is the strength that comes through Christ Jesus, the Savior and Redeemer of all mankind throughout the whole wide world.*

In my talk above there is one thing I omitted to touch on. We should use every means to relieve the memory of unnecessary burdens. To illustrate: For years past I have been sure to leave my umbrella somewhere, whenever I started out with one. Finally I headed off the trouble by always placing my cap on my umbrella as I stood it in a corner; and when I went for my cap I was always reminded of the umbrella. In this way we can make sure in similar cases of avoiding causing useless steps and delays, not only for ourselves but for our friends and neighbors also. With my old Olds mobile there were *seven* different things to be done in starting, and almost as many to be remembered in stopping. Well, for a time it seemed that I never could remember all of them; and the consequence was that I left the oil or gasoline (or both of them) turned on when I stopped, and then there was not only trouble in starting next time but a waste of fuel, and unsightly grease spots all the time, more or less, on the cement floor of the autohouse, making it almost impossible to keep things looking tidy, even if we tried never so hard. Well, I finally learned by sad experience to get over forgetting these trifling matters most of the time. I almost forgot to mention that leaving the *switch* turned on when I stopped might result in a total loss of the expensive batteries. Now listen while I try to tell you how the great inventors of the day have helped old people and every one else right along in this line. When you start the new machine, if you start on the magneto there is no switch to be turned off, for there is no electric current for ignition until the machinery is running, and, as a consequence, when the machinery stops the electric current is already stopped. In a like manner the oil is fed to the bearings by a little pump that pumps oil only when "the wheels go round." When the wheels stop, the oiling stops. In a like manner the gasoline is fed only when gasoline is needed to run the engine. In short, if you find the chickens over the fence in the garden when you get home from church you can hop out of your auto and chase the chickens without waiting to do any thing, if you choose. Of course, you swing around the two little levers when you slow up; but this is all done with one finger; and if you are going to stop but a little while you may leave the engine running very slowly and very quietly, so as to avoid the laborious cranking when you want to start up again. Speaking about the "cranking," yes, it *does* take, at times, quite a little effort unless you are pretty strong in the arms; but if it isn't too severe on you I think it is an excellent exercise to develop the muscles and chest. Yes, I know there are devices on the market for "automatic starting," but so far as I can learn they are pretty expensive as yet.

Now to get back to my subject. When I started out writing this talk on my new typewriter I was very much pleased to find I could write almost a page without making a single mistake; yes, I succeeded even in using a capital letter when I came to the pronoun "I," and nothing vexes me so much as to find, when reviewing my copy before sending it to press, to find I have backslid into my old habit of using a little "i" when speaking of myself. Do you wonder why I mention so trivial a matter? Well, there is a moral and a lesson to it. It is this: I find I can stand the confinement of writing only about so long without getting so tired that it takes a very unusual effort to avoid making mistakes. The moral is this: If you are past or nearing the seventies, keep busy; but don't try to work too long at one thing until you are too weary to use your memory and other God-given faculties to the best advantage. Drop your typewriter and go and see how the hired man is getting on in making a new yard for that flock of downy beauties that should come out of the incubator about to-morrow. That is just what *I* am going to do now; so, "good by," as they say over the telephone.

* None but *Christ Jesus* can unlock the clutches of Satan when he once gets a poor sinner well in his terrible grip. "For there is none other name under heaven given among men, whereby we must be saved."—Acts 4:12.

"THE TRUTH ABOUT SWEET CLOVER" IN FLORIDA; ALSO SOMETHING ABOUT ALFALFA IN THAT STATE.

After having talked with many people, and getting various kinds of reports in regard to alfalfa and other clovers in Florida, it finally occurred to me that the agricultural experiment station at Gainesville would most likely be able to give me the "truth" in regard to the matter, and at the same time an unbiased statement; and since there have been so many inquiries in regard to the matter I feel ashamed of myself to think I did not go to headquarters.

for information long ago. Now I am able to give you something reliable and definite in regard to both sweet clover and alfalfa, from my good friend Professor Rolfs.

UNIVERSITY OF FLORIDA,
AGRICULTURAL EXPERIMENT STATION,
Gainesville, Sept. 9, 1910.

Mr. A. I. Root:—Sweet clover grows almost spontaneously all along the rocky portion of the east coast of Florida; also to some extent in the interior; but for the most part the interior is not supplied with a sufficient amount of lime to make the best growth of sweet clover. It will do pretty well if the soil does not get too dry, and is at the same time well supplied with carbonate of lime. There are quite a number of other legumes belonging to the clover class that do well under some conditions.

Alfalfa has been tried a great many thousand times in this State. The general experience is the same as that you had. It will grow well until the summer rains come on, then it can not compete with the weeds and native grasses. If we have a rainy summer it is very likely to be drowned out, or at least so badly injured that all sorts of root-inhabiting fungi attack and destroy it. We inclose you a copy of our press bulletin on alfalfa. The conditions are about the same at the present time as they were when the bulletin was written. I have a patch of some fifteen or twenty varieties of alfalfa that were planted out two years ago. While the plants live and produce considerable forage, the amount that they give us does not compare with what cow-peas, beggarweed, or velvet beans give us.

Please accept my thanks for your book on sweet clover. P. H. ROLFS, Director.

Here is the extract referred to:

Press Bulletin No. 66, Sept. 30, 1907.

FLORIDA AGRICULTURAL EXPERIMENT STATION.
(*Alfalfa.*)

BY P. H. ROLFS.

The fact that Florida needs a winter forage-plant is so well known to every one who has attempted to keep live stock here that no arguments in this line need be produced. We have an abundance of summer and fall forage, which stock may secure either by grazing or by having it fed to them. The one thing we lack, however, is a green forage or pasture crop for the winter. Rye and oats have been used for many years, but are expensive and more or less uncertain.

KIND OF LAND TO USE.

Alfalfa should be planted on land that is rated at least as first-class farming land. The field should be prepared as thoroughly as would be the case for either grain or corn. The land should have perfect drainage, but should not be of a loose sandy character. Alfalfa planted on sandy land underlaid with clay has been most nearly successful.

Still an Experiment.—Hundreds of attempts have been made to secure a good stand of alfalfa, and to make the field productive. In a number of cases the experiment has been so nearly successful that people have declared that they had reached the successful point. Up to the present, however, no field of alfalfa has succeeded in growing through the second winter and producing a crop of hay during the ensuing year. Numerous plots have been sown, and have produced an abundant crop of fine alfalfa hay; but these plots failed completely, either during the late fall or early winter; so that we can say that the experiment has reached the point where it has been almost successful, but yet not quite. Good fields of alfalfa have been produced near Dade City, Leesburg, Monticello, and DeFuniak. Probably the most nearly successful field was that grown by Mr. C. K. McQuarrie at DeFuniak. From this field Mr. McQuarrie secured alfalfa hay at the rate of several tons to the acre.

SOWING ALFALFA.

Mr. Coburn, in his book on alfalfa, states that quantities all the way from six to sixty pounds per acre are recommended. He calculates that, if fifteen pounds be used, and all the seed germinate, it would give us forty-four plants to the square foot. This, of course, would be altogether too many plants. As we would not expect every seed to make a plant, it will probably be best to sow the seed fairly thickly.

How to Sow.—The most usual way of sowing alfalfa is to sow it broadcast. For experimental work it would probably be better to sow it in drills, especially if one were sowing only a fraction of an acre. With drills it is a great deal easier to keep down weeds that might come up to choke out the seedlings. Ordinarily there is very little trouble from this source, however, and it will be found that broadcast sowing does fairly well.

Time to Sow.—The best time to sow alfalfa in Florida is during the fall of the year. Just what time in the fall will depend upon climatic conditions. If the soil is moist, and the heavy rains have ceased to fall, any time during October and the early part of November will be proper. This will give the plants sufficient time to make a considerable root growth before the winter arrives. During the winter the young plants will make only a small top growth, but the roots will penetrate more deeply into the soil and produce a good system before spring. When the early spring rains begin it will be necessary to remove any large weeds or grass coming up in the field, either by mowing them off or by having them hoed out.

Under favorable conditions two or three tons of hay may be made from an acre. This hay, when well cured, is worth at least $20.00 a ton. Considering the value of alfalfa hay, it will pay to sow fresh seed every year, even if the plants should all die out the second fall, as has been the case.

REPORTS OF SUCCESS.

Repeated reports of complete success with alfalfa have been seen in the various papers of the State. Officers of the experiment station have made it a point to investigate all of these carefully. In some cases it was found that these reports were circulated before the alfalfa-field was one year old. Success up to this point is no unusual occurrence.

Other reports of success have been investigated, and were found to be based on erroneous identification. Frequently people have mistaken sweet clover (*Melilotus*) for alfalfa. This crop, of course, can be grown, and the plant occurs in many portions of the State as a weed. It is, however, very much inferior to alfalfa as a forage-plant and also as a soil-renovator.

SOIL INOCULATIONS.

For a time it was thought that inoculating the soil with the nitrogen-fixing organisms would overcome the difficulty of alfalfa failures. A great many experiments have been made with the commercial cultures, with cultures from the Department of Agriculture, and with soil taken from alfalfa-fields. Most of the experiments with cultures have proven complete failures; and where they have been successful they have given results inferior to those obtained by the use of soil from alfalfa-fields.

A KIND WORD FROM ONE WHO HAS READ GLEANINGS FOR NEALY 40 YEARS.

Dear old Friend Root:—We have never met, but I have been intimate with your true self for years; for as a man thinketh, so is he; and if *you* don't say what you think, I know of no one who does.

I write for a double purpose—first, to thank you for the constant stream of wisdom and goodness that has flowed from your heart through your pen ever since I first read the pamphlet GLEANINGS down in Mississippi, somewhere in the late '70's. So here is a hope that you may continue to sow the good seed for many coming years.

SULPHUR FOR CHICKENS, ETC.

Second, I wish to furnish the information you seek about the power of sulphur, when taken internally, to permeate the tissues of the body. It can, and will and does. Every doctor of experience will agree that, if a patient takes liberal doses of sulphur for two or three days, all the silver money in his pockets or about his person will be blackened by the fumes transfused through the skin, and you can smell brimstone whenever he is near.

A level teaspoonful of sulphur taken every morning for a few days acts as a harmless laxative.

I have been much interested in the discussion as to why bees are so terrified by smoke, and have listened in vain for some one to suggest that, because of the peculiar nature of their breathing apparatus, the little air-holes, being so very small, is it not possible that smoke causes in them a sense of impending suffocation, so that all the fight is choked out of them?

This is merely a query, not a theory.

Mobile, Ala. H. A. MOODY.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. ROOT, Assistant Editor — E. R. ROOT, Editor — A. L. BOYDEN, Advertising Manager
A. I. ROOT, Editor Home Department — J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX — FEBRUARY 15, 1911 — NO. 4

Editorial

THE WINTERING OF BEES.

So far the winter has been very favorable for outdoor wintered bees at least; and where it is cold enough we do not see why the bees should not be doing well in repositories. But a winter like this, in the region south of the great lakes, is rather too mild for the best results in cellar wintering.

WE are sorry to report that our new Canadian correspondent, Mr. J. L. Byer, instead of recovering from a severe attack of the grip that he had during the fore part of January, had a relapse, and is now seriously ill. Mrs. Byer writes that it will be some time before he will be able to do much reading or writing. We are sure that our friend has the sympathy of all our readers, and we sincerely wish that his recovery may not be long delayed.

TENNESSEE BEE-KEEPERS' ASSOCIATION; FOUL-BROOD LEGISLATION.

THE Tennessee Bee-keepers' Association will hold its regular annual meeting at Nashville, in the rooms of the Nashville Board of Trade, on Saturday, March 11. In this connection we are pleased to announce that the Tennessee bee-keepers are making a strenuous effort to get a foul-brood law. Those interested are respectfully requested to write their Senators and Representatives, if they have not already done so, urging their support of the bill. For particulars correspond with J. M. Buchanan, Franklin, Tenn., Secretary of the Tennessee Bee-keepers' Association.

CORRUGATED PAPER AND BETTER SHIPPING-CASES.

REFERRING to our editorial on page 745, Dec. 1, Mr. S. D. House, an extensive comb-honey producer of New York, writes:

I have read your comments upon no-drip cleats vs. corrugated-paper bottoms for shipping-cases. I wish to add a hearty endorsement to those comments, and will offer a few suggestions: That the cases be made of ½-inch thicker end-pieces, and long enough to stand at each end a piece of corrugated paper, which will make a cushion for sections endwise; also use nothing wider than a two-inch glass, and a cover to be nailed on in place of a sliding cover. We need a firmer shipping-case.

Camillus, N. Y., Dec. 31. S. D. HOUSE.

Mr. House has had a large experience in the production and shipping of fancy comb honey. This whole question is one that should receive a thorough discussion, and we therefore invite suggestions from others.

MORE ABOUT "EXTRACTED HONEY."

SINCE our editorial in the Jan. 1st issue on the "Nomenclature of Honey," we have received quite a number of communications on the subject; but we question the wisdom of using them for fear we may only waste space over a matter that, perhaps, can not be remedied. Moreover, almost all of the communications that we have received are conflicting, one suggesting one name, and one another. Several writers, however, have been unable to see why the term "liquid honey" would not fill all requirements; but honey in the comb is liquid, while very often that in bottles and cans is candied solid; hence if the term "liquid honey" were used the label would often be a misnomer.

After all, why not do away with the qualifying adjective on labels and let the liquid thrown from the combs be known simply as honey—just what it is? Bee-keepers could continue to speak of honey-extractors and extracted honey among themselves, or when explaining how the honey is separated from the combs, etc.; but the adjective, since it is only misleading, might better be omitted entirely from all labels. To the *consumer*, then, the product from the hive would be known as honey, granulated (not *candied*) honey, comb honey, and bulk comb honey.

The term "extracted" honey is very misleading, and not at all appropriate. There are relatively few *bee-keepers* in the world, compared to the number of *consumers* of honey, and among this latter class the term "strained honey" has been used for years, and probably will be used for years to come, even though bee-keepers continue to use the term *extracted* honey. The average consumer, to-day, does not yet know what extracted honey is—has never heard of it, in fact. When honey is mentioned in some recipe, as it occasionally is, in a cook-book or magazine, *strained* honey is invariably specified. What's in a name, any way? Perhaps not much; but it does seem funny to think of customers, year after year, asking for strained honey and receiving extracted honey.

We can not forbear giving a short extract from one of the articles received that we think hits the nail squarely onthe head.

Since the introduction of the so-called honey-extractor; there has been a constant effort on the part of bee-keepers to change the public's idea from "strained" to "extracted," with but poor success. I have had some experience in selling honey, extending over a good many years, and in

the majority of instances, when a sample of liquid honey is shown, people use the same expression now that they did fifty years ago—"Oh! its strained honey!"

COMB HONEY IN THE CRANE CORRUGATED-PAPER SHIPPING-CASES.

WE received quite a shipment of nice comb honey packed in new corrugated-paper shipping-cases. Although the honey had been pretty badly banged around inside of the car, the cases being piled up on end, on the sides, and any old way, yet the honey, except for some breakage, reached us in fairly good order.

We believe that the greatest feature of protection in these corrugated-paper cases is the cross-partitions, which are a little higher than the sections are deep. Whether paper or wooden cases come to the front in the future, one thing we are reasonably sure of; and that is, that cross-partitions of corrugated paper will be a necessity in either style of case. Poultrymen have for years used packing-trays having a separate compartment for each egg. The glassware men, and those selling any kind of bottled goods, have for years used cross-partitions of corrugated paper, to protect their goods. It seems strange that we bee-keepers have been asleep so long that we should just now wake up to the importance of shipping our No. 1 and fancy comb honey in better cases.

WINTER-KILLING OF CLOVER; PROSPECTS FOR NEXT SEASON.

THE winter in this section of the country was pretty snug and cold, with a large amount of snow on the ground until the 11th of January, since which time the ground has been bare, with warm and cold spells, rain, sleet, and a little snow scattered in between until yesterday, Feb. 6, when we had a very heavy fall of snow. We have been fearful that such weather would be hard on clover, but some old farmers with whom we have talked say that the ground has not been wet enough nor the weather cold enough to do very much damage as yet. The heavy blanket of snow we *now* have, and which we find is quite general over the Northern States, will protect us, as long as it lasts, at least. We are in hopes that our "January thaw" is over.

It may be well at this point to define what is winter-killing of clover. Different authorities do not quite agree as to what causes clover to die or disappear during the winter. The same conditions that affect wheat adversely also affect clover. It is generally stated that a *quick hard* freeze, followed by a rapid thaw, and this followed by another quick hard freeze, is more destructive to clover than a *gradually* freezing and thawing temperature followed by continued cold. It is also generally agreed that, when the ground is covered with snow, and stays covered almost throughout the entire winter, conditions are the very best for clover. If the ground has been frozen, and snow falls on it, the snow, says the old farmer, "will draw the frost out." Strictly speaking, this can not be true; but a fine blanket of snow will so protect the ground that the heat of mother Earth beneath will draw the frost out of the upper crust. All the snow does is to prevent the further action of the atmospheric cold.

So far, taking conditions throughout the country as far as reported, there has been no destructive winter-killing; and if conditions are not unfavorable from now on we ought to have a fair clover yield the coming season, as the soil hereabouts, at least, is soaking wet. We have have had two off years; and on the principle that three bad seasons never come together we may hope that 1911 will break the spell.

THE HONEY MARKETS; GOOD TABLE EXTRACTED SCARCE.

THE wholesale market is practically bare of first-quality table extracted honey. There is a good supply of dark and off grades, but the best grades are conspicuous by their absence. There is plenty of fine No. 1 and fancy *comb* honey on the market; and it is doubtful whether it will be all cleaned up before the new crop comes on.

It is not at all strange that more bee-keepers should be turning their attention toward the production of extracted honey. The inexorable law of supply and demand will compel a large number more to change from comb honey to the production of extracted honey; but it would be folly to go to the other extreme. The average person who has been producing comb honey would better produce both comb and extracted. Many localities favor the production of the two kinds on the same hive. In other words, the seasons are so short and slow that some bee-keepers find it advisable to use a shallow extracted-honey super to coax the bees upward, and then, when they are once started there, to put a comb-honey super under it. In this way both comb and extracted can be produced on the same hive. If the season begins to taper off, the extracting-super can be removed, thus compelling the bees to devote all their attention to filling and capping over the sections in the comb-honey super or supers. If any of the extracting-combs are not quite filled, it is a matter of small importance.

COMB HONEY AND COLLIER'S WEEKLY.

IN our issue for Dec. 1st, page 745, we stated that Louise Eberle, in an article that she had written for *Collier's Weekly* on the subject of faking food, said, among other things, that the imitation of maple syrup was not "anywhere nearly the masterpiece that is turned out in honeyless honey in a beeless comb." A good many of our subscribers wrote us, protesting, and asking if we could not secure a retraction. Accordingly, on page 745, as above, we urged our subscribers, one and all, to write to *Collier's*

Weekly, saying that the statement in question was not only misleading but absolutely untrue. Well, it appears that the letters that poured into Collier's office and to the writer of the article came in such numbers that Miss Eberle finally wrote (as if she wished us to call the dogs off), saying she was convinced that there was no such thing as an imitation comb honey. As it would be simply impossible for her to write to all who wrote her, she asked us to make this statement for her, which we gladly do. In the mean time, *Collier's Weekly* published a very satisfactory retraction. It is very evident that it is convinced that there is a bee-keeper or two in the United States who will fight for their rights.

We may say that we have taken *Collier's Weekly* for a number of years. Its fearless stand for the right, its fight against the liquor-traffic and adulterated foods and drugs, have led us to believe that the paper ought to be supported; when, therefore, there appeared a statement in the columns of such a magazine to the effect that comb honey was manufactured, we knew it would do a great damage to the honey business unless a correction were made. We did not ourselves write to the paper, believing that the statement of our readers would have more effect by the mere force of numbers. We did, however, send two of our representatives to Collier's office, and, after a satisfactory interview, they came away, convinced that the paper would do what is right about it.

So it goes. We have now, with the help of our readers, secured retraction from all of the standard books and papers that have nnwittingly published that old comb-honey canard. We are wondering where the fake story will bob up again.

THE INDIANA STATE BEE-KEEPERS' CONVENTION AT INDIANAPOLIS, FEB. 2.

THE Indianapolis convention was a very enthusiastic gathering of bee-keepers; and, considering the very short notice, the attendance was unusually large, or at least above the average of the State bee-keepers' conventions.

The bee-keepers of Indiana are certainly to be congratulated on having such efficient leaders. State Entomologist Benjamin W. Douglas, also a bee-keeper, is leaving no stone unturned to advance the cause of apiculture within the borders of Indiana. Geo. F. Demuth, an appointee under Mr. Douglas, is one of the most capable and efficient foul-brood inspectors we have ever met. Probably no State in the Union is giving the question of bee-keeping, especially the matter of handling bee diseases, more careful and thorough attention.

Geo. W. Williams, the newly elected secretary, Mason Niblack, and Mr. W. S. Pouder, were most active in securing the passage of the Indiana foul-brood law, especially Mr. Niblack, who understands all the ins and outs of legislative machinery.

There were present at this meeting two men in particular who have come to be known all over the United States. One of them is F. B. Cavanagh, one of the most progressive bee-keepers in the United States, and Jay Smith, who has the faculty of seeing the funny or bright side of bee-keeping. He was generally called the "Jay" in the Indianapolis convention.

It would be impossible for us, owing to the limited space at our command, to give a full report of this convention. Nor will it be necessary, for a full stenographic report will be issued later. We may say, however, that the work of foul-brood inspection under Entomologist Douglas and Inspector Demuth was most strongly indorsed by the convention.

Mr. Douglas gave a very interesting talk on the anatomy of the bee, illustrated by means of stereopticon slides. He is a tremendous worker and a pusher. We do not believe there is a man anywhere in the country who has done more or better work in combating noxious insects and giving valuable information to the farmers than Mr. Douglas. His last annual report, consisting of 265 pages, and many fine illustrations of actual field work is a credit to any State.

Mr. Demuth gave an extended address on some lessons he had learned in inspection work in Indiana. In regard to the treatment of disease, while he recognized that there were several good treatments he thought it much safer for the average bee-keeper, at least, to use only the shaking plan. By "shaking" he meant either shaking or brushing to get the bees on frames of foundation. While it was possible to treat European foul brood without destroying the combs, he thought it much better and safer for the average person, at least, to clean out all possible sources of infection.

In this connection it is proper to state that Mr. Demuth has done much to advance the cause of bee culture in his State. In the report of the Entomologist, Mr. Demuth occupies 30 pages in giving plain directions for making money out of bees.

The success of this meeting was such that the convention unanimously passed a resolution inviting the National Bee-keepers' Association to hold its next annual convention at Indianapolis. Indianapolis is a great railroad center, and also the center of a large number of enthusiastic bee-keepers. We do not know of any other place in the Union that would draw a larger local attendance; and as the city is so accessible from all points of the country, there would doubtless be a large number of bee-keepers from out of the State. It is only 183 miles from Chicago; 276 from Detroit; 281 from Cleveland, and 111 from Cincinnati. It is in the heart of some of the very best white-clover bee-country in the whole United States; and we feel sure that the officers of the National Association will make no mistake if they give Indianapolis favorable consideration.

Stray Straws

By DR. C. C. MILLER, Marengo, Ill.

NOT CONTENT with making a success of the *Irish Bee Journal*, its jovial editor, Rev. J. G. Digges, now sends out the first number of *Bee-keepers' Gazette*. It is beautifully gotten up, but has one bad spot, where it says GLEANINGS is a bi-monthly. Instead of appearing only once every two months, GLEANINGS appears four times as often, being a semi-monthly.

"LAYING WORKERS do not lay in each cell, do they?" page 772. No; they scatter, laying here and there, as often as not more than one egg in a cell, and, likely as not, sticking the eggs on the sides of the cells. A queen-cell is their first choice, in which they may lay a dozen eggs; next they prefer drone-cells. But I have known at least one case in which the eggs were laid as regularly as a queen would lay them.

FRANZ KOEHLER, *D. Imker*, 326, finds that worker-cells built by the same colony vary in size from 17½ to 20 in 10 centimeters (4.44 to 5.08 per inch), and drone-cells vary from 13½ to 16 in 10 centimeters (3.43 to 4.06 per inch). The central, first-built combs of a swarm have the largest cells diminishing in diameter as the work advances. So he thinks uniform foundation not just the thing. I wonder.

"THE STAPLES space only the top-bars and not the end-bars," p. 25. Surely they can space the end-bars, and ought to. [We had in mind the kind of staple-spaced frames usually sold by dealers. There is nothing to prevent any one from putting additional staples in the sides of the end-bars or in the bottom-bars. In either case the staples would have to be driven the right depth into the wood to secure the right spacing.—ED.]

J. E. CRANE, p. 34, I'm with you in preferring hot syrup; but *the right kind* of "percolator feeding" takes ever so much less time and labor than hauling syrup ten miles away. Here's the way I've done lots of it: I took to the out-apiary dry sugar in bags; put the dry sugar into Miller feeders on the hives, leaving them uncovered; then poured a pint or so of water, hot or cold, into each feeder, still leaving them uncovered (no robbing ever started); then filled up with water, covering each feeder as I went.

EDITOR HUTCHINSON says, *Review*, p. 25, that he would never think of producing comb honey without honey-boards. I used them for years; and for years, with thick top-bars, I have done without them, and I wouldn't think of going back to them. It is true that some comb will be built between top-bar and section; and it is true, as he says, that "cleaning off the burr-combs in the spring does not prevent the bees from building another set." But if cleaned off every year, or even once in three years, they will never be very bad, whereas if never cleaned off they will become worse every year. Between top-bars and honey-board they became so bad I had to clean them off; and if never cleaned off I *think* they would become so bad that in time the bees would build between the honey-board and sections.

My assistant says: "Does Mr. Hutchinson know what he is talking about? Why, I wouldn't go back to honey-boards with the killing of bees, the solid mass of honey, and the dripping, nasty, sticky, mussy mess—oh!" But I can't give the disgusted expression on her face.

OLD COMBS should be melted up *if* the cells have become too small for the young bees, p. 60. That does not assume that the cells do become too small, it is true; but what I'm afraid of is that the beginner will understand that it is a possibility. Indeed, I happen to know that a common question among beginners is: "How soon should combs be renewed because the cells are too small?" and it is of some importance that they know the truth. If there is any such thing as the cells becoming smaller, the process is gradual; and if they are too small when twenty years old they must be smaller at ten years than when first built, and at least a little smaller when a year old; and so for the very best results combs should be renewed annually. Now, what I have been taught to believe, and what the beginner should know, is this: Cells do not become smaller with age. The bees dig away the cocoons at the side; but there is a constant accumulation at the bottom of the cell, so that the septum may become ⅛ inch thick or more. That would make the cells shallower; but to compensate for this the bees constantly prolong or build out the cell-walls, so that there never is any need to melt combs because the cells are too small. Melting combs on account of foul brood is a matter entirely aside. [Some years ago, when this matter was up for discussion, Mr. R. Wilkin, just before he died, said that he had combs that were thirty years old, and that the bees reared from them were perfectly normal in every respect; that he had never melted up any of those combs; and that he prized the old ones because they were strong and tough.

And yet, on the other hand, there are those who say that some strains of bees will not remove the excess of cocoons, and that, consequently, the bees are cramped in their growth. We believe, however, that we may safely tell beginners that they do not need to melt up their combs.

There is a question, however, whether bees tear out the cocoons at certain intervals or whether they gnaw the combs down, wax and all, and reconstruct them. While we incline strongly to the tear-out theory, Mr. Cavanagh, of Hebron, Ind., with whom we talked after the Indianapolis convention, said he believed the bees gnawed the combs down, wax and all, and rebuilt.—ED.]

Siftings

By J. E. CRANE, Middlebury, Vt.

Those illustrations on page 757, Dec. 1, of Mr. Holtermann carrying hives are certainly fine. They show not only how to carry a hive but any other heavy weight. They also remind me of a statement made at the Albany convention by the editor of the *Canadian Bee Journal*, that "a man can be a bee-keeper and a gentleman."

That picture of a California apiary, page 694, Nov. 1, looks good on paper. We have one symmetrically arranged in a similar way; but what a vexation it has been to me the past season it would be hard to tell. I made a large number of new swarms with laying queens; but I found it very difficult to get those young queens fertilized; and when I came to look over the yard for winter I found ten or twelve queenless colonies, while my other yards would not average over two to the same number of colonies.

"Do we need a fool-killer?" Well, I should say we do, or some one or something to kill foolishness. We bought some honey in the fall, and furnished cases and explained how it should be packed. As it was to go a long distance, with several changes of cars, we asked to have it put up in crates, and explained how. Imagine our surprise to find the corrugated cushion board in the case on *top* of the honey instead of underneath, and the cases packed so the crates would have to stand on end, or the combs in the cases lie in a horizontal position!

R. F. Holtermann, page 683, Nov. 1, says his bees are in winter quarters (outer cases) with an eight-foot fence around them. Now, what we should like to know is, why his bees are not in that scientifically constructed bee-cellar we saw illustrated a few years ago. Since we saw that illustrated in GLEANINGS we have had to struggle with our weak human nature to keep from breaking the command, "Thou shalt not covet." [We understand that Mr. Holtermann intends to be away from home practically all winter, and he thought his bees, as they would have to be left alone, would be safer out of doors on separate stands than in the cellar.—ED.]

The editor inquires, page 746, Dec. 1, 1910, whether we want to court advanced freight rates on honey. I think we do—at least some of us. But have we really considered what this means? Our freight rates in the past have averaged about 50 cts. per 100 or more. Suppose the rate is increased to 1½ times the present rates, it would cost us from $25.00 to $100, or even more, annually. Is there danger of the rates on honey being raised to 1½ times the present rates? Well, I have known at least one road that not only raised the rate fifty per cent, but doubled the rate, and all because a bee keeper who shipped his honey to market tried to collect damage for broken honey, or, perhaps I should say, succeeded in doing so.

The discussion of a ten-frame vs. an eight-frame hive is certainly timely. What the editor says, page 713, Nov. 15, is worth remembering: "We can always make an eight out of a ten frame hive, but we can not convert an eight-frame hive into a ten-frame hive except by the awkward manipulation of another eight-frame body." For one, while I use eight frames almost exclusively for comb honey, I often find it convenient to use a larger brood-chamber with combs outside the division-board for storing extra combs of honey while honey is coming in fast; or for placing a comb of honey for extra feed in spring. My brood-chambers will hold eleven frames—the most of them.

There has been some discussion in GLEANINGS as to the utility or value of dilute carbolic acid in preventing bees from taking poisonous mixtures used in spraying fruit-trees when in bloom. While in Hartford, Ct., last September Mr. A. W. Gates, a very intelligent bee-keeper and queen-breeder, and one of the foul-brood inspectors for Connecticut, informed me that he had used a strong solution of carbolic acid in examining hives and apiaries for foul brood when no honey was coming in, to prevent robbing. He used a cloth wet with the solution, or sprinkled some of it in front or about the hive, with the result that no robbers followed him or tried to enter the hives after they were closed. Later in the fall I used it with very satisfactory results. [We have an article on this subject that we expect to use in our April 15th issue.—ED.]

On page 695 Geo. Shiber discusses the proper size for a package of honey. Now, it seems to me that for the retail trade we had better not be very particular. The fact is, some want a good deal of honey while others want but little at a time, so we try to accommodate the buyers, and have a far larger trade than if we tried to force a uniform package on all. A few days ago a gentleman called and bought a quart of extracted honey for 40 cts. He called again yesterday and wanted a gallon—said his children liked it on bread for school lunch in place of butter. I brought him out a gallon can of honey. He inquired the price. I told him it was $1.50 per gallon. He evidently would have preferred it in quart cans; but when he found he could save ten cents by buying a gallon can he took that size of package.

What Mr. Shiber says on requeening is well worth remembering. The facts are, young bees accept a young queen much more readily than old ones.

Bee-keeping in the Southwest

By LOUIS SCHOLL, New Braunfels, Texas

SCHOLL'S FRAME-NAILING BLOCK.

A number of frame-nailing devices have been described; but our own suits us better than any thing else that has come to our observation. It is very simple in construction, made of two pieces of wood as shown, with two pieces of heavy tin or galvanized iron bent to serve as a holder for the frame ends. This block is set in front of the operator, preferably on a low work-bench, an end-bar placed in each one of the holders as shown, and the top-bar nailed on from the top. Then the whole is removed, turned upside down, and set on the work-bench in front of the block so that the frame rests on the length of the top-bar, and then the bottom-bar is nailed on, completing the job.

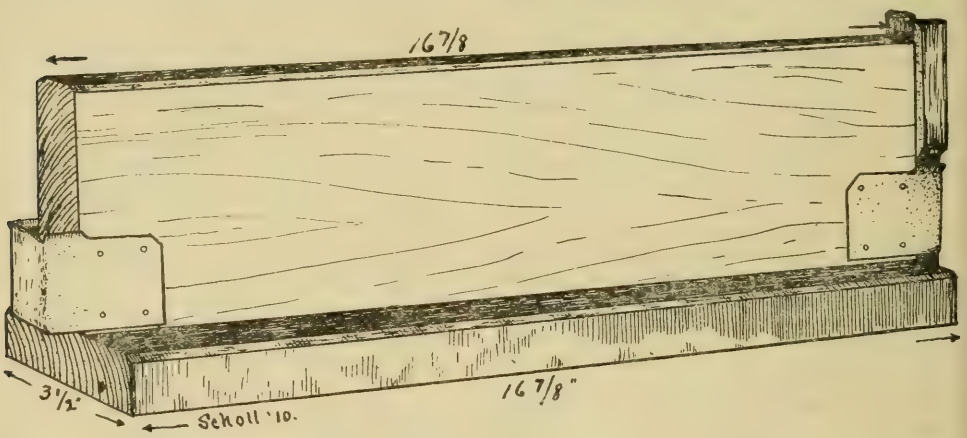


Fig. 1.—Scholl's frame-nailing form.

To assist in nailing the frames always with the V-edge of the end-bars in the right way we practice taking up the first end-bar to be placed in the nailing-block with the *right hand*, and in such a way that the V edge will fit into the V made by the fore finger, as shown in Fig. 2. If this is always done first, and then the other end-bar placed in position at the other end, with the V edge exactly in the opposite direction, all the frames will be assembled correctly, and the nuisance of having the V edges point in all directions (as seen in many apiaries) is prevented. Last year, out of over 7000 such frames, nailed up by two very young Mexican boys, there was not a single one put together wrong. Yes, we can go further, because, ever since we have adopted this way of holding the frame ends there has been no trouble about getting them in the right position. And this, together with the handy frame-nailing block, makes the nailing-up of the frames very easy indeed.



Fig. 2. How to pick up an end-bar.

NAILING SUPERS RIGHT.

There has been considerable trouble with the warping of the hive and super ends and sides after they are out in the weather for some time. Especially is this so in our southern and western localities where the weather seems to "have it in" for every thing, and this warping out of shape of the hive parts is serious in that the leaky hives caused thereby make robbing easy. Some of the newer goods are made so that there is not so much trouble as with the older way of making the hives and supers; but since many are still so made, and thousands of old ones are in use that need repairing at some time or other, we have struck on the idea as illustrated in the two engravings here shown. We have gone over hundreds of supers and hive-bodies and renailed them in the proper way, and thus obviated many of the leaks.

We term this the *proper way*. As seen in figure 3, A and C shows part of a wrongly nailed super. This is the most common way in which the supers are nailed—two nails driven in the two dovetailed ends of the sides of the super. This allows the

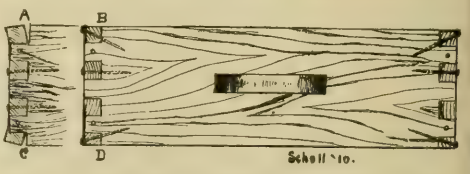


Fig. 3. Wrong and right way of nailing a super.

pieces to warp, leaving the leaks as shown. The *proper* way is shown in B and D, where three nails are so driven that there is little chance for warping, and the super remains bee tight.

The old way of cutting the hive and super rabbets allows them to warp out in many cases, and often they are broken out in handling. To obviate this serious matter we drive three slim nails into the rabbet, Fig. 4, slanting them so that they will have a tendency to draw the rabbet to the inside,

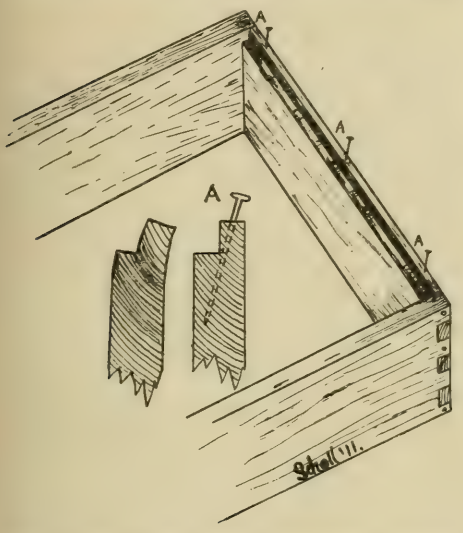


Fig. 4. How to prevent the rabbets from splitting.

thus bracing them exceedingly well. Of course, this latter is extra labor and expense, but we have found that it pays, especially if the work is done by cheap labor. Several young boys can be employed for this work very profitably.

THE SIZE OF WINTER ENTRANCES.

We have recently found that sometimes the size of the entrance to a hive makes considerable difference during severely cold weather. Two medium nuclei were wintered each in a single shallow hive-body, and each with sufficient stores. One of these had an entrance ¾ inch deep by the full width of the hive, and the other had the same depth of entrance, but it was contracted to only 1½ inches wide. Although the nuclei were in the same condition, located in the same way, and near each other, the one with the large entrance succumbed while the other came through in fine condition. When found a few days after the most severely cold spell that we have had for a number of years, the bees in one nucleus were stiff and starved, while the others were lively and in the best condition. Each had just the same amount of stores in th same shape about the cluster; but in one the bees were kept warm enough so that they could make use of the stores; in the other they were not.

The proof that they were simply starved to death, and not killed by the cold directly, we have in the fact that many of the apparently dead bees were "thawed" out again when placed in the warm sunlight; but, being too far starved, they soon succumbed entirely.

This would show that, even with sufficient stores in immediate reach of the bees, a severely cold spell might put the cluster in such condition that the bees can not help themselves and prevent starvation. How much there is in this we do not know, especially since we have never had such experiences here in this milder climate. Perhaps it pays to look after our winter entrances better than some of us do—not in that there might be a total loss to the colonies, but the size of the entrances may make a material difference in the welfare of the colonies.

WHO FIXES THE PRICE OF HONEY?

This is another respect in which we venture to say we are ahead of the bee-keepers of the North. From the many articles we have read pertaining to Northern prices we understand that the price in most cases is set by the commission houses and by dealers who buy the honey from the bee-keeper. Why should this be so? Not in one instance since I have been in the business extensively have I asked a buyer what he would pay for my honey. It is the reverse here. The bee-keepers, or at least the majority of them, know pretty well at the outset what they are going to try to get for their honey, and the market prices are governed thereby to a very great extent. We know this is true, for the simple reason that many of the honey-buying firms make their quotations at a certain figure in the early spring, and, later, as they find that honey is hard to get at these figures on account of the bee-keepers holding at a higher price they advance accordingly; so also does the price offered by the dealers go up a certain margin every year above the figures of the previous year. It has always been a wonder to us why we should be ahead of those in the North in this respect, since it has been conceded generally that they are so much ahead of us. Taking into consideration the amount of advertising in the North, and the amount of discussion that continues to appear on the subject, the conditions of selling in the North are very different from what we are used to here. Our honey is sold quickly, as a rule, without advertising, and at our own figures. In our case it is not so much how to sell the crop as it is how to produce enough of it to fill the demand that already exists and at a good price. We receive dozens of inquiries each season for *our* price. Then we send a price list with our prices, instead of writing for prices that some firm or buyer is willing to pay, as we formerly did.

Conversations with Doolittle

At Borodino

SPRING DWINDLING USUALLY CAUSED BY POOR WINTERING.

"Last spring I had much spring dwindling among my bees, and I wondered if you could tell me how to avoid it this spring."

"The best way to avoid spring dwindling is to insure good wintering Bees that winter well are not likely to dwindle in the spring very much."

"But don't you remember the bad spring we had last year, and how cold it kept for nearly a month after the bees had apparently got started in for a good season? From this I reason that such dwindling results from the colonies becoming chilled during these cold spells that may follow their removal from the cellar, or after they have had a week of warm weather, where they are wintered on the summer stand."

"I can not believe that there is so much in the idea that spring dwindling is caused by adverse weather conditions in the spring. From my long experience I am becoming more and more convinced that the trouble is mainly, if not altogether, an effect of poor wintering."

"But don't you think that a cold spring has something to do with this matter of bad wintering?"

"I do not desire to give you the impression that I think such adverse weather as we had last spring is not harmful to bees after they have had a week or two of weather good enough to start brood-rearing quite freely; but I do say that such adverse conditions are not the *prime* factor in spring dwindling. Such weather conditions I can consider as only secondary at most. Let me illustrate: Some years ago a part of the apiary was drifted over with snow, so that I lost sight of the hives for nearly six weeks, while the rest of the yard was nearly bare. When spring opened I found that those colonies drifted under, becoming too warm, had begun brood-rearing to a great extent, and the bees fouled their hives about the entrance with their feces, thus showing that they had contracted diarrhea. They were the first to fly when an opportunity offered. The colonies having no snow over them did not show up nearly so strong on their first flight; but after the cold bad weather of an unusually severe spring they were in good condition to breed up for the harvest, while the former kept dwindling till five-sixths of them were hardly better than nuclei, some giving up entirely.

"Again, I have noticed that, when colonies in the cellar came out and spotted the hives to any extent they would dwindle away very rapidly during April and May, while others which had their hives all clean and nice were not materially affected, even if there were weeks of unfavorable weather during these months. Take a colony having bee diarrhea to any extent, and, though you wrap up the hive with all the material for spring protection you can think of, it seems to be of no avail; while a healthy colony standing right by the side of it, not protected at all, continues to hold its own, and often makes an increase, with the weather conditions the same in both cases."

"Do you intend to say that bee diarrhea during winter is the only cause for spring dwindling?"

"No; I do not intend to convey that impression either. But I do believe it has more largely to do with it than any other trouble, while the rank and file of our bee-keepers consider this as a wintering trouble which the first flights of spring will cure. Other causes may also contribute toward spring dwindling, one, at least, of which may date further back than bee diarrhea. To illustrate again: One year when I was unusually busy building, after the basswood flow was over, the parent colonies having cast swarms were not looked at for weeks after the prime swarms issued, and it was well into September before I found time to look them over. I then found several of these colonies had failed to get laying queens through loss of their young queens in some way, so that I had some ten or twelve queenless colonies on my hands. As there seemed to be quite a good supply of bees in each of these hives, I thought by giving young queens and uniting two of these colonies together they would be fully as strong as any of the other colonies which had young laying queens in parent colonies. After being in the cellar a month these united colonies showed as large a cluster hanging below the frames as did any of the rest, and apparently wintered as well; but after their first flight it was plain to be seen that the other colonies had not lost nearly so heavily through their cleansing flight as had these; and when the cool and cold days followed, as they always do more or less, these old bees would come out and die almost in heaps about the entrance, some individual specimens even trying to fly, and then crawling as far as their legs, benumbed with cold, would let them, so anxious were they to rid the hive of their useless presence. These hives were protected better than were the others, in the vain hope of saving them; but all but two died out entirely, and that after a nice lot of brood had been got agoing from the young queens. Here was a cause for spring dwindling that was almost a year old, but did not show itself till the cool bad weather of the next spring came on.

"Then we have poor queens as the cause of this same thing—queens which the apiarist should have superseded in August of the year before; bad stores, damp hives, owing to improper ventilation, etc., all of which contribute to the death of colonies every year, while these causes are more often than otherwise wrongfully diagnosed as spring dwindling."

General Correspondence

IN MEMORIAM OF D. A. JONES.

The Remarkable Career of a Remarkable Bee-keeper; How he Introduced New Races of Bees; his Foul-brood Cure; his Baby Nuclei, etc.

BY E. R. ROOT.

D. A. Jones, one of the leading bee-keepers of thirty years ago, known all over Canada and the United States—indeed, we might say all over the entire bee-keeping world—passed away at his home in Beeton, Canada, on the 20th of last November. The information did not reach us until we saw the announcement in the *Canadian Bee Journal*.

Mr. Jones came into prominence in 1879, when he, together with Frank Benton, formerly of the Department of Agriculture, made a special trip to the Orient, at great personal risk, covering thousands of miles, to secure new races of bees. Mr. Jones bore the entire expense of that expedition, and after a year brought back to this country a large number of Cyprian, Holy Land, and Carniolan queens. During the years 1880 and 1881 there was quite a furore over these new races, and all the prominent bee-keepers of the world secured queens from Mr. Jones. While the Cyprians were splendid honey-gatherers and breeders, they were too vindictive—too awfully cross—to wear well either in this country or Canada. The Holy Land bees, while not so cross as the Cyprians, ran excessively to brood-rearing. It was not an uncommon thing to find Langstroth combs with every cell containing brood. The Cyprians and the Holy Lands themselves were very beautiful bees; and, while resembling Italians in the one fact that they too were yellow, yet they had quite enough distinctive characteristics, both in markings and temperament, so they could be readily distinguished. Even when crossed with the ordinary Italians their bad temper seems to go with them. On account of these very undesirable peculiarities these two races have practically disappeared from the United States and Canada. But the Carniolans have stayed with us. The bee-keeping world owes a big debt of gratitude to the man who, at an enormous cost and at great personal risk, practically settled the question for all time of the most desirable races of bees. While the Cyprians and Holy Land bees lost out in the race, the superiority of Italians and Carniolans has been established ever since. Mr. Jones, generous to a fault, never insisted that he should have the exclusive trade in the bees he brought to this country. He never was sore because others went into the business. His broad generous spirit, and the genial twinkle of his eye, had to be experienced to be appreciated.

In the early '80's Mr. Jones was, no doubt, the leading bee keeper of Canada. He ran a series of outyards, and later on established a school of apiculture. At one time he had some two or three dozen students who went to Beeton from the United States and Canada to study bee culture under his leadership. One of these students was R. F. Holtermann, our old correspondent.

During these early days Mr. Jones' bees contracted foul brood; but he did not realize at that time the seriousness of the disease. He seemed to regard it as something that one could easily handle, and he then promulgated to the bee-keeping world what was called at the time the Jones or starvation foul-brood cure. This was an adaptation of the Quinby method of treating bees, and



D. A. JONES WHEN HE WENT TO THE ORIENT FOR NEW RACES OF BEES IN 1879.

was very similar to what is now known as the McEvoy cure. The bees were shaken off the combs into a wire-cloth cage, or box with a wire-cloth top. They were then put in a cool place so that they would consume the honey in their honey-sacs. As soon as some of the bees from sheer weakness began to show signs of starvation they were then placed in a clean hive on frames of foundation, and compelled to work out their own salvation. The old combs were burned or melted up, and the old hive disinfected.

It was later found that it was not necessary to starve the bees, because drawing out the foundation was found to be quite sufficient.

Mr. Jones was generally ahead of his times. For example, his system of queen-rearing and baby nuclei, which he intro-

duced in 1883, were similar to the systems later exploited by Henry Alley and E. L. Pratt. His baby nucleus was almost identically the same as our twin-baby nucleus of to-day. We copied Pratt, but later improved the Pratt nucleus until it was almost the same as the old Jones model.

He was the inventor of the Jones hive, the Jones uncapping-knife—a knife which may yet displace all others.

Mr. Jones' knowledge of bee lore, of the domestic economy of the hive, of how to produce extracted honey, was second to none of his day.

To give the reader an idea of Mr. Jones' progressive ideas, and how he spared neither time nor money in carrying his ideas into effect, we may state that he early saw that, in order to raise Cyprian, Holy Land, and Carniolan bees in their purity, they would have to be reared on separate islands. He therefore purchased or leased several islands in Georgian Bay. One he called Cyprus, another Palestine, and still another Carniola. On each of these islands he had a complete queen-rearing outfit and a race of bees according to the name of the island; but, unfortunately, the islands were barren, and it was necessary for him to feed his bees almost constantly. For two or three years he raised Cyprians, Holy Lands, and Carniolans on those islands; but, if we are correct, the venture never paid. It cost him enormously to keep a competent man there and necessary boats and camping-outfits, and to feed sugar to the Cyprians and Holy Lands that bred so rapidly that their owner had to feed almost continuously; but, nothing daunted, our friend kept on rearing queens on those islands.

Well do we remember the visit that we made to those island apiaries in 1884. Mr. Jones had just come from a trip to the islands when we arrived at Beeton; but he was so enthusiastic over his project that he said he would be glad to go right back with us to the islands. We took a hundred-mile ride by train, and then a steamer at Collingwood for what is known as the Forty Thousand Islands, where Mr. Jones had selected three islands that were best suited to his purpose. How we hunted duck and deer, and fished, talked bees and the great possibilities of mating queens to select drones; how we could make desirable crosses on other islands, it is not necessary to relate here; but suffice it to say we never met a more whole-souled and genial host or a more enthusiastic bee-keeper in all the 25 years that we have been at the editorial helm of this journal. The reader, if interested, will find a full account of this in GLEANINGS for 1884, pages 620 and 696.

Mr. Jones was one of the most genial men we ever met. He liked a good joke, and knew how to perpetrate one on his friends. If space did not forbid we would tell how he got the laugh on T. G. Newman, then editor of the *American Bee Journal*, and A. I. Root; of how he got a "goak" on us. He was a leading spirit in the conventions of his day, and always the center of a jolly group of kindred spirits between sessions. He was at one time the leading manufacturer of bee-supplies in Canada. He founded the *Canadian Bee Journal* over 25 years ago; and all through Canada we can find to-day the impress of this most remarkable man.

During his later years, pressure of other business seems to have absorbed his attention until he dropped out of bee-keeping altogether. He was a man of large ideas and large affairs; always generous with his money and time, he did much to advance apiculture in the early days, especially in Canada.

We notice that his town paper, the *Beeton World*, credits Mr. Jones with the introduction of Italian bees into this country. This is a mistake. While he did introduce Eastern races of bees, and Carniolans, as already explained, the Italians were introduced by Richard Colvin, away back in the early '60's, many years before Mr. Jones went to the Orient.

We can not close this sketch without making an extract from the *Beeton World*, the paper founded by Mr. Jones, and published in his own home town. He was a prophet in his own home town. Read what his own townspeople think of him:

> Although it was known he was very ill, the news of the death of Mr. D. A. Jones on Sunday morning came as a shock to all. He had always been an active and energetic man, both mentally and physically, but for some months was troubled with a weakness of the heart, and the immediate cause of his death was angina pectoris.
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> During his early residence here he bought a tract of land which now comprises part of Beeton. This land was surveyed into plots, and he laid out the streets of the village and planted the beautiful shade trees which now adorn the streets and will stand as monuments to his energies for some time to come. His whole aim was given to the building up of the town. How much the community owes to him it is impossible to estimate. His many charitable acts and kindnesses will never be forgotten, but he is gone and another name is stricken from the ever-lessening roll of our old settlers. His very last act in life was to send a consignment of clothing contributed by himself and others to poor settlers in Parry Sound district, with whose conditions he was personally familiar.
>
> In politics Mr. Jones was a strong Liberal, and on two or three occasions he conducted exploring parties in the north country for the Government, penetrating the wilderness from the main line of the C. P. R. near Sudbury, and on one trip going through Hudson's Bay as far north as Baffin's Bay.
>
> He had been a life-long Presbyterian, and contributed largely toward the erection of the Presbyterian church here. When the contents of the will are made known it is expected that all religious denominations and the citizens generally will be benefited by a provision made for the erection of a mausoleum in the cemetery.
>
> He had been postmaster here almost continuously since his arrival in town, 46 years ago.

That "last act," as given in the foregoing extract, of sending clothing to the poor settlers in Parry Sound, is only an outcropping of that irrepressible, generous, kindly spirit, the love of his fellow-men, that pervaded his whole life. He was indeed a truly great man and a Christian brother.

Four ministers of the gospel conducted his funeral—another estimate of the high esteem in which he was held by the Christian ministry.

THE NECESSITY OF HAVING COMBS WIRED IN HIVES THAT MUST BE SHIPPED.

BY J. L. BYER.

While the present time of the year may be an unseasonable period to discuss the merits of wiring brood-frames, I have been moved to say a few words on the subject by reason of my having recently happened to read in one of the earlier editions of the A B C of Bee Culture what friend Doolittle has to say on the subject—his remarks in the case referred to being on the advisability of having all frames wired on which bees are to be shipped on.

The publishers of the A B C of Bee Culture, page 231, 1903 edition, very strongly advise the wiring of all frames; if it is contemplated to ship bees it is almost "absolutely necessary," they say. Mr. Doolittle, in his comments, says, page 398, same edition, "I have shipped many colonies of bees during the past five years; and although none of the combs have been wired, I have yet to hear of the first injured comb. As my combs are deeper than those in the L. frames they would be more likely to be damaged than would those in the L. frames." It would be interesting to learn whether, after the lapse of another seven years, Mr. Doolittle is still of the same opinion.

I am led to inquire on this point on account of a very forcible illustration we had last season as to the advisability—nay, shall I rather say the *necessity* of wiring frames, if it is intended to have bees shipped on the combs that will be built in them. About the middle of last August fifty two-frame nuclei were ordered by myself and a friend living a short distance from me. They were sent by express, and arrived at my station on the 24th and 25th of August, if I have the dates correct. They were shipped in two lots, and each lot was in the customs at Toronto, about 24 hours awaiting customs clearance.

When they arrived, the first lot seemed in first-class shape in so far as outward appearance was concerned; but when we came to transfer them we found about ten per cent of the ends of the top-bars of the frames had been split off, showing that they must have received very rough handling while in transit. A number of the combs showed by the looks that, if they had not been wired, there would certainly have been breakdowns, and quite likely some of the nuclei would have been ruined.

When the second consignment arrived, things were in much the same condition as with the first lot, only a *little bit worse*. The nuclei had been shipped in pairs—i. e., two were clamped together, as in that condition they made a parcel that would more easily stand, and one that would not be so apt to upset as though each one were separate. Now, these bees had been put up in splendid condition, and the pairs of light shipping-cases were clamped together with cleats that were fastened to the cases with screw nails. Yet for all these precautions, one of the clamps had been broken apart, and I suspect at least one of the nuclei had come part of the way lying on the side instead of standing upright. Indeed, when we came to examine this particular nucleus I came to the conclusion that the express-handlers must have been using it as a *football*, as the two combs were broken loose from the frames completely, with the exception that the horizontal wires held intact at the ends and held the combs like suspended boards in the frames. When the condition of things was noted, I was surprised that the combs had not gone "kersmash," as the weather at the time was quite warm, and the nucleus was a very strong one. Examination showed that, in addition to the horizontal wiring, these frames happily had had wires pressed in the foundation vertically as well, in the same manner as Dr. Miller uses the splints. Quite likely if the wires that were in the foundation vertically had been passed up through the top-bars the combs would never have broken loose at all. On this point we can not be sure as to just what would have been the result, as possibly the top-bars might have broken down when the tremendous jolt took place. Any way, it was quite clear to me that, without wiring of any kind, the nucleus would have been a total loss, and, as already intimated, we have reason to believe that others in the shipment would have suffered as well.

As it was, the suspended combs had pressed together somewhat and killed a number of bees, but by good fortune the queen had escaped, and we were able to fix them up all right. It may be argued that this shipment received unusually rough handling; and while we will all agree on this point, experience has taught us that, when sending *any* thing by express, it is wise to prepare for this kind of treatment. It does seem a pity, though, in view of the exorbitant rates, that such treatment should be accorded such a perishable article as live bees; and when the damaged shipment arrived, I remarked to the local agent, who is a good friend of the writer, that, in view of the desperate treatment the bees had received, I would gladly have sacrificed the damaged nucleus if some good luck would have released the bees in the car of the offending handler.

MOVING AN APIARY ON HAND SLEDS.

This fall we had occasion to move one yard of some 80 colonies about 100 yards from their old location. While at the Ontario convention, advice was asked as to when and how best to move them, and said advice ranged all the way from taking them any old way to the most careful method of carrying them all by hand. The last advice was given by friend McEvoy, and, although I did not say so at the time, I came home intending to follow his plan. But when we tried that method it proved to be too hard work, for, be it understood, the bees were all packed in their winter cases and would weigh from 120 to 150 pounds

each. While we were debating the matter a light snowfall came, and my brother suggested trying hand sleighs for the work. Two of these handy implements were brought into use, and my brother and I moved the whole apiary in one day, besides arranging hives, stands, etc., as we went along. By this method we were able to take two at a time (one on each sleigh), and the work was done so quietly that the bees hardly knew they were being moved. A few colonies were a bit uneasy, but at first signs of a bee at the entrance a handful of snow thrown in stopped all trouble.

The plan of moving them was much better than getting a large sleigh, as in that case it would have been necessary to close the entrances—a lot of work.

While many have reported moving bees in the fall and winter with no bad results, even if the bees were badly shaken up in the operation, yet we confess to a feeling that it at least does them no *good*, and personally I like to see them left as quiet as possible during the cold weather. If the present cold weather continues all winter, and the bees have no chance of a cleansing flight, *this* fall, at least, I believe bees will be all the better if they have not been disturbed by moving. Just here I might remark that in our section of country the bees had no flight after the last of October to amount to any thing; and from Nov. 28 to this date, Dec. 16, the weather has been *very* cold continually—in fact, a record-breaker for so early in the season.

Mt. Joy, Ont., Can.

LEGISLATION IN NEW ZEALAND PROHIBITS BOX HIVES.

BY ISAAC HOPKINS.

Dr. C. C. Miller, p. 646, Oct. 15, 1910, calls my attention to your Colorado foul-brood law, and by so doing implies that I made a mistake in saying that *all* your acts have the cardinal weakness of allowing the box hives to exist. I am fully aware that in Sec. 6 of the Colorado Act it says: "The inspector shall have full power, in his discretion, to order any owner or possessor of bees dwelling in box hives in apiaries where the disease exists (being mere boxes without frames) to transfer such bees to movable-frame hives within a specified time," etc.; but this provision does not get rid of box hives in their entirety; and, although it gives the inspector power to order the transfer of bees to frame hives, it is only "in apiaries where the disease exists" that he has that power. Following on this, after carrying out the inspector's instructions, there is nothing in the act to prevent the bee-keeper from using box hives again the next day for additional bees, so that it is possible, and apparently legal, to have a mixed apiary of box hives and frame hives—a kind of piebald arrangement. You will need something more direct than this to get rid of the careless and dangerous bee-keepers.

The editor's footnote to Dr. Miller's Straw turns on the custom of bee-keeping in England. I didn't write from England, neither did I mention a word about it or English bee-keeping. I wrote from New Zealand, and compared our foul-brood act with yours. I certainly have no reason to be dissatisfied with your Ohio act if you are not; but it would not suit New Zealand bee-keepers. If, as you say, "it is up to the bee-keeper himself to transfer immovable combs," etc., there should be no need for even Sec. 6 in the Colorado act.

Auckland, N. Z., Dec. 3.

BEE TERRITORY IN IDAHO OVERSTOCKED.

Report of Annual Meeting.

BY R. D. BRADSHAW.

The Eastern Oregon and Idaho Bee-keepers' Association held its annual meeting Jan. 14 at Caldwell, Idaho. Owing to the phenomenal growth of the industry in this section there was a large attendance. Bee-keepers representing 10,000 colonies were present.

The principal topics taken up were the marketing of the crop, and overstocking. Regarding the latter it seemed to be the unanimous opinion that, in the limited territory now under water and cultivation in this section, it is being greatly overstocked. In one district near Parma, about three miles east, there are 1700 colonies working on the same ground. Mr. Powers, of Parma, one of our well-known and prominent members, who has 300 stands in this district, stated that, as the numbers of bees in this vicinity have increased, he has noticed his crops have materially decreased.

To be sure, there are several government irrigation projects that are being opened up; but as yet the acreage of alfalfa is small. Thousands of acres are being set directly to fruit alone, this being more profitable. The market for alfalfa depends almost wholly on the range stock for an outlet. As the range is depleted, the larger tracts of alfalfa will be replaced by other crops. All these facts tend to lessen the honey-flora.

A committee of the largest producers will wait upon our legislators in a very few days to demand an appropriation to combat foul brood; also to have our foul-brood law now in force to read, "All bees shipped in from other States to be inspected for disease before crossing the State line."

Payette, Ida., Jan. 15.

MOVING SHORT DISTANCES.

Entirely Feasible any Month in the Year.

BY CLINT F. PULSIFER.

The moving of bees a *short* distance has come to be quite an interesting question to some of us; and as the experience of others

was worth something to me, perhaps my testimony may not be out of place.

I had carefully read Carey W. Reese's plan in the January 15th issue for 1909, also Mr. O. B. Metcalfe's, April 15, 1909, but not until the appearance of the article by the editor in the October 15th issue did I find the simple method that, as I thought, seemed to fit my case and requirements. Of course, we all recognize that there is no difficulty in it, in a cold climate where bees are confined for weeks or months at a time without a flight, and most of us have had experience along that line "back in old Michigan" or some other place. But here where bees fly practically every day in the year it is quite different.

Having occasion to move 40 colonies a distance of about 25 rods, and not wanting to take a chance in waiting for a cold spell of weather, which here might never come during the winter, I followed the suggestions of our editor. I closed the entrances early in the morning before the bees were flying; placed the hives in the spring wagon, and took them to the new stands. This was done before 4 P.M., and at about that hour (which was about one hour before sunset) we began *drumming* them, and smoking them alternately for nearly half an hour, then we removed the entrance-closers as speedily as possible and gave the bees a few moments' flight before dark.

The following day I made it my business to visit the old stands several times and see if it was necessary to place hives there for the returning bees to save the loss, but it was all quite unnecessary, for I think I could have carried them all in a Benton cage; and I have reason to believe that the few that were remaining had slept out of doors the night before they were moved.

Tempe, Arizona.

EMPTY CELLS OR SOLID COMBS OF STORES FOR THE WINTER CLUSTER.

The Problem Modified by Outdoor or Indoor Wintering.

BY DR. C. C. MILLER.

Before any blood is spilt I'd like to see if Messrs. Byer and Root can not be induced to come to some kind of understanding as to having bees winter on solid combs of honey. I suspect there is really little difference as to the actual belief of the two men. If the matter were put before him in the right way, I think Mr. Byer would be willing to say, "The bees must have some room for clustering that is not divided up by solid slabs of honey," and I think Editor Root might make the concession, "It is altogether possible for a colony to winter well on combs filled full from top to bottom-bar."

When bees seal over the honey in two contiguous combs they generally leave a space of about ¼ inch between the two opposing sealed surfaces. Now, Bro. Byer, suppose we have a set of combs sealed from top to bottom, with bees on them, and that the bees can go nowhere except between these solid slabs of honey. We should have the bees divided up into layers ¼ inch thick, with a thickness of 1⅛ inches of solid honey between each two layers. You don't believe they would make a howling success of wintering in that way, do you? There would have to be a chance somewhere for enough bees to get together so that there would be more than a ¼-inch layer of them. I think you would agree to that.

Suppose, on the other hand, Bro. Root, that we have a winter nest arranged just to your liking, with empty cells in the lower part of the central combs in a somewhat globular shape. Outside that space the combs are solid with honey. Now I suppose it would be just as well, possibly a trifle better, if those empty cells were gone entirely, leaving nothing at all inside the cluster of bees. Parts of bottom-bars and empty combs inside a cluster can hardly be of any benefit. If we count, then, that there is nothing inside the cluster, then we have the bees practically on solid combs, don't we?

In what shape is it best to have that cluster of bees? Undoubtedly the sphere. Your two-fist arrangement, Bro. Root, is the ideal, just as the sphere is the ideal form for a hive. The nearer a hive comes to the spherical form, the better *for the bees*. But they will get along very well with a hive in the form of a cube, with a hive that is tall, that is shallow—in fact, in about any shape. So the winter cluster may be in almost any shape. In the case of your solidly filled combs, Bro. Byer, it will be semi-globular, under the bottom-bars, if there is space enough for that, flattened more and more as the space is smaller. With a two-inch space between bottom-bars and bottom-board I feel confident there wouldn't be the slightest trouble. An inch space might answer nearly as well, and how much less I don't know. But if combs were filled solid clear down to the bottom-bars, with only ¼ inch between bottom-bars and bottom-board, I should expect the bees to succumb to a long-continued freeze.

But in actual practice, suppose we do have combs solid with honey to the bottom-bars, how long do they continue so? Mind you, we don't put solid combs in the hive in December. We're hardly talking about later than September—at least that's the McEvoy plan. Well, in some way the bees have got hold of Bro. Root's idea that they must have a two-fist space emptied out, and they begin at once to empty the cells inside of that space, and by the time the weather is very cold Bro. Byer's solid-comb bees will have things arranged to the satisfaction of Bro. Root.

I suspect, however, that, if we have solid combs, it may make some difference how much space is under the bottom-bars. It is just possible that Mr. Beauhre, p. 67, had a very small space between bottom-bars and

bottom-board, and that accounts for his unfavorable experience.

We are so used to thinking of the winter cluster being on empty combs that some will object to my idea that it is practically the same as on full combs. Bees, they think, must have empty combs inside the cluster. Well, let me say that many of my bees, when left to their own choice, prefer to have at least part of their cluster with absolutely nothing inside. In other words, the cluster hangs down below the bottom-bars. Some of the clusters touch the bottom-board two inches below the bottom-bars.

I've just been down cellar this 3d of February at 6 A.M. Outside the thermometer says 27 degrees; in the cellar, 50. In the 59 colonies that are in the upper two rows, I counted 48 clusters that were down below the bottom-bars. Some clusters were small, some large. In the other 11 cases some showed a few bees between the bottom-bars, and in some I could see no bees. In some colonies the cluster was at one side; in others, in the center. Some clusters were near the front; some nearer the back. In at least one case the cluster was clear to the outer surface of the front, closing the entire entrance. I don't suppose the cluster reached back further than the center.

The point I am making in this is that bees do not object to clustering on nothing. Perhaps I ought to add that no feeding was done last fall.

Bro. Root says bees undisturbed make an empty space, and "we ought not to go contrary to nature." That's right. But Bro. Byer may reply that bees will, if they get the chance, fill clear down to the bottom-bars, and "we ought not to go contrary to nature." (I've had bees without any feeding fill combs so full that no two-fist space was left.)

My bees plainly work toward the Root idea, and at the same time—perhaps I ought rather to say prior to that time—they have such a strong liking for the Byer plan that they fill honey clear down to the bottom-bar *if they can get it*. And I like both plans.

Marengo, Ill.

[Referring to your first paragraph, where you say that you believe there is but little difference in actual belief between Mr. Byer and ourself, you will see, if you turn to our footnote in reply to Mr. Byer, that we gave utterance to the same thought. That is to say, we agree with Mr. Byer *if* he means having combs solid with stores in September for outdoor wintering. By December the bees will make in those combs just such a winter nest as we hold that they need. Taking this view of it, our beliefs and practices are almost identically the same. We do not think Mr. Byer himself would insist on giving a colony nothing but combs with solid capped stores in the middle of December.

In all this discussion one must not lose sight of the question whether bees are wintered *indoors* or *outdoors*. In a good cellar it is not so important how the stores in the brood-nest are disposed in the combs, providing there are enough for the needs of the colony. Nearly all normal *indoor*-wintered colonies will cluster in the space between the bottom board and the bottom of the combs. Such colonies do not need a winter nest like the bees outdoors.

In reading through your article it appears to us that you have in your mind's eye the bees in your cellar. You have never practiced outdoor wintering to any extent, and therefore it would be natural for you to think of the condition of a colony in a winter repository; for you say, "Let me say that many of my bees, when left to their own choice, prefer to have at least part of their cluster with absolutely nothing inside. In other words, the cluster hangs down below the bottom-bars. Some of the clusters touch the bottom-board two inches below the bottom-bars."

All through this discussion we tried to make it clear* that the question of winter nests had to do primarily with bees wintered *outdoors*. True it is that the inside colonies may have a nest; but whether they do or not, the success of indoor wintering does not depend on that winter nest unless the cellar is very cold much of the time. It is only when the bees are wintered *outdoors* that the question assumes importance. You, Doctor, find your indoor clusters just where we find ours; but unless we draw a clear distinction between *outdoor* and *indoor* wintering we shall get mixed up in our discussions. Again, we should bear in mind that if outdoor bees have solid combs *early* in the fall they will probably have winter nests by the time actual cold weather sets in if they are not disturbed.

NECTARLESS FLOWERS.

BY JOHN H. LOVELL.

In a recent number a correspondent writes: "There has been some discussion of late as to whether bees get any honey from roses. I believe I have seen them at work very freely on wild or single roses, and I see no good reason why roses should not yield honey, as they belong to the same family as the apple, pear, plum, cherry, raspberry, etc. If one species of a given family of plants yields honey we may expect they will all do so."

It is a rule recognized by all students of flowers that it is never safe, from an examination of one species of flower, to draw conclusions as to another species, even when they belong to the same genus, much less when they belong to different genera or families. Each flower must be studied independently. It might seem probable, indeed, that, if one species of a family secreted nectar, all the others would do so; but

*See GLEANINGS, page 688, Nov. 15, page 724, Dec. 1, 1909, and page 21, Jan. 1, 1911.

such is not the fact. In the buttercup family (*Ranunculaceae*) the buttercups, columbines, larkspurs, etc., all secrete nectar, but the anemones do not. In the large family of figworts (*Scrophulariaceae*) most of the species secrete nectar, but the mulleins do not. In the honeysuckle family (*Caprifoliaceae*), the viburnums and honeysuckles secrete nectar, but the elders (*Sambucus*) do not. Many orchids secrete nectar, others do not. In the St. Johns-wort family (*Hypericaceae*) the marsh St. Johns-wort secretes nectar, but the St. Johns-wort (*Hypericum*) does not. In the night-shade family (*Solanaceae*) the night-shade is a pollen flower, but the ground-cherry contains nectar. Other instances might easily be given. Incidentally it may be remarked that flowers do not secrete honey—they secrete nectar.

Your correspondent says that he *believes* he has seen bees at work on wild roses. If he has observed our wild roses carefully I do not doubt that he has seen (as I have) hundreds of bees at work on their blossoms, but they are not collecting nectar. The use of the word "believes" shows that his observation is merely an impression. In the case of the rose the only way to tell whether it contains nectar or not is to examine the various organs under the compound microscope. He does not say that the bees were honey-bees, but the impression is that they were. They probably were not, but large bees belonging to the genus *Andrena* (*A. carlini* or *A. vicina*), or some other wild bee which might easily be mistaken for honey-bees, especially at a casual glance.

A man in this vicinity who was a bee-keeper for many years, and whose father before him kept bees, asked me this spring to look at his plum-trees. He told me that they were loaded with blossoms, and visited by great numbers of honey-bees. They were, indeed, a beautiful sight, each tree forming a huge bouquet of white flowers. There were hundreds of bees flying about among them, which were pointed out as honey-bees. A brief inspection was sufficient to show me that they were chiefly a species of *Andrena*. As a matter of fact, I did not see a single honey-bee.

Another amusing illustration of how easily other insects may be mistaken for honey-bees occurred a few days ago. A prominent official of this town told me how his wife had called his attention to the presence of many bees on the windows of a shed chamber. He related how he had covered his head with netting, put on an overcoat and mittens, and finally drove them out.

"Now," he inquired, "how did they get there?"

"They were not bees at all," I replied, "but flies. If you will examine them closely you will find that they have only one pair of wings."

Naturally he was somewhat astonished at this statement; but some days later he brought me two of the insects in a bottle. They proved to be, as I had expected, syrphid flies, which are often found on flowers, and are called *Eristalis tenax*. The larva lives in wet places, and has a tail like a rat, though much smaller, through which it breathes by extending it upward to the surface of the water. It is never found without exciting curiosity.

Perhaps another example may be of interest. One autumn day a boy told me that the side of his father's house had been covered a few days before with my bees. I had noticed, however, on the afternoon mentioned, thousands of male and female ants on the wing, and it was the females of these ants which he had mistaken for bees.

There are thousands of flowers which do not produce nectar, being chiefly pollinated by the wind, as the grasses, sedges, alders, elms, beeches, birches, and hickories. They are often visited by insects for pollen, and I have seen the honey-bee busily at work on the alders in early spring, and on the spindles of the Indian corn later in the season. The cone-trees, as the pines, produce such immense quantities of pollen that, when it is carried upward by a breeze, it is sometimes mistaken for smoke. The so-called "sulphur showers" are due to the falling of millions of pollen grains which have been carried up in the air from cone-trees by the wind.

Waldoboro, Me.

LARGE VS. SMALL HIVES.

The Eight-frame Hive all Right in its Place.

BY HARRY LATHROP.

I was very glad to see Mr. Aiken's article, page 730, Nov. 15, 1910, in which he stands up for the merits of the eight-frame hive. I have always used and preferred the eight-frame L. hive as he suggests, giving the queen two sets of combs when deemed advisable.

Last July I paid a visit to the apiary of Miss Candler, at Cassville, Wis. While there I received what might be termed a jar to my complacency regarding the use of small hives. Miss Candler was conducting me through her well-appointed home apiary. The season with her was not considered a good one; still, there was considerable honey in the yard, especially on hives that had been supplied with extracting-combs. I was shown a sixteen-frame L. hive having a set of store combs above, or 32 in all. The upper set was plugged with honey, and I said to Miss Candler, "There is 80 lbs. of honey on that hive, and you have lost perhaps 25 lbs. by not having given more room when needed."

To this she assented. I said that I just wished I had a lot of hives like that one with 80 lbs. of nice honey. Visions of what might be done flashed before my eyes; but then, at second thought, it occurred to me that I had at home in my yard quite a number of eight-framers that, tiered up, had already produced as much as 80 lbs. each;

and in making comparison with such hives would I not be entitled to put two of my eight-frame hives against one sixteen-frame? Of course, I would; and when it comes to that, I can take two eight-frame hives with a good queen in each, and discount any one of Mr. Holtermann's large hives. If I see fit to manipulate smaller hives for convenience' sake, why am I not to be rated according to the number of combs used, and not by the number of hives?

I believe there are many localities where the eight-frame L. hive is just about right, and it is hardly fair to upset the plans of beginners and cause them to begin expensive changes without having them understand that there are as many arguments in favor of as against the small hive as used by the experienced honey-producer. I would not say a word against the growing popularity of the ten-frame hive. I use some of them right along, and would have worked into them long ago, only that I could not see any advantage in doing so. But if I had a chance to start an apiary with all ten-frame L. hives I would not hesitate a moment, for I believe they are as good as but no better than the eight-frame when properly handled.

In speaking of her sixteen-frame hive, Miss Candler said it never swarmed. This non-swarming feature would be an advantage, of course, if it could be said that the eight-frame hives were never non-swarmers, but that would not be true; for if tiered up they also may be non-swarming.

The sixteen-frame hive would be too heavy for cellar wintering where one man does the work. With such hives, outdoor wintering would have to be followed, but that introduces another topic upon which I will not enter at this time.

Bridgeport, Wis., Dec. 6.

ITALIANS OR BLACKS.

The Italians Breed up Too Early, and then Swarm Instead of Working.

BY W. C. MOLLETT.

Noticing what Mr. T. B. Mowry, of Connecticut, has to say, p. 701, Nov. 1, 1910, as to the relative value of blacks and Italians in his locality, I have about come to the same conclusion. It would seem that the difference as to the amount and kind of honey-producing plants in a given location has very much to do with the question as as to which race is superior. This locality is somewhat similar to that described by Mr. Mowry—that is, it is covered with timber to a considerable extent, mostly oak and beech, and has very few good honey-producing flowers since the basswood and whitewood have been mostly cut away. The past season here was a very poor one, the bees being upon the point of starvation in the first part of June—something never before known; but we had a remarkable honey-flow in 1909, my colonies that year giving an average of 90 lbs. surplus. I have been trying Italians for the past four seasons, and am firmly of the opinion that they are inferior to the blacks in this locality. Of course, in a section where there is plenty of white and sweet clover the Italians may be much ahead of the blacks as honey-gatherers.

The chief objection I have to the Italians is their prolificness, although this may seem rather paradoxical to most bee-keepers. They will begin rearing brood here in February, and by the first of May the hives will be crowded with bees at a time when there is no nectar to gather, and, as a result, I am usually compelled to feed more or less or lose the bees. No matter if the hive contains 50 lbs. of honey in the fall, they will use it all in brood-rearing before the first of June; then if the weather is not favorable they may be at the point of starving.

If the weather is very favorable the Italians will also often swarm by the first of May—a time when there is little honey to gather, and then the swarm must be fed until the honey-flow comes, usually about the middle of June. The swarm will also usually swarm again during the honey-flow, which will cause the extra labor at a time when we would rather they would be gathering honey. The Italians seem to have a perfect mania for swarming here, which, to a considerable extent, impairs their usefulness as honey-gatherers.

The blacks, as a rule, do not commence brood-rearing until March, and then they do not raise as many young bees as the Italians; and, as a result, they are not likely to use up their honey so soon, and so are not as liable to be in danger of starving. The past season, when I was compelled to feed all of my Italians, the bees belonging to one of my neighbors lived through without any feeding—they being of the common black variety.

By the time the honey-flow comes, the blacks are usually strong enough in bees to gather considerable honey when the weather is favorable, and they are not nearly as liable to upset all of our plans by swarming.

One season the blacks gave a fair amount of surplus when I got nothing from the Italians but increase, which I did not want. I am aware of the fact that this locality is a very unfavorable one for bees, on account of too much rainfall and scarcity of honey-producing plants, and that bee-keeping does not pay here, even with the best management; but on account of fertilizing the fruit-bloom I will continue to keep a few colonies.

Stonecoal, W. Va., Dec. 2.

Honey Not Broken in Double-tier Shipping-cases.

I have been shipping a good deal of comb honey for the last three years. I use the double-tier shipping-case with corrugated paper between the tiers and at the bottom of the case. I have never heard of one section being broken, and I have shipped over two lines of railroad, and hauled over four tons each year on a wagon twenty miles.

Stanfield, Ore. T. J. BARRINGER.



THE WILLOW-HERB OF NORTHERN MICHIGAN.

THE WILLOW-HERB AND RASPBERRY OF NORTHERN MICHIGAN.

On Account of the Leaf-mold being Burned by the Great Fire of 1908, the Raspberry Locations are Not what they Used to Be.

BY E. D. TOWNSEND.

Willow-herb (*Epilobium angustifolium*) is often called by the first half of its scientific name, "Epilobium." It is also known as hawk-bill, on account of the hooked-down shape of the buds at the extreme top of the stalk, while still another name is pine pink, for it is of a reddish-pink color, and sometimes grows on pine cuttings mixed with hard wood. It is a fireweed, and usually produces honey for three seasons after a forest fire, and then it is crowded out by other foliage, and not heard from again until after another fire, which is likely to follow in two or three years more, when the fire-burned timber has fallen down, thus providing material for subsequent conflagrations.

Willow-herb is at its best the second season following the first fire after the timber has been removed by the lumbermen. Each subsequent fire burns off more of the leaf-mold, and leaves less nourishment that could produce growth, and, consequently, willow-herb disappears almost entirely after a few fires, or, at any rate, so little of it is left that, from a honey-producer's standpoint, nothing remains. The plant branches out like buckwheat, and it is nothing rare to see single stools with a dozen great thrifty shoots making a plant three feet in diameter. These are the ones that produce "showers" of honey; but little may be expected from the plant when not in this thrifty condition.

The name "willow-herb" is derived from the shape of the leaves, which are almost identical with those of the willow, which furnishes the bees so much pollen and honey during the spring months. The blossoms are reddish pink in color, and very attractive, and, when once seen, will always be remembered. In Fig. 1 an enlarged view of the blossoms is shown. Notice that, on the extreme top of the upper view, there are four or five buds not yet in bloom, while further down there are some in full bloom, and, still further down, the seed-buds.

Figs. 2 and 3 are characteristic scenes of the home of the willow-herb. In the latter view some of the fire-killed timber has already fallen down, furnishing material for another fire.

Fig. 4 is our Springbrook yard in Charlevoix Co., of which I shall have more to say at a later time.

Growing side by side with the willow-herb is the famous wild red raspberry of Northern Michigan. While Figs. 1 and 2 show willow-herb, most of the undergrowth in Figs. 3 and 4 is the wild red raspberry, this plant being to the bee-keepers of Northern Michigan what clover is to those in the southern part of the State—the main source of surplus honey. The occasional years when willow-herb or basswood yields honey in sufficient quantities for commercial purposes are so limited that bee-keeping would be unprofitable without the raspberry.

When we first moved our bees to the raspberry district, the bee-keepers there told us that it was customary for forest fires to burn during the month of April, and that, later, the foliage would become so dense as to shade the ground to such an extent that the undergrowth would be too damp for forest fires that year. These fires burn only the dry leaves and limbs, and leave the ground in an ideal condition for raspberry and willow-herb. Of course, forest fires are especially necessary for willow-herb growth, as this plant is a species of fireweed.



FIG. 4.—CHAYOTILLO VINE COVERING OLD WALL NEAR CITY OF MEXICO.

During the summer and

fall of 1908 the "fire rules" were suspended, for the burning kept on during the period of full leaf. This season of 1908 proved one of the driest in years, and the larger portion of the timber belt of Northern Michigan burned over. At this period the ground was so very dry that the turf or leaf-mold burned off entirely in many places, leaving only the naked sand to produce the after-crop of willow-herb and raspberry. Those familiar with this section of the country will readily understand that the subsequent growth was thereby spindling, and the plants far apart—nothing like the thrifty growth of other times. On this account many think that the raspberry of Northern Michigan will never be what it was before this fire, basing their arguments on the fact that many spots, where there were dense growths of the berries, are now, since the fire, only piles of ashes. Another drawback in this locality is that late frosts have cut the surplus crop of raspberry honey in two, both seasons, since we have had the bees in that location.

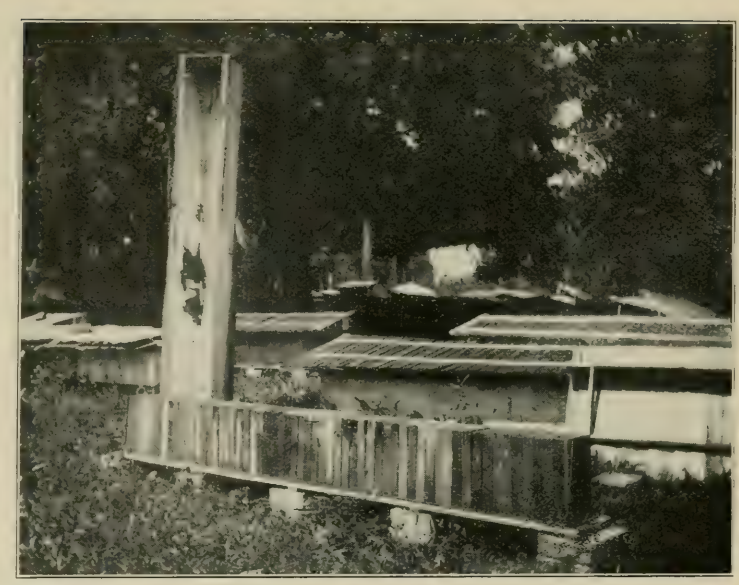


FIG. 5.—ONE OF CARL LUDLOFF'S SIMPLEX HIVES AS HE FIRST MADE THEM, NEAR THE CITY OF MEXICO.

To sum up the situation, I will say that, in my judgment, a bee-keeper fairly well located in a clover location had better stay where he is rather than move to the much-lauded raspberry region of Northern Michigan. I have moved two cars of bees to alsike-clover locations, and placed only half the number of colonies in our raspberry apiaries that we had before the great fire of 1908. This will answer many inquiries that I have received about raspberry locations.

Remus, Mich.

BEE-KEEPING IN THE HIGHLANDS OF MEXICO.

The Long-Idea Hive as Formerly Used by Carl Ludloff.

BY O. B. METCALFE.

Continued from last issue, page 77.

At the City of Mexico I met a modern bee-keeper by the name of Fred M. Allen. Mr. Allen keeps about 75 colonies in eight-frame standard American hives, and runs them for comb honey exclusively. He gets an average of one super around, which brings him about 40 cts.* per lb. His wax, of which he naturally has very little, being a comb-honey producer, brings him the customary price of $1.00 per lb.

Mr. Allen does not seem very well pleased with the business, and talks as though he must give it up unless the perfected Ludloff hive, which he is just now trying, proves to be better suited to the climate. He complains of heavy loss and weakened colonies from spring dwindling, which, apparently, is a very natural thing in his locality, and I doubt very much that he will find any hive which will materially prevent it. It is caused by the fact that, all the year round, the weather is warm enough for the bees to fly, and there are enough flowers to coax them out, but not enough to enable them to gather much nectar, and at the same time the nights are too cold for much brood-raising. This means the wearing-out of the old bees with nothing to take their places.

Mr. A. says his only honey-flow is from the chayotillo vine, shown in Fig. 4. This begins to bloom about the last of August, and the bees make their one super of honey from it. They also swarm furiously when the flow first starts.

The plant chayotillo is a fine climbing vine which belongs to the cucumber family, and, like the cultivated cucumber, it requires abundance of moisture. I have tried to grow it here in New Mexico, but it seems to be too hot and dry for it. It did very well while the ground was kept wet and cool around it, but it had to be irrigated nearly every day. Such a climate as the City of Mexico has, where the rains are frequent—almost daily during the rainy season—just suits

*About 20 cents American money.



Fig. 1.—Chas. Piercy, an electrician at the Naval Station, Mare Island, California, who finds time to keep up a little apiary in spite of the difficulties encountered.

it, and it thrives there in great profusion, covering bushes, fences, and old walls with a solid blanket of bright green. By August 20 it begins to bloom, and soon the whole vine is covered with a small white bloom. The bees make from it, while it lasts, a light amber honey of fine quality.

It was here near the City of Mexico that Mr. Carl Ludloff made his first attempt at extensive bee-keeping in the republic. He is now located at Irapuato, and in a later article I will have more to say about him and his "Simplex hive." Mr. Ludloff might be called the pioneer of intense bee-keeping on the highlands of Mexico. His experiments at Mexico City were a failure. He organized a stock company with a capital of twelve or thirteen thousand dollars, and put in a large apiary in the type of hive shown in Fig. 5. These hives were about nine feet long, and contained as many as sixty frames. It will be seen at a glance that the hive is very much on the order of the Huber hive, shown on pages 248 and 249 of A B C and X Y Z of Bee Culture. It seems to have been the idea of Mr. Ludloff that, the larger the colony got, the more frames he would give to it by simply shifting his division-boards, and that he would in this way do away with swarming entirely. No doubt this arrangement helped somewhat to keep down the swarming; but he still had swarms. The cover or case for the hives, which may be seen standing on its end in the picture, is a double-walled chaff-filled concern, and, no doubt, very warm; but as the walls both inside and out were nothing but cloth, the whole had to be covered with a shingle cover as shown in position on the unopened hives.

After some five or six years of failure near the city, Ludloff & Co. moved their bees



Fig. 2.—Chas. Piercy's Apiary, Mare Island, California.



Fig. 3.—Mr. Piercy's "armor" resists the onslaught of even very cross bees.

over the mountains to Cuerna Vaca. The idea at that time was to build up colonies over there at just the right time, and to ship them over into the great valley at the city for the chayotillo flow—a venture which also proved to be impractical, and the company fell through. This apiary is still at Cuerna Vaca, and will be mentioned more at length in my next article.

Mesilla Park, New Mexico.

BEE-KEEPING ON AN ISLAND NAVAL STATION.

BY W. A. PRYAL.

At Mare Island, about a mile from South Vallejo, Solano Co., is located the Government Naval Station. An electrician at the navy yard, Mr. Chas. Piercy, has always been interested in bees, and about four years ago he began the nucleus of his present apiary by securing a miserable poor colony over in Vallejo. I believe it soon died. His next prize came in the way of a swarm that flew across the channel from Vallejo and took up quarters in one of the naval buildings. From this capture the apiary grew until, at the time of my visit, last April, there were fourteen colonies. He finds ready sale for all his honey among the families of Island Station. It is well that he does, for I believe it is a hard matter to get any thing off the island without unraveling a lot of red tape.

Mr. Piercy is quite a mechanical genius. Having access to the mechanical shops of the Station he has built a gasoline-engine which he uses for power, and he makes his own hives, including the Hoffman frames. He also has a giant bee-smoker of his own construction, the metal parts of which are of galvanized sheet iron, and, instead of using sheepskin for the bellows, he uses some kind of colored canvas obtained from the naval stores. He had just finished a small reversible honey-extractor, the gearing of which was made from a machinist's breast-drill that had been condemned in one of the workshops. The reel was of the standard pattern obtained from some supply house.

The bees on the island are extremely cross, but our friend has an armor or protection of unusual form. This is shown in one of the engravings.

The best and most novel tool or implement house I ever saw at a bee-yard was the one on this island, as shown in Fig. 3. It was a great safe-like box made water-tight, and provided with a hinged door. It had been discarded from some warship, and was lying on the dumps near by when it was appropriated for use in this apiary. This impels me to remark that the waste by the Naval Department is something terrific. To see what cost millions piled in the junk-heap is startling.

Mr. Piercy is raising the ground about the apiary by hauling on various kinds of rubbish so as to bring the surface above tide level. He considers a government naval station an undesirable place for bees, especially Mare Island, as he finds the forage scanty, and the wind and water bad factors to contend with. He hopes to retire some day to a ten-acre tract of land that he owns in the north, where he will be able to carry out more of his ideas of real living.

Oakland, Cal.



FIG. 4.—A tool-house made from an old safe-like box discarded at the Naval Station.



THE NARROW-LEAF COTTONWOOD OF COLORADO.
This tree furnishes a large amount of propolis.

THE NARROW-LEAF COTTONWOOD.

The Source of Most of the Propolis the Bees Gather in the West.

BY WESLEY FOSTER.

One of the first things an Easterner notices in coming west is the different tree flora. Instead of the oak, the ash, hard maple, basswood, hickory, etc., he sees the broad-leaf cottonwood, the narrow-leaf cottonwood, the willow, and the box elder along the watercourses of the plains, while in the mountains the aspen, spruce, and pine predominate. We who live in the valleys and on the plains are not blessed with woods such as are known to one living in the East, but none the less we love the sight of the trees along the stream-beds and irrigating-ditches. The changing colors of the narrow-leaf cottonwood are as beautiful as those of any tree I know of, and, though not so highly colored as the crimson blush of the oak, it is tenderer and more delicate in its shading. In fact, I think it is the most beautiful tree growing *naturally* along our streams. Its dull-gray lower trunk is slightly rough, but not as rough as the common cottonwood, and it grows smoother toward the top till a smooth silvery shade is reached half way between the silver-maple and the birch. The thin narrow leaves stand out against the sky as delicate as lacework, and the tree has an air of wild natural refinement about it.

But, one can hardly find a bee-man who lives near where the narrow-leaf cottonwood thrives who does not regret the fact. The propolis is a bright reddish color, very sticky, and oozes out on the buds of this tree in such large bulbs that it is an easy matter for the bees to collect large quantities of it. The drawing shows the size of the bulbs of propolis, and I have seen a single bud that had propolis enough to make several good large bee-loads.

The photograph shows a lane with three narrow-leaf cottonwood-trees at its side, with their paint-brush-like tops flashing forth the light of the evening sun from the yellowing foliage. The leaves fall from the lower branches first, which causes the tops of these trees to take on the paint-brush appearance. The bees continue to gather the propolis, however, long after the leaves have fallen; for our long beautiful fall of bright warm days often lasts till nearly Christmas.

While we may regret the nuisance of the propolis we should not overlook the fact that this tree relieves the monotony that would make our farming sections of the plains well nigh unbearable. The narrow-leaf cottonwood lines our streams and ditches, and has often brought pleasure to those who watch the slow but steady advance of fall and winter by the changing colors and falling of the foliage.

Boulder, Col.

EUROPEAN FOUL BROOD.

Conditions in Which Bees are Immune or Susceptible.

BY F. B. CAVANAGH.

Continued from last issue, page 79.

The most important consideration in establishing either immunity or a cure is the Italian bee, although in my limited experience Cyprians, Carniolans, and Caucasians are all equally good resisters of the disease.

The leather-colored Italians are not so good as the three-banded yellow Italians; and with me, as a rule, the darker the *hybrid* the poorer the resistance. Time and again have I seen black or dark hybrid bees filthy with disease, while right beside them were hives of Italians showing scarcely a bad cell.

Young queens are also important in establishing immunity, as they keep the hive in a strong and vigorous condition; and for some reason their brood will hatch healthy, when that from a poor or black queen would be diseased. Hence curing black bees of European foul brood is as futile as mending a worn-out automobile tire, and the case is quite as liable to break out again.

The time of the year and extent of the honey-flow are of great importance, and must have our utmost consideration when applying curative measures. In this locality the disease shows worst in May, the main breeding season in which bees are drawing heavily on their stores. At this, of all times, they are susceptible to the disease, and easily infected.

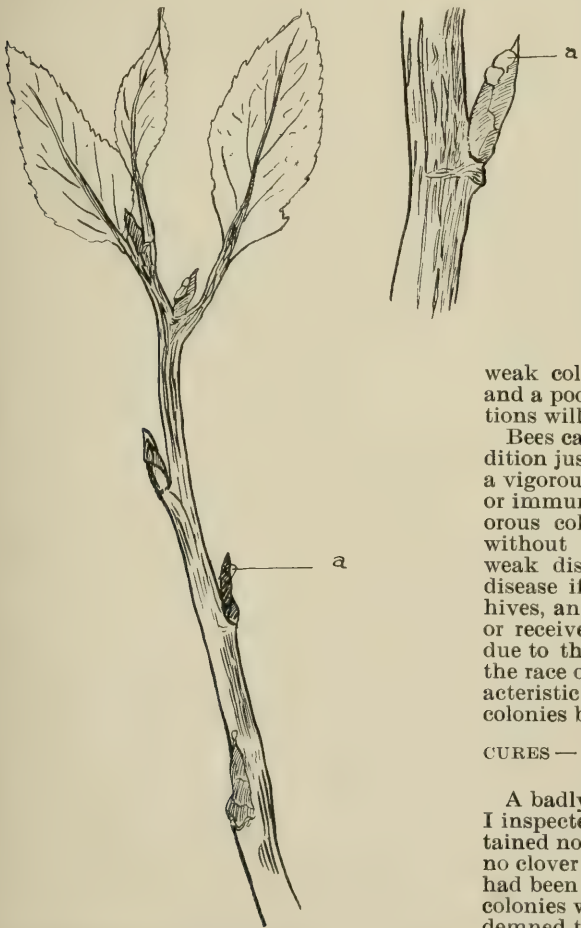
This is the time also when the "self-cured" colonies of the previous autumn will develop disease from the honey in the hives, if at all. Feeding in itself, at this period, will prevent much of the disease by supplying healthy food stores at a time when the colony is at the lowest ebb of vitality, and the time when the bees in the hive are mostly old, and, consequently, are poor comb-cleaners. If we bridge over this critical part of the season by feeding, these colonies a few weeks later will have established a condition of immunity when the honey-flow is on and the hive is full of young bees.

During this critical period is also the time to observe the superior condition of the Italian colonies whose young queens have supplied their hives with young bees by laying late in the previous autumn.

Summing up, the ideal conditions for immunity are: 1. Strong hives with young Italian bees and queens and a fair honey-flow, or feed given during the early breeding season.

2. Conditions for infection—weak colonies, poor queens, or black stock, and a poor honey-flow, any of which conditions will aggravate the trouble.

Bees can be kept in a strong resistant condition just as man's system can be kept in a vigorous condition, which will be resistant or immune to various diseases. That a vigorous colony may be fed infected honey without contracting the disease, while a weak discouraged colony will develop the disease if even in the vicinity of diseased hives, and probably without having robbed or received any infected honey, is plainly due to the "condition of the colony" and the race of bees. This condition was characteristic of my first experience—the weak colonies being attacked by far the worst.



COTTONWOOD BUDS, SHOWING BULBS OF PROPOLIS.

CURES—WHY THEY SUCCEED AND WHY THEY SOMETIMES FAIL.

A badly infected apiary of 25 hives which I inspected near Lowell two years ago contained nothing but black bees. There was no clover flow that year; and as the trouble had been there for some time previous, the colonies were so badly diseased that I condemned the entire lot. The McEvoy treatment was administered *simultaneously* to all colonies, each one being shaken twice with

an interval of four days between. The hives were then disinfected, all honey boiled, and the combs rendered away from the bees. Although these colonies were blacks, rotten with disease, many of them weak, and provided with old queens, every colony was *permanently* cured as proven by inspection since that time, in spite of the fact that the work was done during a poor honey-flow.

During the same spring I moved fifty healthy colonies—the Berdine yard, in fact—within range of diseased bees which they robbed. Several of the colonies had been shaken, previous to development of any disease, to prevent swarming. When, a little later, the disease did appear, lo and behold! these shaken swarms were the worst infected of any in the yard. Wishing to make a clean sweep of the disease, I waited only until other colonies in the vicinity were treated, and then began on the McEvoy treatment; however, I didn't disinfect the hives, as I thought it unnecessary since the disease had been so recently contracted. And after curing hundreds of cases I still believe that the disinfecting would have had little effect in this case, for some of the colonies were shaken into new hives. In almost every case a return of the disease followed in a short time, leaving the shaken colony in worse condition than before, through depletion of the brood. My readers will now remember what I said awhile back about the bearing of the "condition of the honey-flow" and "resistant condition of the colony" as to immunity, etc. I want to impress the importance of this upon my readers, even if it is the last column of space I am ever permitted to use in GLEANINGS. For a surgeon to attempt an operation on a patient who has not vitality enough to withstand the shock would be considered folly; yet the idea of shaking bees under these conditions is just as unreasonable. Listen: The honey-flow was poor; the queens were, of course, poor, and the blackest bees in the worst diseased colonies. Had I requeened these weakened colonies at the time of shaking, I will wager that the result might have been entirely in my favor and in favor of the shaking method. Also had the honey-flow been good, which it was not, the results might have been better.

Well, it didn't take half an eye to see that I was making no headway by "shaking," so I began stacking the brood over other colonies, some of which were kept queenless. I also stacked some separately, leaving only one frame of bees to a body and no queen. As to cures, I had various results; but one fact stood out clearly; viz., the side of the apiary where the diseased brood was piled was getting the best of the bargain all the way through. In the fall flow the stacked colonies made a lot of honey while some on the shaken side of the yard had to be united to be put in shape for winter, and many of them had to be put on combs of healthy stores after brood-rearing had ceased, having failed to get rid of the disease.

The McEvoy treatment had been successful with the black bees at Lowell because we had killed or "chased to the woods" every disease germ in the hives, combs, and honey. I am satisfied that, without disinfection of hives in this case, we should have had the disease back again in a short time. In the case of the Berdine apiary the disease was kept in the yard in those stacks, and I believe the germs were scattered through the air. My colonies treated *a la* McEvoy were in beautiful condition to be reinfected from this source; and right here is the weak point in the shaking treatment in large apiaries, viz., *it puts the colony in a weaker and more susceptible condition to contract the disease than it was at first.* My new swarms and the previously healthy shaken swarms were also in this susceptible condition as I have just related, the conditions differing only in that the treated colonies were the poorest to begin with in general vitality.

With the advent of the fall flow, most of the colonies cleaned up all traces of the disease, although the crayon-marks remained on each hive, showing their past condition and treatment. Now, had I succeeded in treating *all* infected colonies I might be telling bee-keepers to-day of the "cure" I had discovered; but, alas! for lack of help I failed to treat about fifty badly infected hives, expecting that they were requeened with the rest of the bees. The disease disappeared during the fall flow, and the inspection of the following May revealed that out of fifty hives not treated all were healthy excepting four, which showed the disease in very mild form. This yard had wintered perfectly, contained young Italian queens, and was left in the packing until settled warm weather. It also happened that a small bee-keeper located within about a mile of both this yard and the George yard had failed to clean up, and had a lot of robbing going on in some diseased hives. The strong immune bunch of fifty remained healthy, while in the George yard, which had wintered poorly, a dozen diseased colonies developed in the spring, and there were more throughout the season. Of course, I got rid of the diseased yard by buying it up a little later; but the circumstance served to impress the importance of keeping all colonies in an immune condition, and, incidentally, furnished material for testing more fully the cure I shall advocate a little later in this article. The Aylesworth yard of golden three-banders, Cyprians, Carniolans, and Caucasians, which wintered well and were fed frequently, has never showed a trace of the disease since. Now, if the above experience counts for any thing, does it not clearly prove that colonies kept in the pink of condition may be immune to the disease, while weak hives, with poor black queens, are easily infected?

A DISCUSSION OF THE ALEXANDER AND MILLER TREATMENTS.

Mr. Alexander reports a cure from uniting and building his colonies up strong, dequeening and decelling for 21 days, and then introducing a cell or virgin queen of

Italian stock. From this and the results of similar treatments the following deductions may apply:

That the logical cure of European foul brood is composed of two parts: The *temporary* and the *permanent*, the first consisting of the elimination of the diseased brood in the hive, and the second the establishment of immunity in the colony. Alexander accomplished part one in an effective way by employing a large queenless force of *young* bees to clean house. As his hives had some diseased *sealed* brood, he found it necessary to extend the queenless period to at least 24 days. Dr. Miller, not having to deal with much sealed diseased brood, found that, in his cases, a shorter period would suffice. Mr. Alexander, having rid the hives of the diseased matter, at the same time established the immunity of the hive by starting the colonies strong, with vigorous young Italian queens. Again, Alexander's location has a heavy fall flow which is bound to give a lot of young bees for winter and the following spring. His spring location is also admitted to be exceptionally good, in addition to the fact that Mr. Alexander feeds syrup stimulatively. The success of the Alexander treatment in this case, as it must be in all others, was finally due to the thorough manner in which immunity was established, and also to favorable conditions, natural or artificial.

From what I have read of Dr. Miller's experience I can not believe that he had much diseased honey to deal with after he had accomplished "part one." The disease was of recent contraction to begin with, being, no doubt, treated the same season as discovered. The cure was effected during a dearth of honey when the only stores the bees had were the pure honey which they uncapped along the top-bars. Having then accomplished "part one," the getting rid of the diseased brood, the rest of the cure should have been as easy for him as it proved to be with me. Both of us, and Alexander as well, had a fall flow of honey to put our bees in good shape for the following spring, so again we have peculiarly favorable conditions entering into the success of the treatment.

During a fall flow of honey this disease will usually disappear of its own accord, in which case colonies may be put on an almost equal footing with those treated on the Alexander plan by simply requeening early in the season with Italian stock.

Why, then, has the Alexander plan failed in some cases? Because of one or two reasons: Either the man was not adapted to the cure or else the cure was not adapted to the locality. Some men are never thorough enough to accomplish real success in any thing, much less in the cure of such a contagious disease as European foul brood; and I suspect that this disease would be hard to cure by Alexander's method in a location which had no fall flow, by reason of the lack of late-reared young bees affecting the immunity of the hive the following spring. It would be interesting, in fact, to hear from some one has tried these cures in a strictly clover location.

Hebron, Ind.

To be continued.

BEE-KEEPING AS A HOBBY.

The Bee Community.

BY F. DUNDAS TODD.

Chapter Three.

After all, when bees are kept for pleasure the chief interest is not derived from the amount of honey one gets, though that is always welcome as well as profitable, but from studying the ways of the little insects themselves. There are many misconceptions existing among ordinary people as to bees and bee nature. For instance, when the writer is about to address a general audience on the pleasure and profit of bee-keeping, almost invariably the chairman in his introductory remarks explains that he himself would like first rate to work with a colony, but he rather dreads an intimate acquaintanceship with the business end of a bee. This little joke always gives a capital opening for the lecturer, who can at once start out by explaining that the stinging end of a bee is not the business end at all—in fact, only one of many thousands of them ever has call to use its weapon of defense. Very rarely is a honey-bee offensive. The business end of a bee is the head, for in it is found the wonderful tongue with which it gathers the nectar from the blossoms. Then careful experiments and observations almost suggest it is something more than a creature of instinct; that, in fact, it can reason and act with judgment when face to face with new conditions.

A SOCIETY OF COMMUNISTS.

But first let us look at a colony of bees in the mass. Inside the hive are many thousands of inhabitants, the number being estimated to reach as high as fifty to seventy thousand in the hey-day of summertime. These are startling figures, and in the most natural way we are led to ask what is the nature of the bond of association that holds them together. Does a bee-hive house a herd, a flock, a pack, or a covey? Are the inhabitants merely units brought together in a more or less haphazard way like a flock? or is it a family, like a covey of pheasants? Not one of these terms fitly describes the aggregation, for it differs from them all in one important respect; it owns property consisting of combs, honey, and pollen, and this puts it into the same class with ourselves. Human beings produce articles that are not at once consumed, and these must be preserved from the ravages of natural forces and enemies, hence arises the necessity for men to live together in society. Since bees, like men, produce food for future consumption—own property, in fact—they are banded together in a form of socie-

ty. At the same time, it is a strictly family association like early forms of human society.

We speak of human society as being organized, hence there must be some definite principle dominating the grouping. Now, as a matter of fact the dominating idea is not always the same at all times and in all places; but we can group them into two broad classes — the communistic and the competitive. Modern civilization is competitive. It is a struggle for the possession of the property produced, in which the best man is supposed to be the winner. Ancient society was apparently communistic as it is to-day with the more backward races. In the communistic form of society each individual is supposed to produce according to ability and to receive according to need. The family is an example of the communistic spirit in modern civilization, and is apparently a fragment of past conditions carried over into the new.

Colony bees, therefore, are apparently in the first stage of social organization, hence they are communists. Many writers often loosely speak of them as socialists; but the term is incorrectly applied, for in this proposed form of society which many hope to see realized, while the means of production will be held in some form of common ownership, each able-bodied individual will be rewarded according to his works, so it is not so charming an ideal as the communistic one.

THE GROUPING IN A COMMUNISTIC SOCIETY.

In a competitive form of society, classification is along industrial lines. Broadly speaking we have the owners and the workers, and the latter are grouped according to occupation, men and women mingling together in the same calling. But in communistic society the grouping is according to sex. Man is the flesh-producer; woman provides the vegetables, and cooks the food. Man is the warrior, so woman does all the drudgery around the camp and on the march. Even in civilized communities we find isolated groups where the sex division of labor is still the custom, as among the fisher folk of Scotland and the peasantry of Europe.

The line of separation in a bee-hive is strictly according to communistic rule—that is, the grouping is according to sex. The actual producers in the colony are females; the males are concerned only with the propagation of the species, and when their usefulness in this respect is ended they are eliminated from the social organism.

In a competitive form of society, as we all know, the struggle for possession of property is not a free-for-all fight, but must be according to certain man-made rules which are dignified by the title of laws. The more prolific the production, the more numerous the rules of limitation, until, in highly developed countries, the laws cover the pages of thousands of tomes, all of which everybody is supposed to know excepting lawyers and judges in their official capacity. In communistic societies laws are few and far between, if they exist at all, and so we naturally find in a bee-hive that there is apparently no government of any kind, and that each member does the right thing at the right time without direction or correction. So far as we know there is no crime, immorality, nor vice in a bee-hive.

While the subject of hive organization is an extremely fascinating one, the writer feels he dares not do more than outline its broad principles; at the same time, he feels he has said enough to indicate the reason why the greatest intellects of the ages have been induced to spend years in studying the economy of bee society, and why ordinary people get more deeply interested the more they know. Only in recent years has it been realized that human society develops according to laws, and efforts are now being made to formulate them.

We have learned this much, that any form of our social structure is but transient, for all the time man is modifying his surroundings—that is, his environment—then he must alter the social organism to suit the new conditions. To a student of sociology the present day is probably the most interesting period in human history. In marked contrast the colony bee has seemingly attained already the end to which the human race is moving, that of stable equilibrium with the environment. This has been secured by almost perfect control of the means of reproducing the species, for only that number of young bees is brought into existence for which there is evidently a sufficient food supply. Both race murder and race suicide are long-established rules of practice in a bee-hive whenever inclement weather conditions necessitate their adoption. Last of all, the number of consumers who are not producers — that is, the drones — is kept within safe limits, and even they are summarily disposed of when their existence is no longer a necessity to the social welfare.

Victoria, B. C.

LIME IN A CELLAR WILL NOT DRY THE AIR.

BY F. L. HUGGINS.

Referring to the footnote to the "Straw," p. 4, Jan. 1, about slaking lime in a cellar, I will say that the chemistry is not quite sound. Lime is calcium oxide, CaO; and when exposed to the air it absorbs moisture, and the hydroxide, CaH_2O_2, is formed. In this reaction no oxygen is released (this in correction of W. H. Messinger, *Review*, 365).

This hydroxide (slaked lime) has a feature that is exceptional in chemistry—it dissolves more easily in cold water than in hot. The solution, the ordinary lime-water of medicine, absorbs carbonic acid from the air, and a thin skin of carbonate of lime rapidly forms on the surface.

Thus it is the lime-water and not the slaked lime that absorbs carbonic acid.

I can not see how slaking lime in a cellar would dry the air unless the cellar were airtight. For the purpose of keeping articles free from moisture in closed vessels, calcium chloride (CaCl) is generally used, as it has a powerful affinity for water.

NON-SWARMING BEES NOT WANTED.

I am very much interested in the articles on non-swarming races of bees. While interested I am not at all in sympathy with the idea, and think it is time wasted. I believe that, if a non-swarming bee (by that I mean one with no inclination to swarm) were produced, such a bee would be useless as a honey-gatherer. I believe the God-given instincts of swarming and storing honey are inseparably connected; and if one is broken up, the other will be destroyed.

I do believe with all my heart that we should make every effort to prevent swarming. The old English definition of "prevent" just expresses my idea—that is, we should *anticipate* swarming. If by shaken swarming or other methods we can make the bees believe they have swarmed, and thus satisfy their instinct, then we are assured of a big yield.

Wilmington, N. C.

[As Mr. Huggins is superintendent of a chemical works we are sure that he knows whereof he speaks, and we are glad to stand corrected.—ED.]

PRICES OF HONEY IN TEXAS.

Louis Scholl's Figures Correct; Bulk Comb Honey Becoming More Popular.

BY M. E. PRUITT.

I beg to differ with Mr. Sueltenfuss in a gentle sort of way anent the "real price of bulk comb honey in Southwest Texas," as stated on page 680, Nov. 1, 1910. Mr. Scholl was correct as to the prices he stated on page 580, Sept. 15. We averaged 10 cts. for our bulk comb honey, and 8 for extracted; and most of the time we did better than that. We sold our white catclaw bulk comb honey at 15 cts., and the extracted from the same source at 12. Then as the honey became darker we dropped to 12 cts. for the former, and to 10 for the latter. Perhaps Mr. Sueltenfuss' honey was not as good as ours, or his market in San Antonio not as "gay." Something is radically the matter down there, surely.

Last season's crop of honey was short, very short, on account of the long drouth, and the demand was and is far over and beyond the supply. Not many bee-keepers, in this part of Texas, any way, will have much "extracted honey on hand" to keep until cool weather.

The season of 1909, when the honey crop was better than last year, we Texans had all our honey sold by Nov. 1, and, if I mistake not, we also had the crop of 1908 sold by Nov. 1 of that year; and the 1908 crop was a bounteous one. Then we averaged 10 cts. for the bulk comb and 9 for the extracted. The point is this: If the crop is bounteous, one can not obtain a high price; but if there is a shortage, high prices are obtainable as a consequence.

Mr. Sueltenfuss remarks that the market for extracted honey is dull. Yes, and it will probably remain so—that's just one more proof that bulk comb honey is rapidly coming into its own—it is becoming more and more the standard style in demand.

Eola, Tex.

BEES TRANSFERRING LARVAE.

An Apparently Clear Case in a New Zealand Apiary.

BY H. BARTLETT-MILLER.

It seems pretty well proven that bees will remove and even steal eggs upon occasion; and, although I have not noticed any reference to their transferring larvæ, yet I have had two unmistakable instances of their having done so in my own experience. During September, 1909, I tried raising queens very early in the season, in the Swarthmore swarm-boxes. I used combs of honey and pollen, making absolutely sure that they were destitute of eggs. The third comb, for the water, had not been inside of a hive for over six months. When I transferred larvæ to the cell-cups all were rejected. I supposed the bees were sulking; but the next day, when another transferring was similarly treated, I returned the bees in the evening to their hive, and then found three cells started about the center of the comb that contained the water—that is, the one which had not been in a hive for six months. There were no empty cells in either of the other combs except at the corners. There can be no possibility of mistake in this case, for, even allowing that there might have been larvæ in the honey and pollen combs, it remains true, nevertheless, that the bees removed such larvæ to cells on this comb that had been out of use for six months.

The second case occurred during the same month, 1910, and the combs used for honey and pollen were old ones, saved from the previous autumn crop, that were sealed over solid, the empty comb used for water, in this second case, having been out of use all the winter before. The swarm-box was one of my own manufacture, and was of the conventional pattern, except that the wire cloth on the bottom covered a space of only 8 inches by the width of the box, the rest of the material being wood. I had fed this colony regularly for two weeks previous, and when grafting I put larvæ in only 11 out of 32 cell-cups. To my disappointment, not one was accepted, although the cover of the box had warm woolen cloths piled on it, about 6 inches deep, and tied around the

sides at least 6 inches down below the cover. A second grafting the next morning being similarly removed, I dumped the bees, that evening, before their hive, disgusted with attempting Alexander's instructions for raising early queens. Imagine my surprise, then, at finding 11 nice queen-cells started on the lower edge of that old dry comb close to the wire-cloth-covered opening—exactly the number of larvæ that I had transferred at the first grafting. All these were too well advanced to include any of the second grafting of that same morning.

Now, I wonder if the bees moved those larvæ for the purpose of giving them fresher air. It certainly looks like it, for the top and sides covering the other boxes must have excluded any chance ventilation from cracks; anyway, the bees moved them.

Kihikihi, Waikato, N. Z.

BEE-KEEPING IN THE SUGAR-CANE REGIONS OF LOUISIANA.

BY ARTHUR DROSSAERTS.

I have been an amateur bee-keeper for three years here in Southwest Louisiana. South Louisiana, with its mild winters and wooded hills, and abundance of white clover, should be a paradise for the bee-keeper. Yet we have many drawbacks. First, the white-clover season (end of February, March, April, and beginning of May) is generally a season of drouth, dust, and daily high winds. Second, in the summer months we used to rely upon the cotton flowers; but the boll-weevil has played havoc with the cotton, and a cotton-field is getting to be rarer and rarer. Third, I am living in a sugar-cane county, with intense cultivation. Nothing is finer than our sugar-cane fields; but the miles and miles of waving and gracious foliage mean absolutely nothing to the foraging bees.

My best hive gave me three supers of fine white honey; but I must say that most probably a professional would go me a few supers better. I am satisfied with one or two supers per hive.

Fourth, in summer (June and July) we have showers daily, almost incessantly, and you know what this means to the bee.

I have a friend here who has gone into the bee business for dollars and cents. He has home-made hives (far from up to date). He goes around selling chunks of honey, and he does very well. But this sugar-cane country will never be a real honey-eating country. The fine cane syrup, home-made, is a real rival of honey.

I am not in the bee business at all for profit—only for pleasure; and I give away or consume at home whatever the bees produce. By the way, our Louisiana hybrids are about the meanest fellows one wishes to meet. Nothing can subdue them. Smoke seems to have no effect on them, and no one can venture safely around the stand for two days once they have been interfered with. I shall have to Italianize the whole lot this summer.

Broussard, La.

THE CLIMATE OF GREAT BRITAIN AND UNITED STATES COMPARED.

BY FREDERICK MARTIN.

Under the above heading in the January number of GLEANINGS Mr. D. M. MacDonald would lead Americans to infer that the British method of wintering is superior to the American. The superstructure of his argument may be right enough, but it appears to me to be built upon a false foundation; and before any one on this side the Atlantic tries to put the plan into practice he should think out the case clearly, and be careful of any kind of jump at favorable conclusions.

Mr. M. says, "But from several interesting causes which I need not dwell upon, we really differ little in climatic conditions from you." This is the foundation of the case as applied to America, and this statement, as far as it affects wintering of bees, is seriously in error. Mr. M. writes from Banff, and, taking it as a cold sample of the British climate, it is well to note that even there the winter is nothing like as severe as the winter at, say, Philadelphia, and is simply nowhere compared with winter in the Middle West. To attempt a British wintering plan under these conditions is a very risky venture indeed.

In Britain, and everywhere from London northward, the climate is pretty much the same—zero temperatures are unknown. If the thermometer gets down to 8 or 12 F. the whole country looks blue; whole columns in the newspapers are filled with stories of the "very severe weather," and people feel worse than they do over here when the mercury drops to five or ten below zero. The grass is green all winter in some places. Cabbage remains in the gardens all winter; turnips flourish in the fields, and sheep remain outside feeding on them. Borecole or kale (a plant not half enough known in America) is really at its best after standing outside all winter. Even broccoli, a kind of cauliflower, will grow outside all winter. Contrast all this with the winters of the eastern part of the United States, and it must be manifest that a system which will winter bees in Britain might, and likely would be, ruinous, when applied to bees in America.

I do not write to discourage attempts at testing Mr. MacDonald's plan; but that plan must not be followed on the assumption that "Britain really differs little in climatic conditions from America." The difference may not look great in a list of mean temperatures; but it is generally enough to require different management.

Philadelphia, Pa.

Heads of Grain

from Different Fields

Difficulties in Manipulating Chaff Hives Having Tight Bottoms.

We use the Hilton chaff hive. It winters the bees well outside, and keeps them warm in spring, and it is just right during the hottest weather. But the trouble is, I am a beginner; and in studying up the different methods I find that a different make of hive is generally described, which makes the methods in question impossible with this hive.

A weak colony is recommended to be set over a strong one. We can't do so with this hive, and the Alexander feeder seems to be popular for feeding daily in the spring; but our hive, having a closed bottom, is not adapted for this work.

Muskegon, Mich. H. A. PORTER.

[Chaff hives have a great many advantages over single-walled hives, especially in localities where bees winter in them on summer stands so admirably; but, of course, the tight-bottom-board feature prevents such hives from being used as conveniently as single-walled hives having loose bottoms. For this reason the new loose-bottomed chaff hive was brought out, so that methods of management for single-walled hives would apply equally well to the double-walled style.

However, even with your hives that have tight bottoms, you can very often find a way out of the difficulty. For instance, in order to follow the Alexander plan for building up weak colonies you might have a few single-walled bodies on hand in which you could temporarily transfer the combs and bees for setting over a strong colony. In many other ways a few single-walled bodies are very handy in an apiary where tight-bottom chaff hives are used.

Of course the Alexander feeders can not well be used on your hives; but the Doolittle division-board feeder could be used without any trouble.—ED.]

Drawing Stale Air Out of a Cellar Instead of Blowing Fresh Air In.

Will you allow me to suggest that, next spring, when the bees get uneasy in the cellar, instead of pointing the fan into the cellar and so trying to blow fresh air into a compartment full of air, you point it the other way, and so suck the stale air out — no fear of any less air being in the cellar. By the first way there is more stirring up of stale air than any thing else. By the latter, all air that is shifted is replaced by fresh. This can be modified, and made more effective by having a horizontal partition in opening, or an opening near the floor and one near the ceiling, and putting the fan at either top or bottom opening (but always pointing out) according to whether the lower (cold) or higher (warm) air is to be expelled. Without any further explanation I think you will see the point clearly. Pure air in the cellar is of more consequence than the state of the thermometer.

My next venture with bees will be in the northern part of this State, and I will take any old cellar and keep the bees quiet by pure air—raise and even lower the temperature by this principle of forcing air *out* of the cellar, using a stove outside for the motive power. I think I have said enough to make myself understood by you. To go into the matter fully would make the letter too long.

W. H. MESSENGER.

Port Richmond, New York, Dec. 9.

Moving Bees in Cold Weather.

While I have been a bee-keeper many years I have had no practical experience in moving bees, and should like to have you give me what information you can in regard to the following: I wish to move about 15 colonies of bees a distance of about 25 miles by wagon or sleigh. I should very much like to do this before warm weather; in fact, it is almost a necessity, owing to peculiar circumstances. Can you suggest any way in which this could be safely done without danger of breaking down the combs and ruining the colonies? These bees are in ten-frame Langstroth hives. A. J. W.

[When cold weather is on, it is desirable to move bees as quickly and with as little jar as possible. On a bad rough road, unless the hives are well cushioned on straw in the wagon or sled, there is danger of breaking out some of the combs during the hauling. We would, therefore, select a time when the temperature is not too low, and yet when it is cold enough so that the roads will hold up. If the bees can be moved on a sled, and the sleighing is good, you would have very little difficulty. We would advise you even then to put a quantity of straw in the bottom of the sled-box and the hives on top. Take the bees out of the cellar; load them quickly, and drive as fast as the roads will permit to destination, and then unload.

Of course, the usual precaution of fastening the frames, if they are not self-spacing, should be observed.

Even should the weather be severely cold, if the bees are moved quickly, and the roads are good, there will be no danger of breaking down the combs. So far as the bees are concerned, they can stand any degree of low temperature for the short time they are out; indeed, we doubt very much whether it would do them any harm if they were left out several days, even in single-walled hives; but they should not be moved then, as the combs would be sure to break down.—ED.]

Why Are the Bees Dying Off So?

Last January I bought two strong colonies of Italian bees. When winter approached I made a packing-case and put them in it, made so that there is five or six inches of dry leaves around the hive. I also made a porchlike projection which I have had partly covered, so that the cold wind could not strike the entrance. The entrances were contracted down to 1 x 1½. For two or three weeks, or since genuine cold weather set in, I have noticed that the bees want to crawl down on the bottom-board and out on the porch I made. I have swept away two handfuls of dead bees every week; and if they are going to die at this rate I shall not have any by next spring. Do you think the ventilation is poor, or is it too warm in the hive? or what may the trouble when the bees can't be stirred in the middle of the winter? Can bees be fed in winter if they need feed?

Attica, Ind., Jan. 16. ANDREW BERGHIRST.

[From the general description given, we take it that you have not provided for sufficient ventilation. The entrance should not be less than 1 x 2 inches at least. We usually prefer to have a slot about ⅜ x 8 inches. We can not understand why your bees are coming out so, even with the entrance that you have provided, unless it is that the food is bad or the portico is so constructed that the bees are confused on returning, lie outside, and die. We would suggest, for the present, enlarging the entrance to see if that helps it any. You will always find, however, that there will be some dead bees in front of an entrance of a normal outdoor colony, and there will be quite a quantity of them lying in front when it warms up after a cold spell. You can feed hard candy in winter; but don't give syrup.—ED.]

Wages of Apiarists.

I should be glad if you would give me some idea as to the wages paid to experienced bee-keepers, such as myself, in the United States. I have been in the bee business at Berlin and Brussels for three years in connection with a 400-colony bee-yard, and have had personal oversight of 200 colonies. I am also experienced in bottling honey and packing for shipment, as we ship two carloads each year, all over the West.

Stratford, Ont., Jan. 9. C. A. JONES.

[The wages of bee-keepers varies very materially. Every thing depends upon the man, the length of his experience, as well as his general all-around ability. The very highest-grade man, one who is capable of going ahead or taking charge of a series of yards, may bring as high as three or four dollars a day; but as a general thing a helper does not get much over $2.00 on a basis of ten hours. One who is familiar with bottling honey and selling the same, would, of course, bring a higher price than one who knows only the art of producing it.—ED.]

Rearing a Queen above an Excluder with which to Supersede Old Queens.

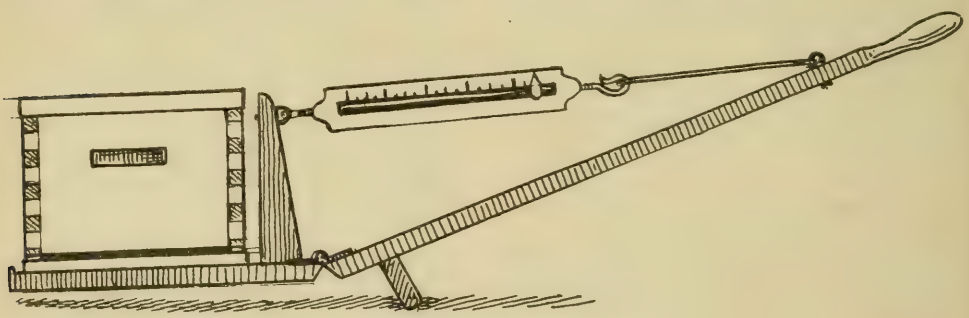
Do you think it advisable to requeen by rearing a queen above the excluder, and then allowing her to go below into the brood-nest? Which of the two queens would survive? I see some writers say both would live in the same brood-nest.

New Castle, Col., Jan. 2. S. R. STEWART.

[Under some conditions it is possible to requeen above queen-excluding zinc, in the manner you indicate; but as a general thing you will find it much more practicable to rear the queens in separate nuclei, remove the old queen, and introduce the new one. The difficulty with the plan of rearing queens above the excluder is that there is almost sure to be a battle royal between the old queen and the younger one. While the latter will be the probable victor, she might be the one to be destroyed. When queens grapple in a mortal combat, there is some element of chance. The one that gets the best hold, or, to use the parlance of the day, "the drop on the other fellow," is the one that is the winner. Or, to put it another way, the queen that gets the best grab, so that she can deliver her sting, will be the victor whether she be the older or the younger. In a battle between a virgin queen and a queen in the height of her egg-laying, the odds will be, as a rule, in favor of the former.]

McIntyre's Hive-weighing Device.

Mr. McIntye has sent me a drawing of a weighing-device as shown below. He says it weighs but 5 lbs., and that with it he can weigh 100 colonies in less than an hour. It certainly looks good, and those who practice weighing their hives each fall might well investigate its merits.



M'INTYRE'S HIVE-WEIGHING DEVICE.

The directions for use are, briefly, as follows: Take it on one hand as you would a fire-shovel, and slip it under the hive. Press down on the handle until the hive is raised clear from the hive-stand, and it will give the correct weight.

Mt. Joy, Ontario, Can. J. L. BYER.

Will Bees Cross a Mountain in Search of Honey?

Will some one inform me whether bees will cross a mountain varying in height from 500 to 1000 feet, and a mile to a mile and a half in width, in search of honey-yielding blossoms? I live in a hollow at the foot of a mountain of this description, the two points extending about a mile toward the west, and being about a mile apart. My bees can fly westward as far as they please, without crossing a mountain, but are fenced in by mountains on the north, east, and south.

HONEY FROM DOGWOOD-BLOSSOMS.

In the spring of 1901 I noticed bees working on dogwood-blossoms on a tree in my front yard. They worked there several days. I had never seen bees work on these blossoms before, neither have I noticed them since. I thought perhaps there was honey-dew on the blossoms.

Huntsville, Ala., Jan. 6. H. M. WEBSTER.

[It is our opinion that bees would not cross the mountain, especially if it were a mile or a mile and a half across it. If you desire to get the benefit of any flora on the other side you had better move a part of the bees over. As a general thing, bees will not fly over a mile and a half. While they will sometimes go two miles, and even three when the nectar-yielding blossoms are distributed evenly over the distance, they will rarely go over an obstruction 1000 feet feet high, and a mile or a mile and a half beyond.

Some plants yield nectar only rarely when conditions are just right. It is hardly probable that your bees were gathering honey-dew from the blossoms. Real honey-dew, when present, is found all over every thing. If the bees were working on the blossoms and not on the leaves, you may rest assured they were after nectar rather than honey-dew.—ED.]

A Colony Wintered in a Warm Room with an Entrance out of Doors Gave Fine Results.

Mr. Root:—I note what you say on the subject of indoor wintering of bees, page 764, Dec. 1. My experience does not agree with yours. My best test was made in the winter of 1907. On July 25, 1907, I took a colony of medium-strength Italian bees, divided them five frames each, giving each division a young Italian queen. I put one colony in the house in a small room off the main part of the house, the other one in the back lot. Beginning July 25 I fed each of them ½ pint of syrup each evening for ten days. They both built up, filling each ten-frame hive well with bees and plenty of stores for winter. The one in the lot I packed in a chaff case in November.

The colony in the house had an entrance 2x⅜, always open. The main part of the house kept from 55 to 70 degrees; but the room where the bees were was about 10 degrees cooler. They did not consume an extra amount or food, as you report, as I took from them in March two full frames of honey, substituting frames with full sheets of foundation instead, and took the same amount from the colony outdoors, also giving frames with foundation instead.

In April the house colony seemed to have double the number of bees, and the results during the season were fully double those of one out of doors, owing, I am persuaded, to their strength early in the season. The house colony produced 222 sections of fine honey, and I took from them seven nuclei that built up all right for winter.

One thing I observed closely, and made careful note of. The house bees never took a flight on any day nor earlier in the day than the outdoor bees; and on one occasion the latter came out an hour earlier in the day. From my experience I believe it profitable to put bees in a room or house kept from 50 to 60 degrees, with the entrance open to outdoor air.

Urbana, O. O. J. JONES.

Two Bad Cases of Laying Workers.

The past season, for the first time in my fifteen years of bee-keeping I had two pronounced cases of laying workers. Colony No. 22, at the beginning of the honey-flow, had no less than 47 capped queen-cells. Of course, I expected that a swarm would be cast; but on examining the combs a few days later I found all the cells destroyed and a fine young queen present. I supposed then that every thing was all right; but on making another examination a week later I found the young queen was gone, so I introduced another one, in a mailing-cage, in the regular way. At first she was accepted; but a few days later the bees again got rid of her. I had no

more queens or cells, so I sent for a queen, and by the time she arrived the ten-frame hive was full of eggs, there being from two to six in every cell. I did not know what to do; but on following closely the directions in the A B C and X Y Z of Bee Culture, I was soon rid of those laying workers. The new queen was then accepted all right, and began laying in a few days.

Colony No. 21 had a fine year-old queen. One day while examining the combs I found the brood-chamber full of eggs from laying workers, and even in three combs in the supers there were anywhere from two to six eggs scattered all over. This colony was given the same treatment, and a laying queen introduced.

When distributing the brood-combs of bees all around the apiary, as directed in the above-mentioned book, it is well to smoke the bees on the combs thoroughly, so that there will be little fighting and but few bees lost.

What puzzled me was to learn what became of the queen in colony No. 21. The first queen that I mentioned might have been lost while out on her mating-flight; but I am at a loss to understand the loss of the other one, as there were no signs of any kind that the bees were preparing to swarm or supersede their queen. Some may say that laying workers are the result of carelessness on the part of the bee-keeper. I can not agree with this, for all of my colonies are examined at least every two weeks. Hereafter I shall never leave a colony without a queen more than one week without either giving it brood with which the bees can start queen-cells or by providing a laying queen.

La Crescent, Minn. G. H. BARBISCH.

[The queen of No. 21 possibly died a natural death. If the virgin that followed her was lost in mating, laying workers would naturally develop.—ED.]

Normal Loss of Bees from Fourteen Colonies in a Cellar; How to Know when Bees are Wintering Well.

Is one quart of bees per month too much winter loss for 14 colonies? When I swept up the dead bees and threw them loosely into a quart measure they just about filled it from Nov. 25 to Dec. 1. I suppose I shall not lose as many bees per month during the remainder of the winter. Is this correct? My cellar is dry, and the temperature stays between 40 and 43 degrees. During the first warm weather it does not go higher than 45 degrees.

RETURNING SWARMS TO THE HIVES THEY CAME FROM.

Last year I put two or three swarms back in the hives they came from, first placing an Alley trap in front of the entrance and shaking the swarms down on the alighting-board. The bees went back in, although I kept the queen and drones outside. Afterward the whole colony seemed to sulk, and, all together, the plan did not seem very satisfactory.

New Bethlehem, Pa. J. M. WALKER.

[The winter losses resulting from bees flying out of the hives and dying on the cellar bottom will be comparatively light during the fore part of the winter, and very much heavier toward spring. In estimating the amount that might be considered a normal loss of bees per month we must take into consideration the time in the winter. One quart of dead bees during December, from only 14 colonies, we should say would be rather large. During the first month, and the one following, the loss from so few colonies, we should estimate, ought not to exceed one pint per month; but we would not consider it bad wintering by any means if the loss were a quart for each of the two first months, and possibly twice as much for the next three months. Much will depend on the strength of the colonies. If the hives are full of bees, every comb covered, we should naturally expect a much larger mortality than in a case where the colonies were light. It is impossible to make any absolute estimate of the normal loss per colony during winter, either for indoor or outdoor wintering. If, when one goes into the cellar, he finds every thing apparently quiet, no roaring of any kind, and the air reasonably sweet, he may conclude the bees are doing well—yes, they are wintering perfectly. On the contrary, if the air smells of dysentery, and the bees are making considerable noise, and buzzing down on the cellar floor every few seconds he may conclude his bees are not wintering well. Indeed, he may expect a heavy loss before spring.

It never pays to put swarms back into the same brood-nest from which they issue. When swarms are hived back on the same stand, the old brood-nest must be removed and an empty hive containing empty combs or frames of foundation should be put in its stead. The supers, if any, that were on top of the old hive should now be placed on the empty hive now on the old stand.

Yes, sir, 'e; swarms will sulk almost every time if you hive them back in their old quarters. You must make a radical change in the brood-nest before they will stay contented and go to work.—ED.]

Borrowing Bees; Plurality of Queens in a Hive is Not Practicable; Queen-cell Protectors.

In "Alexander's Writings," p. 75, is mentioned, in connection with queen-rearing, the borrowing of bees from several strong colonies for one day. How is this done, the bees used, then returned?

Pages 80—82 speak of a plurality of queens in one hive; and it has been mentioned in GLEANINGS that Mr. Alexander's son had a method of introducing several queens, but I have been unable to find it.

In introducing unprotected queen-cells to nuclei, made by taking two couples or three frames of bees from a queenless colony, are the cells likely to be safer by confining the bees for a day or so?

Auckland, N. Z., Nov. 14. S. C. RHODES.

[Mr. Alexander meant, by "borrowing bees," taking from any colony, preferably one that is queenless, anywhere from a pint to a quart of bees. These bees can then be returned providing they are not used with any other bees.

We would not advise you to try the scheme of more than one queen to a hive. While, apparently, it worked for Alexander, the great mass of our readers have since declared that it was a failure with them. The method of introducing by Frank Alexander was subsequently described in GLEANINGS, Sept. 1, 1907, page 1136.

We usually advise putting queen-cells in queen-cell protectors. While cells can be given, a good many times, without danger of their being destroyed, it is usually safer to use the protectors.—ED.]

Frames Smaller than the Langstroth; Profits from Bees

A bee-keeper told me that a frame 13¾ in. long and 9 wide, inside measurement, would be about right for this northern climate, and even better than the Langstroth frame. His reason was that bees have more brood than they can cover in L. frames, and when cold weather comes the brood gets chilled and dies. What is your opinion?

Is it wise for a beginner to try stimulative feeding? If so, how much should he feed?

What is the advantage of a loose bottom-board?

Should 100 colonies in a good bee country produce $1000 in honey and wax? or what is the average the practical bee-keeper might expect?

Maeton, Ont., Jan. 6. N. ALLINGHAM.

[A great many different sizes of frames have been tried, but the majority of bee-keepers have decided that the Langstroth dimensions can not be improved. The fact that hives containing frames of Langstroth dimensions are standard is also a big point in their favor; for when bees are sold on odd-sized combs the selling price is always lower.

In our opinion a smaller frame would not prevent brood from chilling in the manner suggested, for the amount of brood depends on the queen and on the bees, and a smaller brood-nest is apt to result in a smaller cluster.

Stimulative feeding in the spring is considered by most bee-keepers a questionable practice, it being much better to provide a little more than enough stores in the fall to carry the colony over until the honey-flow begins in the spring or early summer.

With loose bottom-boards the brood-chamber can be manipulated a little more easily than when the bottoms are fast. There are several changes that are often desirable, and that can be easily made with loose bottoms. However, the best plan of all is to use crate staples on the sides, fastening the body to the bottom, so that, when occasion demands, the two can be separated very easily.

One thousand dollars from one hundred colonies in a season is a much larger return than the

average successful bee-keeper will make, five dollars per colony being a high average as the seasons run. Of course, ten dollars' worth of honey could be easily produced per colony in a good season, so that for gross receipts one thousand dollars per one hundred colonies in a good season would be considered as doing remarkably well.—ED.]

Dysentery in the Cellar; What to Do.

I put my bees in the cellar the day before Thanksgiving. They had a good fly that day, and went in dry and nice. I have a very large cellar. Most of my bees (116 colonies) are on a 16-inch stand, single tier. They have been very quiet ever since. The mercury started in at 45, and is now down to 42, and no light whatever comes into the cellar. It has no windows nor vegetables in it. But the cellar seems to be on the damp order. The dead bees on the ground are covered with white mold. Some are moldy about the hive-entrance; some hives have water running out of their entrances (⅜ inch by the width of the hives). Last year was almost a no-honey year here, but we had lots of honey-dew. I expected to put my bees out for a cleansing flight at the first opportunity, after being in one month; but there has not been a day when they could fly since putting them in. Some of my bees are spotting the hives badly now. Will it do to set them out with snow on the ground? How high must the mercury be? How about the wind?

Cedar Falls, Ia., Jan. 19. E. E. RICH.

[You do not say any thing about what means of ventilation you have, if any. While the temperature (42 to 45) is good so far as it goes, if there is a lack of ventilation, or no means of it, by which the bees can get fresh air, you will discover uneasiness—especially so if your bees had been gathering honey-dew during the past summer. The probabilities are that the real exciting cause of the dysentery is bad food. This, coupled with lack of ventilation, may cause heavy losses among some of your colonies before spring. If the temperature should warm up to 50° or higher, outdoors, and the sun should shine, we would advise taking the bees that are affected with dysentery out for a flight, then putting them back in again as soon as they have gone into the hive at night. The objection to giving the bees a flight, if there should be any snow on the ground, is that large numbers of them would get chilled, lodge on the snow, and never get back. If, however, the snow should melt off within a few hours we would leave the hives out; and if there should be a warm atmosphere the next day those bees that were chilled and on the ground might warm up, take wing, and return to the hives—that is, providing they had not been chilled to death the day before. Bees will stand a gradually falling temperature, but not a sudden change.

In regard to the ventilation, if you have made no special provision we would advise opening the cellar-door occasionally nights, and closing toward morning. It may be necessary at such times to put artificial heat in the cellar to keep the temperature from dropping too low. Put in a small drum stove and connect it with the chimney-flue. Do not put in a kerosene-lamp nor any thing that consumes the oxygen in the room, as this will only aggravate the condition. The drum stove will help to dry out the cellar.

Taking it all in all, a warm day and a flight for the bees is the only thing that will give relief to those affected with dysentery, and this may be only temporary. The honey-dew in the combs should have been extracted, and the bees should have been fed sugar syrup before they were put into the cellar.

We do not think the moisture that you report would do any harm, other conditions being right. The moldy dead bees on the cellar bottom do not necessarily indicate any thing serious.—ED.]

Another Switch Bottom-board Similar to That Devised by J. E. Hand.

By late numbers I see that Mr. J. E. Hand has devised a double bottom-board. I have almost the same thing except that mine is a hive-stand as well as a bottom-board, and the construction is somewhat different, although the lever arrangement for switching the bees back and forth is almost exactly the same. Mr. Hand is ahead of me, however, in getting his outfit into practical use. I had my plan perfected in 1909, but sold out and went to another county, and consequently did not get one of these outfits of mine ready to test last season. As soon as I could, however, I made one according to the rough sketch that I am furnishing. I also have a feeder in combination with my bottom-board, so arranged as to be filled from the outside.

I conceived my first idea from the Scholl plan of working two hives, and I got up the switching device to make the manipulation more convenient.

Madison, Kan. J. H. HENDERSON.

[The sketch that Mr. Henderson furnished shows a very striking similarity to the Hand switch bottom-board. All this only goes to show that two different parties may work out almost exactly the same thing at the same time.—ED.]

Granulated Sugar Tainted with Kerosene; would it be Safe to Feed Bees?

I am able to purchase a quantity of granulated sugar of the railroad company for a mere song. This sugar is tainted with kerosene, but is not bad, although one can detect the coal-oil odor on it. Would it be safe to feed it to my bees, or would there be danger of killing the brood and tainting the hives? Could I spread it out thin and allow the oil to evaporate? or would making a syrup of it and boiling it thoroughly dissipate the oil and make it a safe feed?

Nevada, O., Jan. 25. F. J. ARMSTRONG.

[We see no reason why you could not use this sugar. The slight taint of kerosene certainly would not hurt it in the least, although the odor of it might be a little offensive to the bees. If they take the syrup you may rest assured it would do them no harm. However, we would advise you to secure a small quantity of it, melt it up, and feed it to the bees. In order to do this, bring the bees inside of a warm building, then place a feeder of the syrup on top of the hive. If they take it down readily we do not think you will need to have any fear of its injurious effect upon the bees.—ED.]

That Odor from the Hives.

Some years ago, while living in the South, our early honey crop was a failure and we had to feed the bees. In the fall we had a splendid crop of honey from goldenrod and aster; and during the flow the odor from the hives was rank. A young bee-keeper came three miles to see me, and was greatly worried, as he thought he had foul brood. He had examined the bees, but could not find any indications (beyond the odor) as per instructions in bee-books, etc. I suggested going to see my bees; and when we were a few feet from the hives he exclaimed excitedly, "You have got it too." However, I showed him that the odor was from goldenrod and asters by taking a handful of the blossoms of the latter and rubbing them in my hand and letting him smell the crushed flowers.

He thought the honey would not be fit to use; but I told him to leave it on the hive as long as possible or till the approach of cold weather, and it would be good. And it was.

Elwood, Ind. D. NEILSON.

Conditions when a Virgin will Supersede an Old Queen.

In reading Doolittle's book on queen-rearing I note that, when a young queen is raised in the upper story, if by any chance she gets in the lower story she always kills the old queen. Now, what I want to ask is this: Why couldn't I requeen by putting a cell in a nursery cage right in the hive where the old queen is, and on her (the new queen's) hatching would she not supersede the old queen? and would not this be the easiest way to requeen?

Sabetha, Kan. FRANK HILL.

[There is a possibility that you might be able to requeen by the plan described, but we would not advise it. The probabilities are that the old queen would kill the young virgin while she was soft and weak, just as she emerged from the cell. If the virgin could be protected until she were three or four days old she would be more than a match for the old queen. As a general thing we advise bee-keepers to take the matter into their own hands, remove the old queen, and then give a cell or a day-old virgin to the colony.—ED.]

Our Homes

By A. I. Root

Put on thy beautiful garments, O Jerusalem. . . . Loose thyself from the bands of thy neck, O captive daughter of Zion. . . . Ye have sold yourselves for naught.—ISAIAH 22 : 1, 2, 3.

When we arrived here about the first of November I noticed, almost the first thing, that our Bougainvillea was almost defoliated by the sort of measuring worm I have before mentioned. Instead of being a "thing of beauty" it was just almost an unsightly weed. We first tried hand-picking; but as the worms have the queer fashion of mimicking lifeless twigs it was almost impossible to detect them; and, although I killed dozens of them every day, we didn't seem to get ahead of them at all. Somebody suggested Paris green; but it proved of little or no avail; but another friend told me arsenate of lead would stick to the leaves, and *must* prove death to any leaf-eating insect. You may remember I spoke of this insecticide in connection with the flea beetle on my wonderberry-plants. I didn't try it, because our Medina druggists couldn't sell less than a can of it, it being a sort of paste. Now, although much has been said about the extortion of Florida merchants, especially to new comers from the North, I found here no trouble in getting a dime's worth for my experiment.

As I was somewhat vexed with the contrary worms (that *refused* to *die*) I took my spray-pump and gave all three of my vines a pretty severe spraying. Well, it fixed the worms, sure, and came pretty near fixing the plants also. They presented a sorry appearance, sure, until about the first of the new year; and to-day, Jan. 25, when I went out and stood by the front door the words of the first sentence of my text "sort of" bubbled up almost involuntarily. The plant had so far recovered from its fiery ordeal of worms and poison that it was indeed *once more* "putting on its beautiful garments." Why, I would almost take a trip to Florida to see this beautiful plant in full bloom, right out in the open air, in all its bewitching beauty, if for nothing else. It is a rank hardy grower; and the new foliage, when it first comes out, makes it a handsome plant, even before the gorgeous bloom covers and encircles it.

Last evening, before retiring, I spent some time reading from the dailies about the recent revelations in regard to buying and selling votes away off in beloved Ohio, the land of my birth. The saddest part of it was to read that not only men who stood high in office, and in the estimation of people generally, but even ministers of the gospel, veritable leaders in "the paths of righteousness," had confessed themselves guilty of this terrible offense against not only *good* government but *all* government. As I looked again at the Bougainvillea I breathed an inward prayer that out of it all, and *through* it all, *Zion* might "awake" and once more "put on her beautiful garments" of honesty, truth, temperance, and virtue. For years past the Anti-saloon League has been perplexed and mortified to find that the men who professed to be all that is noble and good, should, in some unaccountable way, at just the last moment, be found over in the hands of the enemy of all that is good and pure and true. We guessed where the trouble was, but there seemed no way of getting hold of evidence. May the Lord be praised that our prayers for years past are being answered. We have at least *one* fearless and righteous judge who "dares to be a Daniel," and who keeps right on enforcing the law, even though anonymous letters have been received threatening his life, if he does not "let up" in his crusade to punish the wicked. May God be praised, also, for the number who have come forward in a manly and honest way and "owned up" and "taken their medicine" without making any wry faces. Truly, there is a prospect of a wholesale throwing-off of the old-time "filthy rags," and donning the "beautiful garments" of the new Jerusalem. Is it not indeed really true that we *are* "shaking ourselves from the dust" and "loosing ourselves from the bands" that have been about "the necks" of at least some of us?

The principal excuse I have heard for this kind of work is that everybody *else* was doing it. These two ministers who confessed probably received such a small salary they just *had* to do as their people did, to live. It seems to me a little funny that a vote-selling church should be able to pay a minister at all. Very likely it was the *women* of the congregation who paid the salary. And, by the way, if I have got it right, there was one township (or precinct) where every single voter was disfranchised for five years; the W. C. T. U. women sent in a plea to permit them, under the circumstances, to do the voting. May God hasten the day when good women shall do at least *some* of the voting.

And now for the concluding words of our text: "Ye have sold yourselves for naught." In speaking of Senators Lorimer and Holtslaw, on p. 600, Sept. 15, last year, I quoted, "A reputation was swept away that the man had toiled 40 years to build up, all for the sake of 4700 dollars (*dirty* dollars) that the man *did not* need." Well, just as I write, an effort is being made to let the man go without punishment, although he himself *confessed* to the crime. The affair of Senator Lorimer has also been submitted to a committee, and this committee (?) has "whitewashed" it over and reported no cause for action. "It won't do," so some of our big men say, to punish crime and enforce the laws when the offender stands "away up" in the social scale; but, may the Lord be praised, the *people*, the good *honest men* of our land, are making such a

protest it looks very much just now as if the "whitewash" were not going to stick.

Suppose when my beautiful plant was apparently ruined by worms and poison I had *whitewashed* the leaves and tried to paint some more flowers on it; would anybody have admired it? Would I have been moved to say, "Put on thy beautiful garments, O Jerusalem?" Suppose a man, a candidate for office, whose past record is too black and filthy to be spoken of in print, should, with the money he has gotten (probably by robbing our nation) — suppose such a one as he should, with this money, get whitewashed (white garments are, as a rule, an emblem of purity, you know)* would any one be fooled by his "beautiful (outside) garments"? Yes, bad men *can* repent, and I do believe Holtslaw honestly repented when he confessed, and expected to pay the full penalty of his crime; but his friends would not *let* him do so. "The blood of Christ" *does* "cleanse from all sin;" and after this "cleansing" the veriest sinner may don the "beautiful garments" of righteousness, and stand unblushingly "with the white-robed throng."

If the people of Ohio (or any other State) who have sold their votes feel conscience-stricken and seem inclined to confess, by all means let them do so, and give them every possible encouragement to pay the full penalty of the law that they may once more "put on the beautiful garments" of righteousness that justly belong to every law-abiding man, and then shall come that grand millennium when "God's kingdom" *shall* come, and his "will be done on earth as it is in heaven."

THE SEARS AUTOMOBILE UP TO JAN. 20, ETC.

A few days ago I ran my machine up to one of our three repair shops, where several high-priced machines were standing about waiting for three busy men to get time to look after the troubles, when the owner of one of these fine cars called out:

"Why, hello, Mr. Root! I thought your machine never needed to come to the repair-shop; what is the trouble now?"

"There isn't any trouble with my machine, and never has been any trouble with it."

"Well, why do you come here, if there is no trouble?"

"I came to see if I could not sell these fellows my old machine. I have no use for two."

When I told Mrs. Root about it she expressed a fear that I had given our new machine almost too good a write-up, and asked if I really ought not to mention the various things Wesley and I had done to *keep* it in such good trim; and I am, therefore, going to tell you about one thing we did that I think may be helpful to many of you.

The regular price of our car, $475, did not include a speedometer, so I had one added at an expense of $15.00; but after we had used it a while I found it was not working. Investigation showed the little wheel was not in touch with the gears on the front drivewheel. Well, although I could not make out how this got out of mesh, I loosed the bolts and set it up once more in place; but it was soon off again as before, and a more careful scrutiny revealed that the whole front wheel was sliding off from the steel skein that rests on the roller bearings. This steel skein was probably forced into the hub of the wooden wheel by powerful pressure; but, notwithstanding, it had been gradually working off. I might have taken it to a carriage-shop; but the wheels all ran so beautifully nice and true I feared to have the average repair man touch them. See the letter on page 56, Jan. 15. This is what I did. I took the wheel off; and, after carefully wiping off every bit of grease and oil, I placed a common coal-oil lamp so as to have the chimney just under the hole through the wheel when it was supported horizontally. In about an hour the whole center of the wheel was hot enough to make the wooden hub smoke a little, and hot enough to melt some roll brimstone held against this same steel skein. While doing this we turned the wheel over and let the flame of the lamp come under the wheel from the opposite side. In this way we "coaxed" the melted brimstone down between the wood and the steel, and thoroughly saturated the hot wood with the sulphur. Perhaps you are not all aware that brimstone, like water, has the queer property of getting larger when it changes from a liquid to a solid; and it also has the property of sticking with wonderful tenacity to wood, metals, or any thing else when both the article and the brimstone are sufficiently hot. Now, some of you may say (as Mrs. Root did), "How do I know this wheel will not still work off again in time, in the same old way?"

Listen: When I first got my first Oldsmobile, seven years ago, one of the drivewheels got loose in the hub in much the same manner; and before we discovered the mischief

*The Cleveland *Plain Dealer* has for several days past mentioned that the "searchlight" was just now being turned on Danville, Ill., in regard to the matter of illegal voting. Here is a clipping from the daily of Jan. 24. Note that part of it referring to the celebrated Speaker's "raiment:"

The little Illinois city that has attained fame as the home of the great American czar now makes its bid for a notoriety that will surpass the ill fame of our own Adams Co. Unless the power of the federal machine is great enough to intimidate judge, prosecutor, and grand jury it is evident that the disclosures in Vermillion Co. will be far more interesting than the stories that have been coming out of West Union.

To begin with, Vermillion Co. is a famous place. It is the place where resides Joseph G. Cannon, the tyrant who has so long dominated the American government. In the second place, it is a populous and prosperous community. Adams Co. has never been the home of a great man, has no cities nor important villages, and bases its claim to celebrity solely on the possession of the "serpent mound" — constructed by the mound-builders before the vote traffic had become prevalent.

Adams Co. may live in memory as the pioneer; but its show of wickedness will doubtless soon be outclassed.

If Mr. Cannon escapes from the mire with raiment completely clean, many observers will be greatly surprised. This aspect of the affair is, after all, the most interesting. If corruption has been as nearly universal as is indicated by the initial developments, it seems impossible that "Uncle Joe" could have been repeatedly elected to congress without having voluntarily or unwillingly benefited by the accepted practice. The disclosures may prove to be one more push downward for the falling dictator.

the skein had turned clear around in the wooden hub and cut it out badly. I took it to several shops, but they all said it was past fixing. I wrote the Olds people and they were fair enough to agree to furnish a new wheel in case I was unable to make it hold in any way. Well, some of our good mechanics rather laughed at me when I told them I was going to fix it with "brimstone." We heated a big bar of iron up to white heat and held it inside the wooden hub until the grease was all burned off and the bruised and battered wood almost burned to charcoal; then we wedged the skein in its proper place so the wheel ran true, as it did before the damage; poured in our brimstone when all was quite hot, and that wheel has done wonderful service for five or six years, running many thousand miles, and is as solid and strong to-day as it was when I "toggled it up with brimstone" nearly half a dozen years ago.

I have taken all this space to describe the process, because you can repair many things about the house and farm in this same way. If you have trouble with tools, knives, etc., coming loose in the handles, brimstone applied as I have directed will do the business. It is ever so much better than rivets or wedges, for there is no "wiggle" to a brimstone joint. If you wish to fasten metal posts into stone, brimstone is the thing.

It occurs to me in closing, that perhaps a little more *brimstone* injected into law enforcement, in some parts of *Ohio*, might bring about some important reforms, and help them to "hold fast" a little better in the years to come.

Just one thing more: On page 55 for Jan. 15 I mentioned getting the engine started by dropping a little gasoline in one of the cylinders, but was afterward advised by the makers that such a plan burned out the lubricating oil, and was not to be recommended. The directions (with the car) mention a "priming-wire," and I found a wire that I supposed was for this "priming," but afterward discovered the priming-wire was omitted when the machine was sent off. After I supplied the missing wire the engine started, even on a cold morning, without any trouble whatever.

SUNDAY PAPERS, E. G. LEWIS, ETC.

Mr. A. I. Root.—As a reader of Our Homes I make bold to write you. I find many helpful things in your sermons; but I am just woudering why you do not give a sermon on the "funny sheets" of our Sunday and daily papers as to their ruinous effects upon the children of our land. I am astonished when I see people of apparent refinement reading those "sheets," and deliberately teaching children to do so. I am a teacher, and probably able to judge more of the evil than most people; but I certainly feel something should be done to make such unpopular.

I have been much interested in what you have had to say about E. G. Lewis and his "League." I am a member, "full paid," of the League, and altogether have forwarded him about seventy dollars.

But I have just been wondering what my duty might be. To tell the truth, I have lost faith. But I, too, feel that the good that has come to me indirectly from my connection with this affair is far more than fifty-two dollars' worth. Indirectly I have been able to earn nearly $1500, which I could not have done had I not been a League member. The incentive came through the League.

I am taking the "dress-making course," and I find it *all* they claim for it. I can follow it minutely, and am learning to sew. There are several other courses I should like to take. But the question with me is, Should I, feeling as I do regarding Mr. Lewis, go on? I have paid for them. I am satisfied with treatment received, and have been benefited thus far. Now, what do you think one should do, you who are experienced in the world's ways, and a good judge of right and wrong?

It was the educational feature of the League that led me to enter it. I never expected to get rich, nor even to get *all* that was promised.

I enjoy reading your experiences with poultry. I am also interested in that.

With best wishes for you and Mrs. Root, and trusting you may reach your one hundred years, I am MRS. JESSIE BAIRD.

Elm Grove, W. Va., Oct. 21.

My good friend, I have been pained for years whenever I have picked up or examined one of the average Sunday daily newspapers. I wonder, as you say, why parents can be willing to submit such papers to their younger children, who are just looking about and grasping every thing that comes along, especially the sensational things. I have wondered how good careful parents should want their children to look at even the pictures — that is, the greater part of them. One would naturally suppose that the Sunday paper would be at least as truthful and as dignified as the average daily. But I have several times commented on the fact that the very worst and most mischievous things somehow seem to find a place in the Sunday daily. During the St. Louis exposition a daily came out giving an account, with pictures, of the different flying-machines competing for prizes. The statement was given with date, residences of the inventors, etc., in such a way that I was myself completely fooled. I submitted it to the Wright brothers, and they at once informed me that no such machines were on exhibition at St. Louis, and never existed at all except in the imagination of the reporter who was *paid* for "telling lies," and perhaps paid *extra* for doing it *on Sunday*. If parents would refuse to let these papers come into their homes the publishers would probably drop them on account of a lack of patronage.

I am very glad to get so good a report concerning the Lewis Woman's League; but I am glad, *also*, that you have refrained from making a further investment.

SABBATH DESECRATION; A KIND WORD FROM THOS WM. COWAN.

Please let Mr. A. I. Root know how much I appreciate the article on page 703 of GLEANINGS, and am so pleased that he makes such a firm stand against the Sabbath desecration that is getting to be so common. We have also remarked the number of accidents that have taken place on a Sunday; but the people do not see the hand on the wall, and it will require an earthquake to rouse them.

THOS. WM. COWAN,

Upcott House, Taunton, Eng.

Temperance

THE TEMPERANCE ATTITUDE OF GLEANINGS.

While kind letters for the Home papers, especially the temperance articles, are matters of daily occurrence—in fact, we often get several of such in one day—once in a great while we meet a bee-keeper who is not in sympathy with temperance nor with the temperance wave. I think it must be almost if not quite a year since we have had a letter like the one from the good brother who sends the following:

I just have received GEEANINGS for Oct. 1, and I have read your article on page 637, and have seen that you are a strong prohibition man. That is enough for me, and therefore send me your paper no longer—not at all, not even a sample in future, for I read no prohibition paper. I never any more will see a number of your paper. Keep your prohibition paper for yourself. My subscription is just out Oct. 1. I will be a free man, not bound by prohibition. Do you understand that? Respectfully,
Altus, Ark., Oct. 6. JOSEPH GLANZMANN.

My good brother, while I believe in and teach State-wide prohibition, I do not at present belong to the Prohibition party. As I understand it, the spirit of our great republic is to let the majority rule. If the majority in any community want saloons, I suppose they can have them or should have them, as things are at present; and if the majority prefer to have no saloons in their midst or in their county, surely they should be permitted to vote them out, and in a like manner if the people of a whole State should decide that they want no liquors nor liquor-traffic in that State, surely the people should have the privilege of debarring them. I know that you people often urge that it is unfair to make a large city dry when the people of that city or county by a majority decide to have it dry. Now, this question is too large for the pages of GLEANINGS. I will only suggest, however, that where a county has to bear the expense of the asylums and infirmaries that are mainly peopled because of intemperance, that county or State should certainly have the privilege of overruling any county-seat or great city. Please consider that the liquor-trade is *not* an industry that builds up *any* community. Am I not right? May God help you, dear brother, to look at this whole matter squarely and fairly and without prejudice.

ANTS, AND HOW TO GET RID OF THEM, ETC.

In my hand is Bulletin No. 207, from Berkeley, Cal., on the control of the Argentine ant. This ant has proved to be so destructive in some parts of California that it has decreased the value of residence property from 10 to 25 per cent. In California there are about 40 separate colonies, from one acre to nearly 2000 in extent. These ants have already proven to be exceedingly troublesome to bee-keepers; and this bulletin says the directions for their extermination will apply to all other varieties as well as to this Argentine pest. We copy from the bulletin as follows:

WATER BARRIERS—CRESOL.

Perhaps the best-known method of barring ants out is the water barrier, such as is secured by setting the table legs in cups of water. This is effective against most ants; but the Argentine ant has no difficulty in crossing water. Oil they can not pass, but it is objectionable. We have found that the addition of a very small amount of cresol, just enough to make the water milky, renders water effective. The odor of cresol disappears in a day or two, and the water will continue effective indefinitely. The cresol has germicidal qualities that prevent the water from becoming foul. Indeed, the cresol water makes possible the development of a system of ant-proofing that is thoroughly practical and efficient.

DESTRUCTION OF NESTS WITH CARBON BISULPHIDE.

In the above description we have referred to the use of carbon bisulphide for the destruction of nests of ants. In all the species where there are large nests with a single opening this is by far the most satisfactory treatment. The plan is simply to pour down a few ounces of carbon bisulphide, either in the natural openings or in holes made by thrusting in a crowbar and covering every thing with earth. The gas formed by the evaporation of the carbon bisulphide effectually destroys both young and old. This method can be applied to any species where the nest can be discovered; but in the case of the Argentine species it becomes the least valuable of any method, since the nests are usually scattered almost everywhere over the whole surface of the ground; and the treatment, to be effective, would have to include the entire ground space for acres about the house one intends to protect.

ARSENICAL POISONING.

We obtained by far the best results by the use of a very weak solution of arsenic and syrup. Most of the commercial ant poisons commonly known as ant pastes consist of arsenic and syrup, but are made very strong in arsenic. This kills the foraging ants almost immediately. We found by reducing the arsenic to between one-fourth and one-eighth of one per cent they would take large quantities of the material to their nests and feed it to the young, and the whole nest would be killed by a slow poisoning.

The most convenient way of exposing the poison to the ants is to use a large jar with a perforated cover, and within it place a sponge saturated with the arsenic solution. The ants will enter through the perforations in the cover, fill themselves with the arsenic solution, and carry it to their nests. The sponge will hold enough poison to require two or three weeks to empty it, and before that time the ants will almost entirely disappear.

The number of jars to use will depend upon the abundance of ants. In the worst cases half a dozen jars will serve for an ordinary private house and lot; and if the ants are not very bad one jar may be enough. In such cases it is well to place it in the pantry or kitchen.

The same remedy can be used for all the native species of ants, and will be more effective against them.

There is one species of ant that is exceedingly troublesome on the island of Osprey, Florida. The only remedy we found was to keep chickens enough to keep them down. Unless the chickens are permitted to be constantly around the hives, these ants will sometimes destroy strong colonies, and they do it almost in a night.

In regard to its attacks on bees we extract the following:

Its insidious attacks upon bee-hives has, at least in one instance, put an amateur bee-keeper out of business, and in two cases that have come to our attention have become an equal menace in aviaries by the attacks upon the nestlings; and, indeed, there is considerable evidence that they will have an appreciable effect upon native wild birds in the same way.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. Root, Assistant Editor
A. I. Root, Editor Home Department
E. R. Root, Editor
A. L. Boyden, Advertising Manager
J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX MARCH 1, 1911 NO. 5

Editorial

E. R. ROOT IN FLORIDA.

By the time this issue reaches our subscribers E. R. Root will be in Florida with headquarters at Bradentown, where he has temporarily removed his editorial sanctum. He proposes to make a number of side trips from Bradentown to a number of points in Florida, equipped with notebook and camera. Mr. Root will return to Medina about the middle of March.

SPRAYING FRUIT-TREES WHILE IN BLOOM.

The article by C. E. Layman, in this issue, page 139, is true, every word of it. Lay this journal aside; mark the article, and hand it to your neighbor fruit-grower who sprays at the wrong time, or who imagines that your bees are damaging his fruit. If you haven't any such neighbors, cut it out and paste it in your scrap-book. You may need it some time in the future.

ANSWERING QUESTIONS.

We are always glad to clear up any difficulties that may exist in the minds of our readers, especially the beginners, who can not help being somewhat bewildered when reading the multitude of different plans for preventing this, that, and the other; but of late, in quite a number of instances, we have been unable to give satisfactory answers for the reason that the questions were worded in such a way that we could not possibly tell what plan or method the beginner had in mind. If the page and number of Gleanings are given in which the plan appeared, or the name of the book, or other bee-journal, as the case may be, there need be no misunderstanding.

THE SIMMINS METHOD OF SHIFTING FLYING BEES.

Attention is drawn to the article on page 132 of this issue by Samuel Simmins, showing the method that he used as early as 1893 for shifting the flying bees from one hive to another to prevent swarming. While the basic principle of this is the same as that used by J. E. Hand, there is a difference in the manner of carrying it out. In the J. E. Hand arrangement the bees go to *precisely the same entrance* after the shift that they did before. In the Simmins hive they go to *another entrance*, but so near the first one that they may almost be considered the same. Both claim for their adaptation of principle the control of swarms and the continuous production of comb honey.

We have examined the references given by Mr. Simmins, and find that all his claims as to his early use of the idea are sustained. We hope some of our readers will be in a position to test these two plans and report.

ANOTHER COMB-HONEY CANARD FROM AN UNEXPECTED SOURCE.

When we attended the Indiana State Bee-keepers' convention on the 2d of February we paid our respects to the comb-honey canard because we knew that one or two reporters were present, and we desired an opportunity to impress on them the fact that comb honey is not manufactured, never was, and that there was a reward of $10,000 to prove the existence of such an article as manufactured comb honey on the market that would deceive an ordinary consumer. Two of the Indianapolis papers quoted us very accurately—the Indianapolis *Star* and the Indianapolis *News;* but the Indianapolis *Sun* of Feb. 4 put it out in this fashion:

> A talk by E. R. Root, editor and lecturer, held the attention of the Association. Mr. Root encouraged the growing of alfalfa, but condemned the manufacture of honey. He said he believed most of the comb honey is manufactured and not produced by the bee.

Of course, we are writing a protest, and we respectfully urge the Indiana bee-keepers, at least, to follow it up. It is bad enough to have an ordinary item in a paper telling about manufactured comb honey; but it is infinitely worse when one of the editors of one of the leading bee journals is quoted as implying that comb honey is manufactured, and that he condemns the practice, etc.

THE SWELLING AND SHRINKAGE OF BOARDS.

We have been making some experiments in testing the "come and go" of boards, especially those composing the covers and bottom-boards when placed under different conditions. For example, both of these articles, after being made up and put in hot water, are kept there for 24 hours. They are then put on top of a radiator for the express purpose of determining the amount of shrinkage that will take place as well as the checking and warping. While this is a

very severe and hard test, going rapidly from one extreme to the other, it gives us an opportunity to get results in a very short time.

Well, we observe that ordinary good dry lumber, eight inches wide, will come and go from one extreme to the other from ¼ to ⅜ of an inch. For example, if a hive-cover that is just right in Florida during the rainy season were suddenly transferred to Colorado, under the dry hot sun, we might observe that amount of come and go.

The lesson of all this is the great importance of having our covers and bottoms so constructed that the individual sections or parts of them may shrink or swell without tearing the combination apart.

SHIPPING-CASES WITH CROSS-PARTITIONS OF CORRUGATED PAPER; A TIME TO WAKE UP.

AT both the Indianapolis and the Cincinnati conventions we emphasized the importance of larger and stronger comb-honey shipping-cases—larger, to accommodate the cross-partitions forming compartments for each individual section; and stronger, to stand the rough usage that shipments of comb honey very often receive. It would make an increased cost of, possibly, four or five cents per case; but what is four or five cents as compared with the contents, that are worth anywhere from $3.00 to $5.00 per case? Why should bee-keepers continue the old policy of shipping fragile combs on no-drip cleats in cases that are admittedly too weak to stand the kind of treatment that freight-handlers are now giving them? Put the question squarely up to any bee-keeper, and ask him whether he would not be willing to insure the safe arrival of his comb honey by the payment of 5 cts. per case, and he will tell you every time that, if he can get these cases, he would much rather prefer to pay the insurance rather than to sustain a loss of, possibly, fifty times as much, as a result of broken-down comb honey shipped in the regulation way.

But the question may be asked, "Why do not the supply-dealer and manufacturer offer these cases to the public?" Simply because both the bee-keeper and the dealer have been too slow to see the importance of better cases for shipping honey. Now they are beginning to wake up, and it is high time too.

At the Cincinnati convention we asked Mr. Weber what had been his experience in shipments of comb honey in the corrugated *paper* cases with cross-partitions. "Very satisfactory." Then what objection was there to these paper cases? "Nothing," said he, "except that they do not stand rain or wet." He explained that it was almost impossible to keep shipments of comb honey out of the rain *en route* from the warehouse to the cars and from the cars to warehouse again. Every now and then a shipment of honey will get wet. If the cases are made of wood, no great damage will be sustained; but if made of paper they are liable to go to pieces.

It was pointed out at both conventions that a paper case would stand the punching of a sharp instrument or of a sharp corner better than a wooden case. The paper will dent in, rather than cause a jar to the whole case of sections. In this one respect the corrugated-paper cases have the advantage over the wooden ones that are not so yielding. The paper cases have another advantage in that the flaps bow outward, making a sort of cushion or spring, and this further protects the honey against jars or rough handling.

The supply-dealer and manufacturer will be only too glad to furnish better and stronger cases when their customers ask for them. It is passing strange that we have been content for years to ship our honey in these frail cases, and have been pocketing our losses year in and year out when we could just as well have saved them.

There, now, Mr. Beekeeper, if you want better shipping-cases, and are willing to pay more for them, go after your dealer. He is bound to supply you what you want. Comb honey is more easily broken and spoiled than most articles in the fragile list; and yet, in spite of its value, instead of being carefully packed, it is too often sent in a plain solid box without being cushioned in any way.

"SWEETENING RAILROAD MEN;" A GOOD SUGGESTION.

A FEW days ago one of our old subscribers, Mr. M. D. Johnson, of Webster, Ia., gave us a call. During the course of our conversation regarding better methods of shipping comb honey he remarked that he found it paid, and paid well, to sweeten the railroad men all along the line over which his comb honey is shipped. For instance, occasionally when the express train comes in he will take over some nice samples of *new* comb and extracted honey, and hand them out to the expressmen with his compliments. He does the same thing with the freight crew when the freight-trains come in. "It takes but very little honey," said he, "to sweeten up many miles of road, and the effect is magical. Why, I never have any breakages of comb honey, either by express or freight, because I have a good stand-in with the railroad men, and who, because they like me, take particular pains with my honey." This is not a bribe, but it is a very good way to get in close touch with men who hold a considerable part of your property in trust; and "instead of being officious, or too busy to see to anybody, they always have a glad smile," said our subscriber, and say, "What can I do for you?"

This is a good tip to pass along to our readers. It is worth trying. If it is good policy to "sweeten" neighbor women on wash days in the spring, why should it not be equally so, if not more, to sweeten the men who sometimes hold in their possession anywhere from a hundred to a thou-

sand dollars' worth of our property. A broken shipment is more often due to pure carelessness or cussedness on the part of railroad employees than to any thing else. Here is the remedy—"take a stitch in time."

THE OHIO STATE BEE-KEEPERS' CONVENTION AT CINCINNATI.

The Ohio State Bee-keepers' Association met in convention at the Grand Hotel, Cincinnati, Feb. 16 and 17. The attendance was not quite as large as at some meetings, but it was made up of enthusiastic bee-keepers who listened to a number of talks and papers.

There is hardly space for us to give even a digest of the proceedings. Chas. H. Weber read a paper entitled "Shipping Comb Honey." In this he put special emphasis on the importance of careful and honest grading; cautioned against shipping by express, and advised shipping by freight in carriers.

Mr. Chalon Fowls presented a paper showing why bee-keepers should seek to develop their own home markets; showed how one could develop a trade in honey butter, which he would put up in glass.

Prof. N. E. Shaw, State Entomologist, and also State Inspector, read a paper entitled "The Foul-brood Situation in Ohio." He exhibited a map that he had prepared, showing how American foul brood had been found by his inspectors in a large number of counties, and he was fearful that the other counties that had not yet been visited also contained considerable disease. He and his inspectors were able to cover only a limited portion of the State, owing to the limited appropriation at their command, for the Ohio brood bill had been enacted into law *after* the Legislature had made its general appropriation for the Department of Agriculture; but the Department had made arrangements by which his nursery inspectors could devote a little of their time to the inspection of bee diseases; but he hoped that, with the larger appropriation, with a specific sum for bee-inspection work, which he would get from the Legislature at this coming session, he would be able to cover a a larger field.

Cincinnati, outside of New York and Chicago, probably has the largest market for honey of any city in the United States; and Mr. Muth questioned whether it would not outstrip Chicago. It is the center of a line of railroads, and on the Ohio River. For that reason it has cheap transportation from the South. Since the days of Chas. F. Muth, of many years ago, honey has been streaming into Cincinnati and going out. Cincinnati is also a large center of baking interests, and therefore consumes no small share of the extracted honey received at that market not suitable for table use.

Some discussion was aroused whether there was any such thing as a red-clover queen and red-clover bees that would actually work on common red clover. While we stated that we had at one time strains that would work on the plant it was easy to see that there was a big question-mark in the minds of some. The report given on page 149 of this issue, by J. F. Brady, is a sample of many others we have received, and ought to go far to set at rest any question on this point.

We met a number of bee-keepers from Kentucky, and received the gratifying assurance that the Kentucky bee-keepers are happy over their new foul-brood law and the good work that is being done in eradicating disease.

IS IT POSSIBLE TO SHUT BEES IN THE HIVES DURING THE SPRAYING OF FRUIT-TREES? TAKING A STITCH IN TIME.

EVERY spring we get numerous inquiries as to whether bees can be shut in their hives during the time that ignorant fruit-growers are spraying their trees while in bloom. We regret to say that this is not practical; that is to say, it would not be possible to shut bees in the hives by nailing wire cloth over the entrance. This might be done, however: Nail wire cloth over the entrance, and then place a screen top over the whole top of the hive, and over this again the regular hive-cover raised up about an inch, so as to let in the air, and yet shut out the direct rays of the sun and storm.

But the spraying in bloom may last three or four weeks, because different trees come into blossom at different times. The only thing that the bee-keeper can do is to hand out to such ignorant or willful offenders some of our little pamphlets entitled "The Bee-keeper and the Fruit-grower," and ask them to read the statements of experiment stations, showing that it is bad policy for the fruit-grower as well as for the bee-keeper to spray trees while in bloom. See the article by C. E. Layman, on page 139 of this issue. The best authorities on apple-growing and fruit-growing are on record to that effect. See what Albert A. Waugh, one of the leading authorities in the United States, has to say in his book entitled "The American Apple Orchard," published by the Orange Judd Co., New York.

In many cases our friends by using tact, and the pamphlets referred to, have induced the fruit-growers to let up on their spraying, and, instead, to spray before and after the trees are in flower.

Say! it wouldn't be a bad policy to sweeten some of these people with a few nice samples of comb and extracted honey some two or three months *before* the spraying season comes on. It doesn't cost much to get on the *good* side of them if you begin *early*. This literature ought to be handed out to them after they have been sweetened up, and when they are in a good humor toward you, rather than after they get started to spraying at the wrong time, and when they would be inclined to resent your polite protest that they are destroying *your* property. See?

Stray Straws

By DR. C. C. MILLER, Marengo, Ill.

D. A. JONES was the man from whom I got the T super, the best section-super I ever knew. I never learned where he got it. [Does any one know who invented the T super?—ED.]

E. S. MILES, have you not been told that a non-swarming bee can never be? In the face of that, don't you think it is impertinence on your part to come so near it as you do on p. 68? Now you quit that.

BEER-DRINKING in Germany is on the decline, strange as it may seem. In 1909 the per capita consumption was 29.37 gallons, as against 31.22 in 1908, and 33.02 in 1900. The emperor himself is laboring earnestly against the use of beer, especially in the army and navy.—*Chicago Record-Herald.*

S. D. HOUSE, p. 85, advises 2-in. glass in shipping-cases. Why? Just once I used 2-in. glass, and it doesn't show the honey so well. After shipping thousands of cases with 3-in. glass, I know of no objection except cost. [The wide glass makes the wooden strips, top and bottom, narrower. The narrower these strips the less power they have for holding the case from racking during shipment. If it were not for the glass front in cases they would be much stronger. —ED.]

CANADIAN duty on honey from the United States is 3 cents a pound. The duty the other way is 20 cents a gallon, or 1⅔ cents a pound. If Taft has his way, honey will pass free of duty both ways. That would be more neighborly. [Mr. Taft is doing good work. Reciprocity is both neighborly and Christianlike. It looks now as if the President would have to use his "big stick" on the reactionary Senators. We do not, care, just so we have suitable trade relations with Canada.—ED.]

J. MAKSAY asks if I endorse that view on page 80, that swarm prevention is "a thing that exists only in the minds of brainless philosophers." I hardly think friend Hand meant exactly that, but, rather, that he uses the word "prevention" with some unusual meaning; for I do not believe he would be so unkind as to declare without brains the thousands of us who believe in swarm prevention. However we may differ as to the most profitable way we are agreed that it is not at all impossible to prevent swarming, using the word with the dictionary meaning, "to stop or hinder from happening by means of previous measures."

R. GOELDI puts pasteboard under bottom-bars in winter; and every 20 or 30 days, with differently colored pencils, makes a mark about the droppings and then cleans them off. He finds the winter-seat may be in the middle, at either side, or at either end. Some colonies remain in the same seat all winter, upon each warm spell bringing honey from surrounding combs. Some "wander," moving bodily from time to time to where they find a fresh lot of honey.—*Schweiz. Bztg.*, 26. [A good scheme, this! An examination of the brood-nest during the winter will also show how the bees of a colony will "wander"—how they will squat here and then there, according to conditions. —ED.]

EVER HEAR the story of Doolittle and the peanuts? It was in his young days, when railroad cars in that region were made by Eaton, Gilbert & Co. He was on a train, and, with some other young fellows, was having a good time eating peanuts. The conductor, coming along and seeing the muss they were making on the floor, said, "Eating peanuts on this train is not allowed." "Oh! but there is an exception made in my case," replied Doolittle. "Don't you see that it says on the door, 'Eat on, Gilbert and company'? My name is Gilbert, Gilbert Doolittle, and these fellows are my company." The conductor, nonplussed at the new way of reading "Eaton, Gilbert & Co.," left them in peace to continue their banquet. But, mind you, I don't vouch for the truth of the story. It may be a slander on our dignified friend.

J. HERTER had a thermometer in a brood-nest. Jan. 17 it stood at 34°F. He struck a few heavy blows on the hive, and in 20 minutes the mercury rose to 80°! That 46° rise in 20 minutes shows what bees can do in getting up heat. [The same principle of disturbance operates to heat up bees when they are being moved either by train or wagon. They seem to require ten times the amount of ventilation at such time as they do when quietly at home. Some years ago, when snow was on the ground and the temperature was about 10 above zero, after we had been out hunting we came to one of our outyards. One of the parties, for experiment, having a small rifle, was asked to send a bullet through a hive containing a strong colony. He did so; and within a few seconds, comparatively, we opened up the brood-nest and found the bees were scattered all over, and a hot wave of air came up from the cluster as we raised the quilt. The bees were very much alive, and seemed to be far from a condition of hibernation at that particular moment. The bullet had gone clear through the center of the brood-nest, and evidently had struck a part of the ball of bees. They were no longer in a compact mass, but spread all over the hive in almost no time. It would appear that the sudden shock aroused their anger. Evidently the psychic influence on the bees is the same as that of human beings. When one answers back "hotly" it simply means that his pulse is high — that the blood courses through the veins at a rapid rate. Perhaps some anatomist can throw some light on this subject.—ED.]

Notes from Canada

By J. L. BYER, Mt. Joy, Ont.

My curiosity is aroused in regard to that advertisement in November GLEANINGS, asking for dead drones and queens. What can they be wanted for, any way? Last spring, between fruit bloom and clover, I was in some yards where dead drones could have been gathered by the *gallon*. If there had been a market for them then, what a bonanza it would have been for the owners!

Regarding the advice given by J. S. Patton, p. 767, Dec. 1, as to having hogs in the apiary to keep down the grass, I would say to any one thinking of trying the plan, "go slow." At one of our yards the owner of the farm allowed some hogs among the bees, thinking they would do no harm; but the second day they were in the yard they got to rubbing against the hives, and upset a good colony, entirely ruining it for the season.

Editor Hutchinson says in the *Review* that dummies or division-boards are all right in hives with self-spacing frames, but that they have no use in a hive that has frames of the loose hanging variety. Why not, I wonder? While dummies are not necessarily conservers of heat, yet they often come handy for many purposes such as forming nuclei, etc. Then if one is contracting for wintering, they are necessary to crowd the bees up; for, although a comb will, in a sense, act as a division-board, yet bees will cluster on the outside of the comb, while the board would keep them in. Personally we like a dummy in every hive, and we find the habit growing on us, as a few years ago we had no partiality on the question.

Friend Holtermann's method of carrying hives into the cellar is all right if the combs are of the self-spacing kind and the hives are full of frames. But lest some novice should try to carry a hive like that when the frames are of the loose hanging variety, a word of warning is necessary, as in a case of that kind something would be doing, surely My hives have loose frames, and I believe I can carry them with as little strain to the body, and with as little jarring of the hives, as though the frames were fast. *But* I want cleats on the ends of the hives; in fact, I want them there for handling the hives at *any* time when it is necessary. For carrying in the cellar, the left arm is passed over the top of the hive, with the right hand at the bottom, the rear end of the hive, as it were, resting on the side and left hip. In that position I can carry any number of hives with little fatigue and practically no disturbance to the bees.

In the death of D. A. Jones, Nov. 20, Canada loses one of the pioneers of bee-keeping. While Mr. Jones was not engaged in bee-keeping during the latter years of his life, no doubt many of the older readers will remember him as being very prominent in the business some years ago. He was the founder of the *Canadian Bee Journal*, and was one of the first to import queens from Italy to this country. He traveled extensively, and in one of his trips he visited Cyprus and Palestine to investigate the bees of that country. While I never had the privilege of meeting Mr. Jones, yet my father and grandfather were well acquainted with him, as he was born within a few miles of our home. Mr. Jones was 75 years old, and for over 40 years he had been postmaster in the town of Beeton. This name, by the way, was given because of the industry established by him at that place so long ago.

The recent tariff arrangements between the United States and Canada came as a big surprise to the bee-keepers of this country in so far as the tariff on honey is concerned. Judging from the many letters received, the majority of bee-keepers on this side of the line feel that they have been handed a "lemon." Personally, the writer inclines toward free trade in *all* commodities; but it does seem unfair that, while many of our products are put on the free list, the most of the manufacturers are still protected heavily. For instance, take the biscuit industry. While the most of the raw materials, including honey, used in the manufacture of these articles, are placed on the free list, yet the finished product is protected by duties ranging from 25 to 32½ per cent. One of the hardest knocks to the Canadian producer will be the free admission of honey from the British West India Islands; for, with the cheap labor in these countries, such honey will be hard to compete with. Many Ontario producers feel that the markets they have been building up for years will now, by reason of geographical conditions, be snatched away from them. Whether it will work out as bad as it looks is a matter for the future to decide; but I believe I am safe in saying that nine-tenths of the bee-keepers of Canada would prefer to have matters left as they were before the recent changes were suggested. We have mentioned West India honey as a competitor with our own product; and I might explain that, while it will never supplant our honey for table use, yet the better grades of it may be used for manufacturing; and some bottlers have been mixing it with our best clover honey and palming it off as pure Ontario honey. With the duty removed, the temptation will be much stronger to get this honey; and, all things considered, it does not look any too bright for the marketing of our product under the new regulations.

Bee-keeping Among The Rockies

By WESLEY FOSTER, Boulder, Colo.

ALFALFA FOR STOCK, INSTEAD OF HAY.

The protection and care man gives to his plants and flowers cause them to lose some of their native resistant qualities. And so we find the apple-trees in our orchards much more subject to injury from pests and disease than their prototype the crab. The same thing is true of alfalfa. I suppose the original stock from which the alfalfa sprang, as we now know it, was not subject to injury from disease and pests. Any plant seems to have only about so much energy; and when, through the care given by man, it becomes unnecessary to resist unfavorable conditions, the plant then has this unused vitality to put into greater growth in plant and more succulence. This gain in succulence makes the alfalfa more appetizing to the grasshoppers, and the lowered resisting power gives the alfalfa rust a chance. Now comes the alfalfa-leaf weevil in Utah, and it is doing much damage in the districts where alfalfa most abounds; and the damage is greatest in the old fields where it has been grown for years. This is another fact to substantiate the belief that alfalfa is dimished in vitality by frequent cutting, and, further, that it does not build up the soil in any thing but nitrogen. If one cuts his alfalfa, and continues to haul the hay off and sell it, he will, in a few years, have a very much impoverished farm. Keep stock on the farm, and sell your hay in the form of beef or mutton.

There is no doubt that some of the older farms in the West need lime where alfalfa has been raised continually on one piece of ground.

Bees were bringing in pollen on "ground-hog's day;" maples were in bloom; the bees were about the willows, and I was told that a few dandelions were out. My! what a winter season! The bees were getting pollen on the 19th of December; then early in January it was 18° below zero, and the bees were unable to get to their stores two inches inches away, and a good many colonies perished. Then they were again gathering pollen, and perhaps a little nectar, around the first of February, with snow flying, and a regular blizzard on the range but twenty miles to the west. We certainly have climate in all her moods out this way. It's not strange the queens don't know when to start laying.

BEET SUGAR AGAIN.

On page 33, Jan. 15, I am taken to task as to the accuracy of my statement in regard to cane and beet sugar. Here we have two kinds of sugar—one the beet sugar made in the numerous factories in Northern Colorado, owned by The Great Western Sugar Co. This sugar is demonstrated at pure-food shows as beet sugar, and it is fair to assume that the thousands of sacks piled up in the storage-rooms of the factory, and the thousands of tons of beets being ground up every day, is evidence that this sugar comes from the beet. Then we have a sugar here with the marking of The American Sugar Refining Co., San Francisco, and called cane sugar. The latter is two to three times as fine as our local beet sugar, and tastes sweeter—that is, the taste comes sooner when placed in the mouth, caused by the granules melting more readily. The difference is noticeable when mixing bee-feed. The cane or finer sugar dissolves more readily, and there is less liability of undissolved granules being found in the bottom. My mother tells me beet sugar is better for cake frosting than cane because it makes better frosting, and is made quicker. I should think this would prove that the beet sugar goes back to crystals sooner than the finer cane sugar.

Then from a mere theoretical standpoint would not a coarse-grained sugar return to granules sooner than a finer grain? This is certainly true of honey. A bee-keeper who fed a hundred sacks of sugar the past fall said his observation had been that cane sugar could be mixed with water cold without its granulating in the cells, while beet sugar, to get the same results, had to be mixed with hot water. He bought cane sugar, although it cost him 20 cents a hundred more than the local beet sugar. This I know, that the housewives here in Colorado declare that the local beet sugar is not so good for fruit or cakes, except frosting or other use, as the finer-grained sugar called "cane" which is shipped here from San Francisco. The bee-keepers are influenced by their wives; and when they are told that the cane sugar is the best, that is the kind they are going to buy for their bees; for the best sugar has been proven to give the best results in feeding. The cane sugar on the market here tastes sweeter, looks nicer, and is finer-grained than our local beet product. The sugar company is making a great effort to popularize the beet sugar with the housewives; they are continually conducting cooking and demonstration classes in fruit-canning with beet sugar.

COLORADO BEE CONVENTION.

In spite of the failure of the honey crop throughout Northern Colorado a good number of bee-keepers from this part of the State were at the convention. The southern part of the State was represented by several bee-men, and also several came from the western slope. The meeting was a success in every way; and the work outlined, if carried out, will certainly aid the bee industry of Colorado very materially.

There are two lines of discussion that come up at every convention. They are: "How to get a better price for the product, or a larger share of the consumer's dollar," and "The methods of handling bees to get a larger return from each hive in honey."

How to get more for the product was the first thing that came up in the question-box, and the subject elicited lively discussion. The facts brought out were that the producer was getting about 35 cents of the consumer's dollar in extracted honey, and forty to fifty cents in comb honey. The railroads come in for an undue amount for freight, and the cost of bee-supplies keeps steadily advancing, so that the profits are not what they should be. The freight rate on honey by the carload is about four times what it is on potatoes a like distance. The association has outlined work for the coming year that will, if carried through, bring about a more equitable rate on honey shipments. The fault lies quite largely with the bee-keepers themselves in not calling these unfair rates to the attention of the railroads.

Mr. Hermann Rauchfuss gave a valuable talk on good queens and proper hive manipulations. He advocated wintering bees in two-story hives, even if doubling up the colonies had to be done. In this way old queens could be gotten rid of, and the strength of each hive would be such that it could well withstand the severe conditions of winter. Mr. Rauchfuss made a strong point in recommending that bee-keepers raise their own queens in their own yards, and keep each queen among the bees where she was raised. The introducing of queens into strange hives is the cause of many a fine queen soon deteriorating. While the bees do not kill her, they see that in some way she is not at home, and keep fussing and pulling away at her until many of them become devoid of hair. A queen that is being continually worried will never do much good work. When each bee-keeper raises his own queens it is easy to keep each queen among her own "home folks," and under these conditions she is contented and does her best work.

For a long time the Western bee-keepers have been "put out" by the dozens of different sizes of shipping-cases for comb honey that have been sold. The trouble does not become apparent until half a dozen or so of bee-keepers go to load a car of honey. The cases simply will not load compactly at all. Some are a quarter of an inch wider than others; some are longer, and no two are the same depth, although they may all be double tier and hold 24 sections. We are now going to have a uniform case if the efforts of Mr. Frank Rauchfuss, manager of the Colorado Honey Producers' Association, materialize. The uniform size of cases, as suggested by Mr. Rauchfuss, was unanimously endorsed by the State Association. Mr. Rauchfuss also gave some pointed remarks on local shipments of comb honey. Every shipment of it going locally should be crated in carrier crates holding four or eight cases, and packed with straw. It will not be long until comb honey so crated will take a lower rate, and then no intelligent bee-keeper will fail to crate his honey properly for shipping. Mr. Rauchfuss said that he had not received a shipment of uncrated comb honey that came through safely.

The most entertaining feature of the convention was the evening of reminiscence in bee culture, led by Mr. A. F. Foster and others of the gray-whiskered veterans who had had fifty years and more of bee-keeping to their credit. They told of the old-fashioned ways of bee-keeping, and how good the honey tasted in those days; how they robbed the hives, and plugged them to see if they were ripe, as we do now with watermelons.

Pres. Collins and Prof. Gillette each exhibited stereopticon views of the bee's anatomy, work, and methods, and made us much better acquainted with the way they are built and the ready-made tools they are born with.

The Association is making an effort to get a more effective foul-brood law, and also to have a division of bee investigation established at the Agricultural College. This subject was thoroughly gone over, and the legislative committee has a bill introduced in the legislature to establish a division of bee inspection and investigation under the State Entomologist. This will centralize the work of inspection under a very competent man, and every one is urged to write his senator and representative to support the "Bee-keepers' Bill."

The State Entomologist will hire deputies to carry on the work of inspection and investigation, and the work will be prosecuted with vigor. The work that will be carried on in bringing in new and better honey-plants and better bees, and the investigation of methods for the advancement of the industry, will be invaluable to the State.

Prof. Cockerell, of the University of Colorado, gave a delightful talk on "The Evolution of the Bee," and brought out the relationship of all insect life and the influence of bees on flowers and vegetation. The bee is geologically older than man, and reaches up into the almost perfect development of the honey-bee in only about a dozen species, while the cruder and more primitive wild bee is found in thousands of species. The honey-bee is the last word in all bee-life, and has become so firmly established in its position that little change has taken place in its characteristics in many ages.

The work of the State Bee-keepers' Association for the coming year will be largely to secure the reduction of freight rates on bees and honey, and the securing of a new foul-brood law. Right now is the time for every bee-keeper in the State to join, so that the dollar from each member will be available for immediate work. If we secure but a part of the results we are going after, it will be worth many times one dollar to every bee-keeper in the State; so send your dollar for membership to the Secretary, Wesley C. Foster, Boulder, Colo., at once, and urge all your fellow bee-keepers to do the same. We are making the fight for *you*, and we can not do it without some help.

Conversations with Doolittle

At Borodino

EARLY OR LATE SETTING OUT—WHICH?

"I wish to talk with you about taking colonies from the cellar. Shall I set them out early or late?"

"There is no set time as to when bees should be taken out, for years vary so that in some seasons the middle of March is fully as early as the middle of April in others. Our best apiarists are more often governed by the forwardness of vegetation than by any thing else. By very many the right time used to be considered when the elms and soft maples were in bloom. Others left a few colonies on the summer stands during the winter; and when such colonies commenced to find pollen from natural sources, those wintered in the cellar were brought out. Some years ago I set a part of my bees out quite early in March when there were two or three warm days so they could fly nicely. As the weather turned cold again, and continued unfavorable for the flight of bees, all were left in the cellar till about April 1, when about half of them were set out. As the good weather did not continue, the others were left in the cellar till nearly the first of May. As the season advanced it became evident that those set out on April 1 were much the better off, as they had brood in all stages when the later ones had eggs only. As this brood came to maturity these first colonies built up rapidly so as to have the maximum number of bees just in time for the white-clover harvest, while those set out later did not come up to the required standard till about ten days later, so that the result in comb honey was not nearly equal to that of those having a full force at the beginning of the flow.

"On another occasion I set a part of the bees out quite early, and then followed ten days of snow and cold weather so that the rest were not gotten out till three weeks later. In this instance the last out did much the best, owing to many bees in the first lot dying during the cold and snowy time. It kept warm right along after the last were set out; and as they had lost none of their old bees they went to breeding with a vim, so that very many of the colonies had their hives practically full of brood three weeks later, while those set out first did not have bees enough to cover more than two-thirds as much.

"It is hard to tell just when to set bees out, as you will see by the results of these two instances I have given you. However, as a rule you will not go far wrong to set them out with the appearance of the first pollen-producing flowers. I used to advocate waiting till the elm and soft maple were in bloom, as I spoke of at the beginning; but from many years of experience my bees which were set out when pollen from skunk cabbage first appeared have averaged better than those set out later. Where bees winter well in the cellar, there will be little brood in any hives when set out; and the earlier setting-out starts brood-rearing sooner than with the later. I know that it used to be argued that where bees were set out early it took two old bees to perfect one young one; while if set out when the weather had become fairly settled and warm, one old bee would perfect two young bees; therefore it was much to our advantage to wait till the elm and soft maple bloomed, as in the blooming of these trees nature told us that settled warm weather had appeared."

"But you mentioned setting the bees out early, thereby giving them a flight and then returning them to the cellar and allowing them to stay till the elms and soft maples bloom. This would give the bees a chance to unload, thus putting them in a healthy condition, while it would start brood-rearing as well, would it not?"

"That depends very much on other things. If there were only one or two days in March or the first of April for a flight, as is almost always the case in this locality, so that the bees would have to be returned to the cellar the next day, no more brood would result than if the bees were left in, and all the work required for this carrying out and in would be thrown away. If in a locality where a week or more of warm weather is likely to occur in early March, so that the brood started has progressed beyond the egg state, all that in the larval or sealed form would likely be perfected into bees after returning to the cellar. But where colonies are out only long enough for a few eggs to be laid, this brood idea would cut no figure."

"But giving the bees a chance to unload would be beneficial, would it not? As I understand the matter, when in a normal start of health, bees are compelled to void their excreta at certain regular intervals. I know that they do retain them during the winter; and I am told that, just as soon as set out, the first thing they do is to spot every thing in the neighborhood."

"If the bees are wintering so poorly that the fronts of the hives are spotted to running down with excreta, it doubtless would be humane to set them out for a flight during the last of February or in March, should a day occur in which they could fly; but under these conditions there will be little difference in the end any way, for such colonies will be of little value, if any at all, when the white clover arrives, no matter how many times they were set out and in. Where bees are wintering well, your talk about bees spotting every thing in the neighborhood upon being set from the cellar is quite unreasonable, for such is not a fact, as very many colonies consume so little when in winter quarters that they void little more in setting them out than do those during the summer after being shut in during a three-days' storm. My advice is, not to set the bees out till the time for leaving them out for good has come."

General Correspondence

BEE-KEEPING IN FLORIDA.

Introduction.

BY E. G. BALDWIN.

[With the following article we begin the publication of a most interesting series of articles entitled "Bee-keeping in Florida." Mr. Baldwin is well qualified to speak of the industry in his State, for he has traveled extensively and is well acquainted with the conditions, as will be shown by later articles, of which there are thirteen. We may say that we have never before seen so complete and interesting a discussion on bee-keeping in any one State. We are sorry that we can not give our readers the opportunity to read the whole series at once, for it reads like a book, and one who starts it can hardly stop until he finishes. Most of the articles are illustrated, and some of the pictures are exceptionally fine.

Mr. Baldwin, after discussing the honey-plants, takes up the difficulties actually encountered, and also has a good deal to say in regard to migratory bee-keeping. Finally he gives a brief history of some of the larger bee-keepers in the State, telling how they succeed, describing their methods, etc. We were surprised to find that there are so many bee-keepers in Florida who number their colonies by the hundred and even by the thousand. We are sure that all of our readers, even those here in the North, will find these articles of great interest.—ED.]

Florida is very much in the lime-light just at present. Never before has interest in all that concerns her seemed so widespread. But, a "little knowledge is a dangerous thing;" for where we cease to *know*, curiosity and imagination begin. Many promotors and land-sharks, taking advantage of the fact, are reaping a golden harvest selling Florida real estate to people who know nothing about the State, but who imagine a good deal.

And Florida is preëminently the land that appeals to the imagination. Geologically, the youngest of the United States; topographically, the most unique; and, geographically, the only peninsular State in the Union, it is at the same time one of the largest and the least known of them all. It is in view of the two facts above outlined, a general ignorance of our State and a growing interest in it, that the following articles have been prepared. Their purpose is achieved if they shall give to those really interested a safer knowledge by which to guide them, and if they shall also, perhaps, keep "fools" from "rushing in where angels fear to tread."

A mere look at a map will only hint at the size of Florida without really conveying a correct idea of it. If some giant surveyor were to place one point of his compass at Fernandina, in the northeast, and then swing 250 miles westward with the other point, he could barely reach the Alabama line on the west. But to encompass the large Keys that nestle all along the southern coast, from Tampa to Miami, on the lower fringe of coast-line, kissed for ever by the great Gulf Stream, he would have to widen his arc by 180 miles—a total span of 400 miles in length. While only a narrow portion of the State, a part called West Florida, has so great a width, still there is a total latitude and longitude of 250 by 400 miles. A wide geographical extent running north and south generally means a wide diversity in the plant or tree life. Of no other State is this diversity of flora more apparent than here. Such wide range of flora must inevitably have a great influence on the question of the nectar-producing sources of the State. But before passing to a consideration of the honey-sources, let me correct a few misapprehensions about the place.

In the first place, Florida is *not* a land of scorching heat. The maximum temperature in summer is seldom higher than 94°; the minimum in winter seldom falls lower than 30°; 60° is the average temperature in the winter season; 82° the average summer temperature, while the average temperature, the year round, is only 71°; and, lying as the State does, slightly to the east of the path of the trade winds, the resulting daily breezes make sultry days extremely uncommon. Sun-stroke is absolutely unknown here.

Secondly, Florida is not a land of poisonous things that creep and crawl. There are deadly snakes, or poisonous snakes, at least, in some portions, of course; but these areas are rather limited in extent, and not in the usual places of access. In ten years the writer has not seen a live rattler here, though he has hunted game over many miles of swamp, hummock, and high pine land.

> An angry bee, with weapon hot,
> That soaked him in a tender spot,

has been the most venomous thing he has encountered here.

Thirdly, it is *not* a "land of flowers." Of course, "Florida" means "flowery," as any Latin grammar or lexicon will tell; but, unfortunately for the poetry of the name, the adjective comes from "Pascua Florida," the Spanish for "Easter Sunday," on which day Ponce de Leon discovered the land. The language of the real-estate men is vastly more flowery than the land they sell, in most cases. Roses can be grown, to be sure, in all the months of the year; but it requires much more care and pains to grow them at all here than in the North. There are many wild flowers through the woods and on the open tracts, but they are usually dull of hue and insignificent in size. Nor are many of them honey-producing; practically none give any considerable surplus honey. The prettiest blossoms are, almost without exception, found on trees or vines.

Not only in terms of botany is Florida a land of trees, but apiculturally, as well, it is the land of tree-honey. That does not mean bee-tree honey, either. To be sure, there are bee-trees galore in the State, and easy to locate, as a rule. One man on the southwest coast told the writer he had 40 bee-trees located, and another has 30 on his "waiting list" right now. Live oaks, pines, and cypresses are rich producers of honey—but

only from the inside! When we say Florida is the land of tree honey we mean it; it is literally true. Four-fifths of all the surplus honey produced in the State comes from the blossoms of nectar-producing trees or shrubs, *not* flowering plants.

De Land, Fla.

To be continued.

EUROPEAN FOUL BROOD.

Curative Measures; How to Proceed in a Large Apiary Run for Extracted Honey.

BY F. B. CAVANAGH.

Continued from last issue, page 109.

Having observed the importance of Part 1, or ridding the hive of diseased material, and Part 2, establishing immunity in *all* colonies in the apiary, let us now consider how we can accomplish these ends effectually with the least financial loss and inconvenience. Assuming that you are a wide-awake bee-keeper, which means that you have discovered the disease within a few weeks of its development, it is improbable that more than one-third to one-half of the colonies in the yard are affected. Such being the case, the following I believe to be the most economical and safest treatment.

Inspect the entire yard at the first sign of the honey-flow, being careful, of course, not to excite robbing, and mark all the hives with indelible crayon, indicating the mild cases by one cross, the bad cases by two, and the healthy colonies, O. K. Double or treble up all badly diseased or weak hives at the time of inspection, as we want them strong to begin with, so that they can spare their brood without bad effects. Also remove these queens as soon as possible, for they are worthless and a detriment to the cleaning-up process.

As soon as the honey-flow is sufficiently good, start enough queen-cells from the best yellow three-banded stock that you can get, to requeen the entire yard. When the cells are ready to introduce, make up enough strong nuclei to supply the healthy colonies with queens, and isolate them from the rest of the apiary (for they are more easily infected than strong colonies), or mate your queens in the full colonies if you prefer.

The honey-flow now being in full blast, the once "bad cases" very strong, and having been queenless at least nine days, brush each of these colonies on to full sheets of foundation and one comb containing some healthy unsealed brood and honey, and a protected queen-cell. The full sheets prevent drone comb, and there is no danger now of developing any disease in the single comb left, every available cell of which will be filled with honey or polished up for the new queen.

Place the brood-nests over strong healthy colonies having their queen confined below. It matters not how many partly filled supers of honey we have between the regular brood-nest and the annexed brood-nest, which now becomes an extracting-super.

The brood-nests which become extracting-supers should never be extracted until all brood is hatched and the cells filled with honey. The pollen will be used up by this time in most cases, and the combs, when dry, will be perfectly safe to use under any circumstances. You will understand that we have nothing in particular to fear from infected honey at this season, when *immunity is established* by the heavy honey-flow; hence the uselessness of twice shaking. Our aim is, in removing the honey, to fortify against reinfection from this source when the season arrives for susceptibility.

Next requeen the slightly infected cases in which the disease has probably by this time disappeared by giving protected cells in place of the queens. At the next extracting, when it is time for the young queens to be laying, put the extracting-supers below the brood-nest, throwing plenty of grass on the entrance to prevent robbing until the bees discover the new order of things. A day or two later, brush these colonies down, placing an excluder to confine the queen in the lower story. If the colonies are strong and the honey-flow good, the bees will be crowded below with the young queen, which will gladly accept the situation. Use the exchanged brood-nest as the future extracting-super, which will soon be filled with honey.

The healthy colonies will now have to be requeened; and, disagreeable as I know it to be, it is necessary to lift off those three or four supers and hunt up the old queen. The nuclei containing young laying queens may be united with the healthy colonies after two days' queenlessness by placing the combs, with bees thereon, in the full hive.

You have, no doubt, been wondering why I advocate brushing instead of shaking. Well, for one thing it is less cruel. The treatment, given as it is, early in the honey-flow, when the nectar is thin and easily shaken out, fills the breathing orifices of the bees, no doubt causing them useless suffering if no other bad effects.

Brush the bees down out of the supers or bodies, as described in the *Bee-keepers' Review* in 1909. Placing the brood-nest to be cleared of bees above the prepared empty hive, remove a comb from the side nearest you; brush the bees in front of the alighting-board, and cover the comb securely. With a Coggshall bee-brush in the right hand, and the smoker held suspended between your body and the hive, the left hand is now free to space the combs toward the operator. First, smoke the bees down while breaking the frames loose; next, pocket the hive-tool and in turn brush the inside of the hive nearest you, and each alternate space between combs, twisting the brush enough to reach both sides of the combs adjacent at once. In our apiaries we work rapidly, using a series of gentle vibrations of the brush, which fans and distributes the small amount of smoke used just where we want it, instant

with dislodging and frightening the bees down. There is no time for them to crawl back to the cleaned surface of the comb before it is slipped over, always toward us, and the other side brushed. At the last comb the brushing will include the furthest side of the hive with the outside of the last comb, when the body or super must be quickly removed. For two years both my assistants and I have used this system entirely when extracting or clearing brood-nests. It is quick and positive in results, a complete "Waterloo" to robbers, easy on the operator, arouses practically no cross bees, and loses fewer queens, we find, than shaking. Like other systems, little acquired knacks soon become fixed habits. The operator learns to puff the smoke behind the end-bars pretty well at the beginning of the operation, which gets the bees well toward the center of the combs and in reach of the brush. Also the smoker bellows, while suspended against the hive, is worked by pressure of the body, which exercise we believe to be healthful, as we always have large appetites when extracting honey.

The system of treatment for European foul brood outlined embodies features which I feel confident will appeal particularly to the specialist in extracted honey, as it is safe, and economical of labor and material. The combs are saved, the infected honey effectually removed, and permanent immunity established. I do not know absolutely what the results would be in a location having *no fall flow*, although I see no reason why they should not be equally favorable; at any rate, I should be very glad to hear from those who try the system under such conditions later. The treatment was evolved from a series of experiments made while studying the suggestions of authorities who know a great deal more about foul brood than I pretend to know. I may also say that I have not had long enough experience to know whether it will always work or not, as I have used it only a part of two years, and used other treatments in the majority of cases; however, the principles appear sound from our present limited knowledge of the disease, and I believe it is worthy of continued and more extensive trial.

Remember above all to be thorough in every thing that is done; for, while black brood is easily cured at certain seasons of the year, if neglected it will at other times spread like wildfire from one colony to another. Thoroughness, vigilance, and diligence mean a healthy apiary the following spring.

ADVICE TO AMATEUR AND SIDE-ISSUE BEE-KEEPERS.

There are methods of cure, some involving the use of the bee-escape, others various manipulations which the expert could use to advantage in a small comb-honey yard, but which are hazardous in the hands of the inexperienced. I have seen so many costly messes which beginners have blundered into in attempted treatments, some of which were the cause of reinfecting entire yards anew, that it seems unwise to advise any other treatment than the McEvoy, and which should not be given until the colonies are made strong by uniting. Hives should invariably be disinfected to make it a success, and the work all done at once, so as to remove contagion from the newly shaken colonies which are most easily reinfected. Make arrangements to requeen with young yellow Italians as soon as possible after treating, for *immunity must be established* for future protection.

At first sight the above may sound enigmatical—to be condemning one treatment for large apiaries and advocating it for small ones; but this is the very point which I wish to impress, viz., that the treatment must vary to meet the requirements of different conditions. I believe it wise in all cases to *get rid of the honey in the hive* which may be diseased. This may be accomplished safely with the extractor by the specialist; but in the case of amateurs it can not be accomplished other than by shaking, for there is usually no extractor and no equipment of combs. It is always best for a beginner to get an experienced bee-keeper to help do the work properly, and for bee-keepers to work together cleaning up one apiary after another in rapid succession, remembering that you are never rid of the disease until your neighbors are rid of it.

A FEW CLOSING HINTS.

Avoid robbing, especially in a diseased apiary, by placing removed supers on an escape-board or inverted cover instead of standing them on end with both surfaces exposed. Have a good robber cloth, and use it. Place heavy supers on the wheelbarrow if the height is more convenient. Use queen-excluders in producing extracted honey. First choice, the wood wire; second choice, wood-bound. Only by their use can we determine with certainty the location of the brood-nest, which is essential in treating a brood disease.

Extracting-combs may be set out for bees to clean up *after all brood has hatched in the fall*, without fear of contagion from black brood. We often pile the supers zigzag in the honey-house and open the door, leaving the bees to do the rest. Neither do we space the combs as formerly, as the wax from gnawed combs is saved on the floor.

European foul brood is a peculiar disease to deal with, and a dangerous one to trifle with. Easy to exterminate during a honey-flow, it spreads like wildfire during a dearth in the breeding season. Let no man boast of a cure, therefore, until the following breeding season confirms his hopes. Be faithful to the *marks on the hive;* requeen and rehoney the hive, even if the disease does *disappear* entirely during the honey-flow. There would be less talk of "the uncertainty of cure" and "danger of returning" if bee-keepers themselves would get down to business and quit playing hide and seek with the disease. Neither should we lose sight of the fact that, by getting our colonies in excellent condition, and with

choice stock, we shall reap big returns the ensuing seasons.

Hebron, Ind.

SIMMINS' METHOD OF SHIFTING THE FLYING BEES.

The "Turn-over" Method, and Double Hanging-chamber Hive.

BY SAMUEL SIMMINS.

In my 1893 edition (p. 242) of "A Modern Bee-farm" I offered my readers a novel plan of working two colonies (or even one colony when strong early, and divided into two). The new plan was that of causing the second hive to supply the supered lot with a constant addition of fresh bees by moving the former to the back, and ultimately to the opposite side from that where it started, so the bulk of the working bees was always in the supered hive.

The rear lot is never clogged with honey, and, as a consequence, is crowded with brood and young bees. Of course this is during the active season, and the process of moving the breeding stock is that of passing it back and forth as its maturing bees are appropriated.

The plan was a great aid to the prevention of swarming; but it was not until 1903 that the idea seemed to catch on in America, and reference to GLEANINGS and other journals of about the year 1905 will show that various bee-keepers put forth a similar idea.

But there are several objections to using separate hives. There is the lifting and changing; but also at times the bees have a habit of persistently finding their own entrance and mother queen, do what one will. I have known bees in hot weather to find their old hive entrance twenty yards away from its original site, on the other side of a large shed.

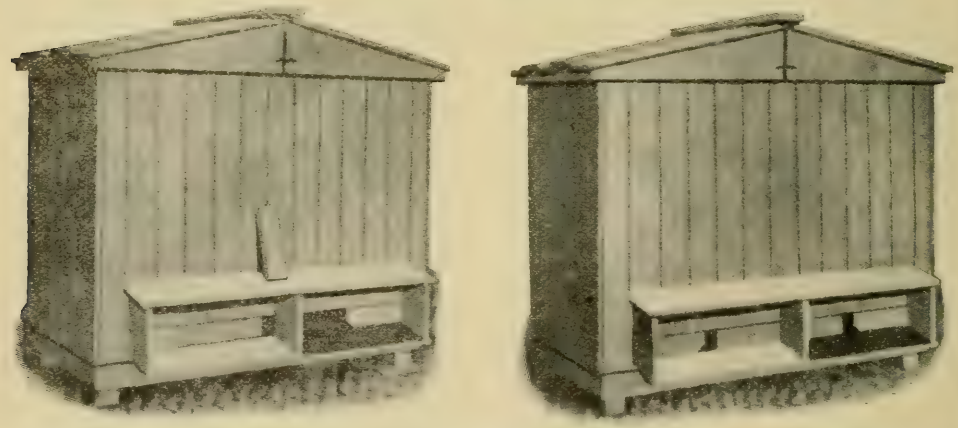
DOUBLE HIVE WITH FOUR ENTRANCES.

These troubles were overcome by using a double hive first made in 1894 on my hanging-chamber principle; and this was arranged with four entrances—two to each stock—one back and front.*

Henceforward if I wanted to unite, it was only a question of closing one of the two entrances facing the same way, when, without knowing the difference, all the flying bees would join the other lot with the wide-open entrance. Although at first the bees fly to the site of their own entrance, they simply draw along to the open side, passing behind the central division of the porch.

ALL MATURE WORKERS JOIN THE SUPERED LOT.

The back entrance of the closed lot is opened after the turn-over, but at first only half an inch or so; but while the remaining adult bees find their way out from there they all return to their old entrance site, and, of course, join the strong supered lot—never, on any occasion, troubling to find their old stock by the new back way. With entrances at each end I should not feel so safe on that point.



SIMMINS' DOUBLE HIVE FOR SHIFTING THE FLYING BEES FROM ONE ENTRANCE TO ANOTHER.

Thus the stock doing all the storing is of unusual strength, while the colony in the other side produces an unusual supply of young bees. In some cases, following supers are presently placed on this all-brood lot and the bees "turned back," when the supers on the former doubled lot are ready for removal, and then such completed combs or supers may be removed already denuded of bees.

The "turn-over" is made about 10 to 11 A.M. on a warm day while the bees are gathering freely. Both lots are first smoked in the usual way when no fighting occurs and the queen is not disturbed by the new comers.

*The "turn-over" method as applied to this double hive is given on page 216, 1904 edition "Modern Bee-farm."

MUTUAL ODOR.

The middle or partition wall of the outer protecting case has two ⅛×4 slits opposite and between the two stock-chambers, and this maintains sufficient communication so that the same odor pervades both stocks — seeing that the chambers do not touch each other or the floor. These slits are arranged so they are never stopped by the bees, which has always been done where the Wells perforated dividing-board has been used between two stocks. I do not say it is imperative that the same odor should permeate both stocks at the busy season, but it is certainly a correct feature in connection with this turn-over plan of uniting.

ALTERNATIVE PLAN — ONLY USUAL ENTRANCE NEEDED.

Another important item with my turn-over method is that it can also be carried out with only the one entrance to each stock; and after the entrance of one stock is closed the latter may be made to supply automatically and continuously the already doubled working force with mature workers without further attention beyond allowing the bees communication through excluder zinc set in the dividing or partition wall.

The closed-in lot, having no direct opening for exit or admission except through the supered lot with its wide-open entrance, will never have its combs clogged with stores; and with a prolific queen during the warm season it will produce a mass of brood and young bees such as few bee-keepers may realize.

VARIATIONS IN UNITING OR DIVIDING; YOU MOVE ONLY AN ENTRANCE-SLIDE.

My double hanging-chamber hive, all within a sheltering or protective case, provides for many variations in uniting or dividing, simply by the action of pushing along one or the other of the usual entrance-slides.

ADVANTAGES.

1. With the hanging chambers the brood-nest is always under control, as the stock-chamber can be withdrawn any time the supers are on, and the latter are not moved.

2. The turn-over, or immediate uniting of the working force of two stocks into one, enables one to take advantage of an early honey-flow.

3. The denuded lot produces more bees because the stock combs can not be crowded with stores, and especially not with an excess of pollen.

4. For late autumn flow the plan is particularly valuable, as one of the two stocks, having no direct entrance, is always draining into the supered lot.

5. In tropical climates where bees can not or will not breed during the best honey-flow because the stock combs are immediately clogged with stores, the closed in side will continue breeding all the time.

6. The union is carried out with no shifting of hives, and no special floor. You just move a slide.

7. In like manner you can turn back the bulk of the workers from the finished supers, in the morning, and, later in the day, the combs are almost clear of bees.

8. No worry about the bees flying to the wrong spot or settling around on other hives.

9. No shaking bees from combs.

10. No need for bee-escapes.

11. No time wasted in clearing supers.

12. By this method of clearing supers no pin holes are made by the bees in the beautiful cappings.

Heathfield, Eng., Nov. 23.

EXTRACTING DURING THE HONEY-FLOW.

Exchanging Combs as Fast as they are Capped with Empty Ones; does Honey Improve with Age?

BY G. C. GREINER.

On p. 375, June 15, 1910, Mr. Southworth makes light of my way of extracting honey, and calls it "dabbling in it at intervals." I am no hand to enjoy long controversies. After I have had my "say" I am generally satisfied; but to bring out a few more facts which Mr. S. overlooks, and explain to others why his article is misleading in a number of points, I will make a short reply to his article above mentioned.

In the first place, Mr. Southworth does not take into consideration that we all must work in our own harness. Each one's environments are so different from every other one's that uniform rules can not be adhered to. What is practicable and advisable for one may not be so for the other. For instance, I run my home apiary and have no outyards. All my time is spent with or near my bees. If I am not actually engaged with them I am busy in my kitchen garden, which joins my bee-yard, or I may be doing some work in my woodshop, which also joins my bee-yard at one end. In this way I am at all times within sight and hearing of my bees. If I had to manage a number of outyards it is very likely that I would have to adopt different plans.

Then Mr. Southworth overlooks the fact that my management produces more and better honey, with less work, than he can get by his tiering-up plan. I admit that a little time may be gained by tiering up at the time when bees need more room for storage; but it isn't nearly as much as Mr. S. imagines. During the course of years that I have practiced extracting before the end of the season, I have learned to take the advantage of every motion I make; and I believe I can make the exchange of four combs nearly as quickly as Mr. S. can place an empty super under a full one. If it should take a little longer, the advantages gained by exchanging would fully overbalance the little time lost. At first sight it may seem like a small matter to exchange four combs. It would be if I used the small half-story

frame. But I use the Jumbo frame, and the four supply as much storage, and, when full, contain as much honey, as Mr. S.'s half-stories which I imagine he uses.

Next, Mr. Southworth must bear in mind that, when I make the exchange, I perform two operations in one. I take honey from the hive and supply storage at the same time, while Mr. S. does only the one, leaving the taking of honey until some future time; and when that future time comes, he has to gather up his two, three, or more supers, as the case may be, take them to his extracting-room, and stand at the extractor, where he has to do at least twice the cranking I do, and then not get his combs as clean as I do mine earlier in the season. And all this time, while Mr. S. is doing this work, I have nothing to do but to take my honey to market and take advantage of the early sales.

The advantages gained by using one super and the exchange of combs are briefly these: Every comb goes direct from the hive to the extractor. It is then in the very best condition to extract the honey cleaner with less turning than would be needed any time thereafter. In the same way the empty combs go direct from the extractor into the supers. They are then also in the most tempting condition for the bees to accept, and, being placed exactly where the full ones were taken from, business goes on without the least interruption. But how is it when Mr. S. places an empty super under the full one? The whole inside of the hive is disarranged; his bees have to hunt up new fields of operation, get acquainted with the new order of things, prepare his stale combs for the reception of honey, etc., and, before his bees are ready to begin storing, my exchanged combs are nearly or quite full of honey again. This is the reason why my management gives me *more* honey.

The question of quality, which the heading of this article suggests, is of the greatest importance to our pursuit. It is the all-absorbing center of attraction from which all arguments of the different advocates radiate. The claim that honey must remain on the hives all summer to ripen perfectly is governed entirely by season and locality. I do not think that honey (at least *my* honey) can possibly improve with old age as do certain kinds of cheese. When honey is capped, whether it be comb or extracted, it is ready for the table; and the sooner it is taken from the hive the better. Why is it that some of my neighbors and customers call for my first-extracted honey? They say, "It has that delicious flavor of newness which it loses when extracted later in the season." As long as my honey comes up to and even overruns the 12-lbs.-to-the-gallon test, it would be unpardonable shortsightedness to let it deteriorate by leaving it on the hives any longer. By doing so it may improve a little in body, but lose in flavor. In all my extracting operations I never had honey ferment or sour. The circle of my customers has grown larger from year to year; and the fact that I can not produce nearly enough to supply the demand is sufficient to prove that my product is up to the standard mark of desirability.

When I made the misleading remark, that I began extracting when my combs were capped "three-quarters or over" I should have given a little explanation, which I omitted at that time for brevity's sake. The facts are, when I have a sufficient number of combs of that description to pay for starting the extractor, many more combs scattered through the hives are then all capped. The progress in my supers, when the white-clover flow is well under way, is so rapid that combs three-quarters capped to-day are all capped inside of 24 hours, so that, by the time I get to them, practically all honey that goes into the extractor is capped.

La Salle, N. Y.

THE WINTER NEST VS. SOLID COMBS OF HONEY.

The Solution of the Problem Depends upon the Locality and on the Time when the Bees go into Winter Quarters.

BY C. P. DADANT.

Seeing my name mentioned in a discussion on "winter nest better than solid combs of honey," pages 65, 66, 67, of GLEANINGS for February 1, I wish to state that, in 1905 and '6, a discussion upon this subject took place between Dr. Miller and myself on one side and J. L. Byer on the other, in the *American Bee Journal*. Both the doctor and myself advised room and dry comb for the bees to cluster upon below the honey, on the center frames. Mr. Byer averred that he wintered bees successfully "on solid sealed combs" (*American Bee Journal*, Feb. 1, 1906, page 99). He referred to Wm. McEvoy as authority for the same thing. Being well acquainted with Mr. McEvoy, having full confidence in his statements, and knowing him to be an experienced beekeeper, I had the curiosity of writing to him to ascertain what his experience was. He replied along the line mentioned by Mr. Byer, that, since the year 1876, he had been in the habit of crowding his bees "on five, six, and seven combs of all-capped stores." Mr. Byer in his articles had demanded that we make a trial of all capped combs filled from top to bottom, as he used them, before condemning his method. I had never had more than one colony with all capped combs without room to breed, to my knowledge, and it had died, leaving the combs practically all full, so I did not feel like renewing the experiment; but in view of the positive assertions of both of these men, who are certainly bee-keepers of experience, I have concluded that it is possible to winter bees successfully on full sealed combs. Perhaps friend McEvoy will pardon me for sending you his letter to me, dated February 6, 1906. I believe it is worth publishing.

Friend Dadant:—I read all the articles that you, Dr. Miller, and J. L. Byer wrote. In the fall of 1875, with division-boards I crowded half the colonies in my apiary on five *all-capped* combs, so as to shut off brood-rearing till near spring.

The colonies in the other half of the apiary were left with the full sets of combs, and all these had empty space in the center, and plenty of honey to winter on. The winter of 1876 was one of the warmest we ever had; and during that fine weather the queens filled the empty space with eggs and then started far too much brood for the time of the year, and used up more stores than I expected. All these colonies that bred so in winter dwindled down very low in spring, and some of them got robbed out; and those that came into June were not strong enough to gather a fair crop from clover. The other half, that had been crowded on five all-capped combs, wintered finely, and came into spring very strong; and many of these swarmed the last of May, and gave me large yields of clover in that honey season. Of course, that mild winter caused the bees to breed more, break cluster, and wear themselves out caring for so much brood in what should have been their season of rest. I made up my mind never again to let bees have space going into winter which would get larger as the honey was used out of the combs. I have, ever since 1876, with division-boards, crowded my bees on five, six, and seven combs of all-capped stores. When I have not capped combs enough in the supers to fit up all, I put six of the most capped in the brood-chamber, and then fill out the rest of the brood-chamber with division-boards. I then put on a Miller feeder and take the middle off so as to let the bees rush up by wholesale into syrup that is covered with straw. I give the bees all they crowd into the six combs and cap. When the bees can not put any more in these combs they start building comb up in the feeder. I then put a Porter bee-escape under the feeder; and when they are down (a place they soon leave) I move the feeder to another hive.

I pack with four inches of maple leaves on the sides. I pull the cloth forward so as to leave one inch wide of the queen-excluder uncovered so as to let the steam up off the bees. I put four inches of leaves on the top so as not to let too much heat up through the part of the queen-excluder that the cloth does not cover. I then place the hive-cover on top of the leaves and over all I put the cover of the winter case. The entrance of my hive is ⅜ by 3 inches, and I keep the snow away from it all winter. In the winter of 1904 all the bees in the Province of Ontario that were wintered on the summer stands had a hard time of it, and many lost all. Many came a long distance to see my apiary in the spring, and were surprised to see my colonies in grand condition after such a winter.

Crowding the bees on all-capped stores and letting the steam up off the bees and keeping the snow away from the entrance at all times saved every one of my stocks in the hardest winter ever known on bees.

Woodburn, Ont., Feb. 6, 1906. WM. MCEVOY.

Now do not let your readers infer that I believe it is necessary for us to follow the same method in our latitude. I still advise what we recommend in "The Hive and Honey-bee," that the combs be "at least half full of honey."

I believe that latitude, length of winter, etc., have a great deal to do with success under different kinds of managements. The Canadians place their bees in winter quarters earlier than we do; they need more feed for the same length of time, and their bees begin to eat off the stores in the center earlier than ours, for they have fewer warm days in the late fall. I believe if conditions of the cluster were compared about the first of January they would be found in much the same condition as ours, with a certain amount of dry combs on which to cluster at the bottom of the center frames. In other particulars McEvoy's method is exactly according to my views, narrowing the colony to the most compact space and allowing the moisture to escape in a porous ceiling without deperdition of heat.

This discussion shows once more that we must not condemn others who find themselves in different conditions and come to different conclusions. The first human beings who said that not only the sun and the moon but all the stars had been made for our own special benefit, did not know that there are "other worlds than ours," and that other beings may also imagine that our earth exists only for their own special benefit.

Hamilton, Ill.

THE WINTER NEST VS. SOLID COMBS OF HONEY.

A Cold Climate makes Necessary a Large Amount of Honey Above the Cluster.

BY J. E. HAND.

I note by the Feb. 1st number of GLEANINGS that the subject of the desirability of a winter nest is again open for discussion: therefore, with your permission, I will endeavor to present my views concerning this mooted question with the hope of arriving at something approaching a definite solution of this important branch of the wintering problem. After giving the subject due consideration I am persuaded that, if the discussion with reference to the merits and demerits of a winter nest were conducted along purely isothermal lines, the difference of opinion would not be sufficient to awaken any thing approaching a lively discussion.

An experience covering a period of twenty years in outdoor wintering of bees in the latitude of Northern Ohio has led me to conclude that a winter nest, if not too large, is a comparatively safe proposition where the colony is well protected. On the other hand, an experience of thirteen years in outdoor wintering in North-Central Iowa, where the theremometer frequently registers as low as 20°, and often remains below zero for days at a time, has taught me the wisdom of having an abundance of sealed stores above the winter cluster; in such a location the condition of the comb shown in the illustration on page 19 might mean that there was only about two inches of honey between the colony and starvation; for, just so surely as the bees consume that two inches of honey, and arrive at the top-bar of the frames during a spell of zero weather, just so surely is that colony doomed. At least, this has been my dearly bought experience.

No amount of argument could convince one who has lost scores of colonies from starvation in the midst of plenty, under conditions as above described, that a liberal-sized winter nest is a desirable proposition in a cold climate. The fact that bees will usually winter well in a mild climate like Central Ohio, in spite of the presence of empty

combs for a winter nest, should not be regarded as evidence that a winter nest is necessary or even desirable.

An important point that has been entirely overlooked in this discussion is that, if room is provided for the bees to cluster under the combs, they will invariably cluster there at the beginning of winter, irrespective of whether or not they have an empty brood-nest above—proving quite conclusively that they choose such a condition in preference to empty combs in a winter nest.

Our feeder consists of a pan eight inches wide by the inside length of the hive, and two inches deep—said pan occupying a central position from front to back inside of a rim three inches deep, and affords protection against chilling blasts from the hive-entrance. We have found that, whenever a feeder is left under a hive until the approach of winter, the bees will invariably be found snugly clustered down below the combs and into the feeder pan; and frequently, when tipping a hive up and glancing underneath, we have caught a glimpse of the queen. This set us to thinking as well as to experimenting, with the result that we now consider that, for wintering outdoors in a cold climate like that of Iowa, Minnesota, or Canada, solid combs of sealed stores early in the season, with a clustering-space under the combs, protected as above described, is a safe proposition. For this reason our feeders are left under hives that are wintered outdoors.

Birmingham, O., Feb. 4.

[In all the discussion that has followed in these columns, and in the *American Bee Journal* also, we have seen nothing thus far that does not argue in favor of one solid ball of bees *not* broken up by combs of sealed stores. We care not where the clustering-space may be, whether it be in empty cells below sealed honey, or whether it be below the brood-frames in the space between the bottom-bars and the bottom-board, for the bees seem to show a desire to get together where they can make up a cluster as near a solid mass as possible.

On the other hand, we are quite prepared to admit that, in a very cold climate, or a climate subject to severe prolonged cold, empty space or empty cells, occupying as much as the lower half or lower third of the central combs may be a positive detriment rather than an advantage. The reason for this is very clearly pointed out by Mr. McEvoy in his letter to Mr. Dadant; but apparently Mr. McEvoy and all the others who argue for solid combs give solid combs of stores *early in the fall*. By the time real cold midwinter comes on, those bees will have empty cells in which they may cluster below the honey.

Again, it may be an advantage to have a larger clustering-space under the brood-frames than has ordinarily been allowed for outdoor-wintered colonies. Mr. Hand makes quite a good point in favor of his underhive feeders; but this all argues for a clustering-space not broken up by solid combs. That is what we have contended for, first, last, and all the time. We naturally would think, then, that our Canadian friends, with their longer and colder climate, would need more space under the frames than is usually provided by an ordinary bottom-board.

As Mr. Dadant points out, this is somewhat a question of locality. In Canada and these other colder climates, less of a clustering-space than we have shown in GLEANINGS would be desirable. The milder the climate, the larger this clustering-space may be without detriment.

Now, then, if there is a single one of our friends who believes that it is an ideal condition to have a cluster of bees broken up by solid combs of honey above bottom-bars, and away from the bottom-board, we wish he would show his hand. This general discussion shows that, so far from disagreeing, we are really in accord when we properly understand each other and our localities.—ED.]

HOW I SELL MY HONEY AT A GOOD PRICE.

BY J. A. M'GOWAN.

First, I have all sections nice and clean, and I take care that they weigh from 13 to 14 ounces. That means a plain section must be full on both sides.

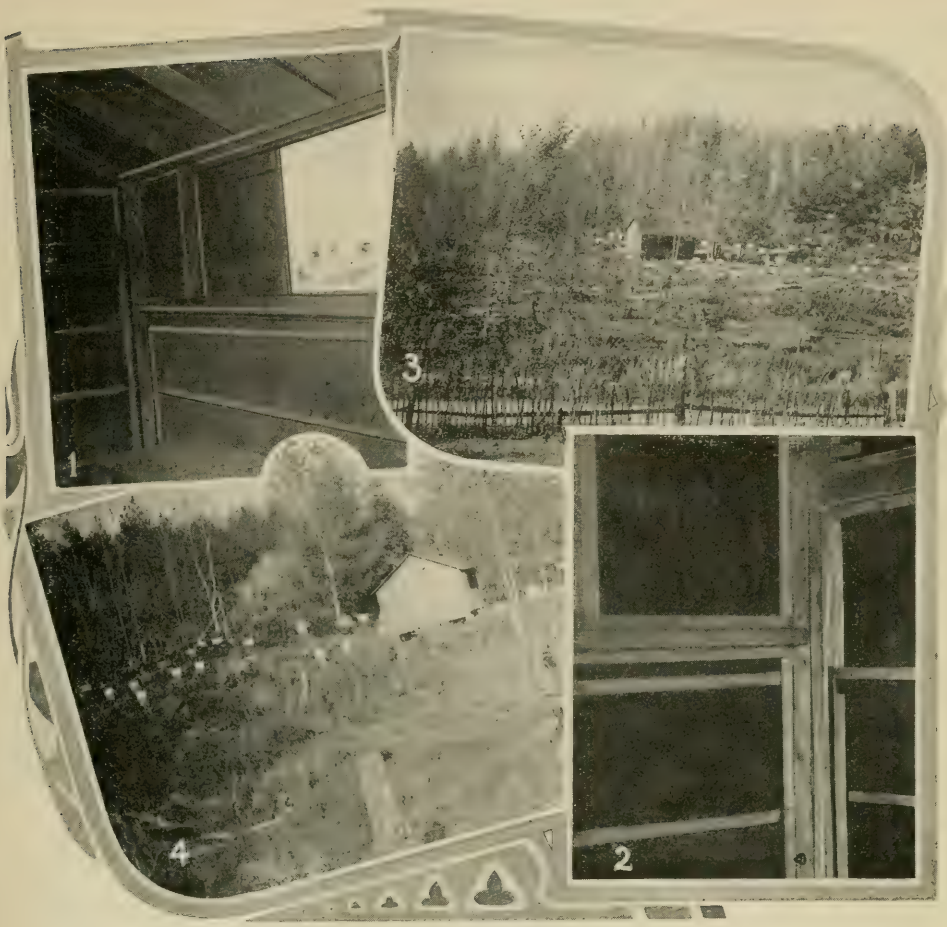
Second, I make it a rule to advertise my honey by giving away two sections to any one who I think might become a buyer. To illustrate, a friend of mine from Pittsburgh was out attending a reunion of his family in our town, and I told him to stop and see me as he went by, as I had a present for him. I gave him two sections of buckwheat honey, and in less than ten days I had an order from him for all my honey at 20 cts. a section. This was one year ago. This fall he wrote me again, wanting all I had at the same price.

Third, I make sure that the cappings look white; and in order to have it that way I remove all sections as fast as capped over, and replace with new ones containing foundation. By doing this I need only two supers at the very most, and the bees are never scattered through from three to six supers. Unfinished sections are also largely prevented.

Fourth, as soon as I have honey completed I hunt for a buyer, as it never looks better than theday it is taken from the super, and looks go a great way in disposing of a crop. And I am careful to have my honey just what I say it is.

Fifth, in order to have the very best-looking honey and the best tasting as well, I have colonies so strong that, when the flow comes (and it always does) I am prepared to get my share of it. One or two days' neglect of little details may lose a season's crop.

Prospect, Pa.



E. D. TOWNSEND'S PORTABLE EXTRACTING-HOUSES AND PINE LAKE OUTYARD.

BEE-KEEPING FOR BEGINNERS, ILLUSTRATED.

Portable Extracting-houses; How Made and Used.

BY E. D. TOWNSEND.

Our extracting-houses for outyards are built in sections. The floor (12 × 16 ft.) is in two parts; the sides and ends and each side of the roof are separate. Built in this way a team can draw the whole building at one load on a flat rack.

The material that we use, for the most part, is hemlock, although some of our houses are built of white pine. We decidedly prefer the latter, as it works nice and is very light. A material both durable and light should be selected for this purpose when possible.

The foundation is built of 2 × 6's placed 16 inches from center to center, the planed and matched bee-tight floor being laid on them. The frame of the foundation is of the same material, and is spiked to the ends of the 2x6 in. joists. When setting up the foundation, solid underpinnings are used, three at each side, one in the middle at both ends, and one in the center of the floor. We build each section of this foundation about 8 × 12 ft. and run the sleepers the short way. Properly underpinned, the floor thus built is very solid, and free from jar.

The foundation, when in place, is one inch smaller each way than the building. This allows for some "play" in squaring up the structure, but is of value more particularly to allow the siding to extend down below the floor an inch or so to keep the water from running in.

The sides are 6 × 16 ft., and the 6-ft. posts of the sides and ends of the building are so placed that the two 2 × 4's used for posts at each corner (one 2 × 4 being a part of the side and the other of the end) come flat sides together, and are securely bolted, as shown in Fig. 2. The framework above the foundation is of 2 × 4's, planed down rather thin for convenience in moving. The siding is put on up and down, and may be matched



ORCHARD AND APIARY OF C. E. LAYMAN, TROUTVILLE, VA.

Mr. Layman figures that his bees pay him as well in the extra amount of fruit that they enable him to get as they do in honey.

or not. When the planing is done under our instructions the siding and roof boards are ¾ inch thick.

Fig. 1 shows the sliding shop-window, which needs but little explanation. Between the plate at the top of the side section and the girt running parallel to it, about 26 inches below, the opening for the window is left. This is covered with wire cloth on the outside, and just a plain board sliding window is used inside, no glass being needed. We keep making these windows larger and larger, our last one being between 5 and 6 feet long. They are located a little in front of the center of the building, as this is where most of the work is done.

We have used both shingles and felt for the roof. The latter material is lighter and more easily moved, and in most cases preferable, though it may be more expensive in the end. Each side of the roof, as mentioned before, is separate, and is about 8×17 ft. in size. The two parts of the roof are the heaviest pieces to handle, and we are thinking of having the roof of our next building in four pieces for convenience.

All of our extracting-houses are bee-tight, made so by the use of tar paper put on with lath in such good shape that not a bee can get in. It is difficult to get a carpenter who will do this work and be particular enough to crowd every lath snugly into the corners so bees can neither get in nor out. The siding between the frames, and the roof boards between the rafters, are all papered; and the floor, being planed and matched, renders the whole building tight. We have one of these portable houses at each of our yards, and consider them indispensable.

Figs. 3 and 4 in the engraving show our Pine Lake yard, located three-fourths of a mile south of Remus, and we call this our home yard, as it is the nearest. It is located in a "nick" of the woods open to the south, and is fairly well protected from prevailing winds. Before the fire of 1908, which burned much of the timber near this yard, it was an ideally protected location. If the reader will turn to Fig. 3 he will see a tree leaning slightly toward the bee-yard. This stands close to a low swampy piece of ground, affording water to the bees during April and May, so that at times they do not have to go more than three rods for water in a protected place where they can carry water for breeding on days when it would be suicidal for them to venture out in the wind.

Only half the advantages of outside pro-

tection of bees during the months of April and May have been told. It makes very nearly the whole difference between failure and success in the surplus crop of honey.

Remus, Mich.

BEES ESSENTIAL IN AN ORCHARD.

Blossom-spraying Bad Policy, even from a Fruit-grower's Standpoint.

BY C. E. LAYMAN.

As I have read a great deal in GLEANINGS for and against bees with fruit-growing, I decided to send a photo of my apiary, located on one side of my orchard. I have been raising bees and fruit together for twenty years, and have never had any bad results from the bees bothering around the fruit except after a rain, which bursts open the ripe grapes so the bees can get at them. I have noticed frequently that, while others in this section were having no fruit (or very rough if any at all), I would have a fairly good crop of nice smooth fruit, and I am, therefore, of the opinion that the bees do a great deal more good in the way of fertilizing and making perfect fruit than they do harm to the fruit that has already been spoiled by rains or some insect puncturing it.

I have also had a great deal of experience in the spraying of fruit, and have watched some of my neighbors frequently who persisted in spraying while the trees were in bloom, and in nearly every instance their fruit was damaged more or less, while my trees, which had not been sprayed until after the bloom dropped, were full of perfect fruit. There can not be any doubt about this point in my mind, as it has been so thoroughly demonstrated in this section.

I note much complaint has been made by some fruit-growers claiming that the bees bothered them a great deal in the picking of fruit. I am sure that the bees get more blame than they are entitled to along this line, as in all of my experience I have never had any trouble worth mentioning. Some, if they find a bee or two on fruit, would be afraid to go near the tree. What is necessary for a fruit-grower is to keep his fruit picked as it ripens, and keep the fruit that is beginning to decay off the trees, and there will be no trouble with bees. I figure that my bees pay me as well in the good they do me in my orchard as they do in honey and increase secured from them.

Troutville, Va.

BEAUTIFYING THE APIARY.

BY W. A. PRYAL.

Too often our apiaries are any thing but objects of beauty; but we should strive to make the home apiary, at least, one of the most attractive spots on the premises. I remember seeing an apiary on a hillside in one of the counties of California that, though certainly not in apple-pie order, yet had a most picturesque appearance.



FIG. 1.—HILLSIDE APIARY IN CALIFORNIA.

In Fig. 1 I present a view of this apiary. It is not necessary to point out its ill-kept appearance; still I doubt if a more artistic-looking apiary was ever figured in GLEANINGS. Most of the hives are home-made, of rough California redwood, and innocent of paint or other ornamentation.

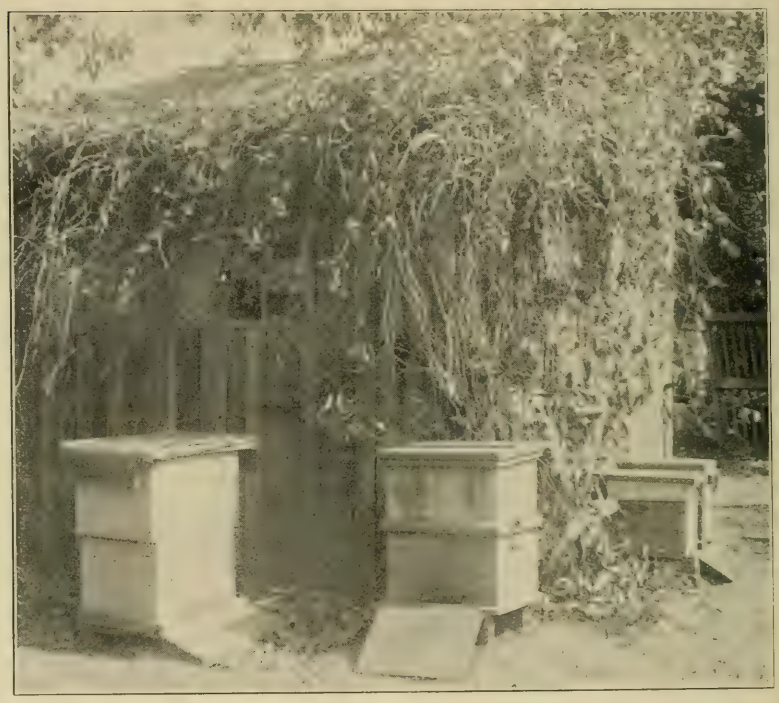


FIG. 2.—BEE-HIVES NEVER DETRACT FROM THE APPEARANCE OF SURROUNDING PREMISES.

While vines are splendid for adding ornament to an apiary, there are times when vines, shrubbery, and buildings will be improved from a landscape viewpoint by the addition of a couple of hives, as in Fig. 2. The hives shown are not the usual store or ready-made ones, but home-made, and were built for an apiary run for extracted honey.

The next three half-tones show the gradual adornment of the buildings in the background of a certain apiary I am acquainted with. For many years a rather make-shift extracting "room" was used by the owner of this bee-yard. It was not one of those large apiaries as we are wont to find them in many parts of California, especially in the southern portion of the State, but was or is what might be called a farm-apiary, as the place where these bees are kept is farm, garden, orchard, and apiary in one. The construction of this honey-extracting room was very simple. It was about 10×8 feet, and seven or eight feet high. Two uprights of 2×3 scantling were used for the corners. For a foot or so near the ground it was boarded around, that the cloth wall might not come in contact with the earth or receive the splashings of the rain when it would strike the soil. Common muslin was tacked on the three sides, except that in one end was a screen-door which was kept closed



FIG. 3.—IMPROVING THE APPEARANCE OF AN APIARY.

by a coiled spring. A piece of tin from an old roof was thrown on top to keep out the rain from above, and also to carry off the drip from the roof of the attached building.

This make-shift did good service for a number of years, as stated. But a room was wanted that was more secure, and where the whole extracting-outfit could be left during winter. This was provided for as shown in Fig. 4. It is of T. & G. lumber with a good floor and roof, the latter being one of those tar-paper-and-burlap "patents" as manufactured near where this apiary is located. A coat of hot tar is applied to this roof every two years, and it is as good to-day as it was the year it was laid. Two sliding windows admit light and provide ventilation.



FIG. 4.—NEW EXTRACTING-SHED AND VINES PLANTED.

Having thus improved this part of the aspect of the apiary, the owner wanted to soften some of the other ugly features thereof. He took a crowbar and jammed two holes into the ground and inserted a tall eucalyptus pole in each. These holes were about eight feet apart. A piece of wood was nailed across at the bottom or near the ground, and another piece was likewise fastened well toward the top. Then a piece of poultry-netting was stretched upon the frame thus made. Virginia creepers were set out and soon covered the wire, as shown in Fig. 5. In this way this little apiary has been made to look quite presentable. To the left of the extracting-room is an English walnut which completely shades the greater part of the building during summer. On the opposite side of the building, and some twenty feet away, is a big fig-tree which extends some of its branches over a portion of the adjoining as well as the detached outhouses.



FIG. 5.—THE RESULT, AN ARTISTIC VIEW.

At one end of this apiary are a few orange-trees, and at the other are cherry-trees, while in front are some apricots. Thus the apiary is nicely located, and more or less shade is provided.

Here I should like to state that the Virginia creeper is an excellent vine to use for shade and ornament about the apiary. I like it better than grapevines, although the latter is also very good. The former is more beautiful, especially in the fall. In Fig. 2 the vines have lost about all their leaves, while in Fig. 5 they are in dense leafage.

Oakland, Cal.



Fig. VI.—A view in the apiary of Mr. Shoemaker, Cuerna Vaca, Mex., incidentally showing one of his Mexican helpers with a swarm he had just brought down from the tree-tops.

BEE-KEEPING IN THE HIGHLANDS OF MEXICO.

BY O. B. METCALFE.

Continued from last issue, page 105.

In our last article we had reached Mexico City. Now we drop down further south to the Cuerna Vaca region and take up the consideration of a most interesting apiary owned by a Mr. Shoemaker, who has had it for some six years. He once intended to make a big business of it, and might have done so except for lack of skilled labor. He complains that he has much trouble to get good help for the business. This apiary is the old original Carl Ludloff & Co. apiary which was moved over from Mexico City, and Fig. VII. shows a hive which was a transitional hive between the old hive he made at the city and the one he is now using at Irapuato, and which will be shown in a later article. This Cuerna Vaca apiary has been the scene of many trials and many experiments. In some way Mr. Ludloff finally dropped out of the company, and another member took the wheel and tried to make a go of the business. At last he sold to Mr. Shoemaker, who increased the yard to some 500 colonies, and decreased the size of most of the old Ludloff hives to about half the length. Among other experiments, Mr. Shoemaker bought twenty standard ten-frame American hives with shallow-frame extracting-supers. He says that, so far as he can see, bees do as well in the American hive as in any other; but he raised two objections to them. First, duty, freight, and all, they cost too much; second, the bees glue them up so badly with propolis that they are harder to work. However, I could not see that they gathered more propolis than they do in New Mexico; and I think that, if he had been well versed on the use of the standard American hive in his locality of Mexico he would have found it ahead of the Ludloff type to which he has gone back.



Fig. 1.—Smith's foundation-cutter, with movable guides that may be set for any size of starter desired.

During the swarming season Mr. Shoemaker keeps two men to hive swarms. This is usually during June, and the bees swarm fast and furiously then. He claims that he could make a lot more honey if he could control swarming, for some of the strong colonies that do not swarm produce as much as 285 lbs., while his av-

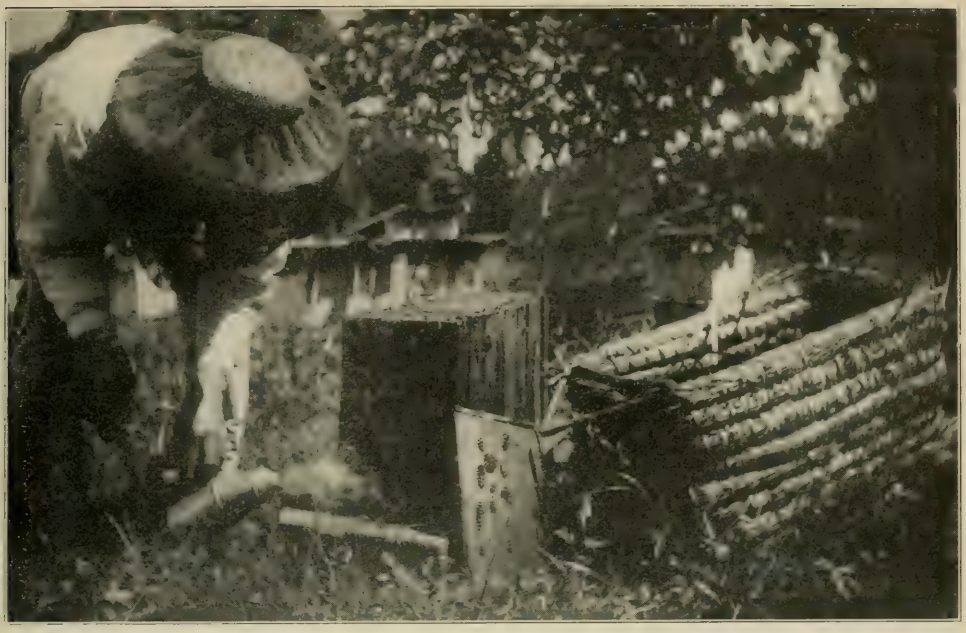


Fig. VII.—One of the transitional hives which Mr. Ludloff made and used between the first he made and the perfected Simplex hive he is now putting out.

erage is about 35 lbs. Right there is the point where I think he would do much better with the American hive if he had ever had experience with it and would use foundation; for since he does not produce comb honey he ought to be able to control swarming with his ten-frame American hives.

At Cuerna Vaca the bees store a little honey in March; but the main flow comes in October and November. Mr. Shoemaker thinks that the honey is made mostly from fruit-bloom, and colored a bright amber from a small yellow weed which comes up thick in the stubble. He was kind enough to let me taste the honey, and to give me a small sample to bring home. The honey was excellent, and should create a demand; but one of the strange facts that I learned from him was that from this one apiary he supplied the city, and all the towns up the old Mexican Central as far as Aguas Calientes; and after quoting it all up the Mexican National also to all points as far as Monterey, he still has to export to Germany the better part of his crop. The exported honey nets him about 10 cts. Parties come right to his house and beg for the wax at a dollar (50 cts.) a pound.

On south of Cuerna Vaca it seems that the natives keep quite a few bees; but the honey is mostly from the casachuate-tree, and is not edible. It is a clear white honey, but causes severe headaches. Bees also collect syrup from sugar-cane in this region.

Still further south and east, in the state of Oaxaca, the natives also keep a good many bees, and they use the honey a good deal. Perhaps considerable of the honey is made from alfalfa, for there is a good deal of it in cultivation in that section, and it is said to do exceptionally well there. While in Mexico City I had the good fortune to meet an Oaxaca Indian lady who had had some experience with bees in the Oaxaca Valley. She was the wife of an American;

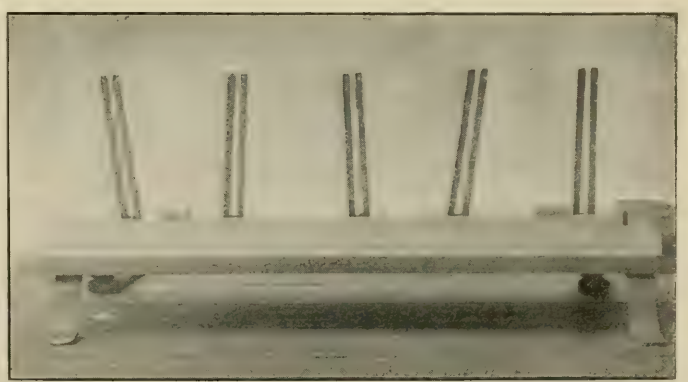


Fig. 2.—The guides thrown back so the foundation can be removed. See next page.



DRONE, QUEEN, AND WORKER.

—Photographed by Dr. Bruennich.

and, while she did not speak English, she had many of the English ways of looking at a proposition, and I had a very interesting talk with her in Spanish. According to her the bees make a dark honey at Oaxaca, but it can be eaten, and the bees are kept for honey as well as wax. The bees were kept mostly in box hives without the extra box as a super, and she thought that an average yield would not be over fifty or sixty pounds. She spoke of two kinds of bees—the common honey-bee and a native bee which stings very little, and which lives in the ground, but stores quite a quantity of honey which is about like that of the common bee in that locality.

Mesilla Park, New Mexico.

AN ADJUSTABLE FOUNDATION-CUTTER.

BY JAY SMITH.

Ever since I went into the bee business I have been looking for a satisfactory device for cutting foundation. When one has a lot to cut, time is an important factor: then, may be, there is a sudden rush of nectar when it is necessary for all hands to rush accordingly. A miter-box has been usually recommended. This does very well, but has its disadvantages. In the first place, each miter-box will cut only one size of foundation, and it is, therefore, necessary to make a box for each size wanted. Then no doubt there are many bee-keepers, like myself, who are not handy with carpenter tools, and make a bad job of it. My father-in-law, Mr. Frey, made a miter-box for me; and when I wanted another he suggested that he could make a machine that would be adjustable. He went to work on it, and the accompanying cuts show the result. We have used this a good deal, and find it all that one could wish. The arms may be changed in an instant to any shape desired.

I prefer a bottom starter and full sheets of foundation; but the principal objection to full sheets in the 4×5 section is, if they are cut square they are apt to touch the side; and when the bees fasten this to the side it will swing around and become fastened to the fence, thereby spoiling a good section. The remedy is to cut them slightly tapering. The arms of the cutter are set in that shape in the cut.

Any number of sheets can be cut at a time. When cutting a number it is necessary to place washers on the bolts that hold the arms so as to raise them up the thickness of the foundation to be cut.

Vincennes, Ind.

BEE-KEEPING AS A HOBBY.

The Bee People.

BY F. DUNDAS TODD.

Chapter IV.

When Pope wrote that "The proper study of mankind is man" we can not suppose he meant mankind should learn the ways of individual men, for, taken severally, they are usually most uninteresting, their ways and thoughts being pretty much like those of their associates. He doubtless meant that the proper study of individual men is

the form of society of which they are a part, and this is fascinating. It is the same with bees. Collectively they are a wonderland of delight; but individually they are much like men; nevertheless we must devote a little time to the various kinds to be found in a hive.

THE WORKERS.

Any clear bright day when the thermometer registers 48° or above, and on dull days in warm weather, we can see myriads popping out of the hive entrance, or dropping heavily as if laden and tired on the bottom-board, then scurrying hastily into the little doorway as if there was much to do and very little time in which to do it. On a fine day we may watch them for hours at a time, but never once will there seem to be any pause in their flight until the evening shades set in; and so it has been since the earliest dawn. In warm April days one may be able to time them with a watch, say thirty a minute; but toward the end of the month they will be nearer the century mark, and from May until fall it will be utterly impossible even to approximate the rate at which they come. Truly they are hustlers, the very spirit of industry without any play. Seemingly in the bee world competition is not necessary as an incentive to work. Coöperation is apparently sufficient.

Through the livelong day it would seem as if all the bees we saw were exact duplicates of each other, absolutely indistinguishable together or apart; but as our eyes become familiar with them we see that many are of a lighter color, and more downy than others — have the bloom of youth upon them, while others are faded, dark, and almost greasy looking. Yes, it is youth and old age — youth with alert ways and fresh looks; age with sedate step and haggard appearance, worn out in a few weeks of rushing toil. One and all they are the workers of the social organism, the producers, the creators of its wealth, and, let it be said, equal sharers of the bounty.

THE DRONES.

In the merry month of May and all through the joyous summer time we may see some big sturdy fellows emerge from the hive at more leisurely pace, flying upward with a louder noise—a regular drone, in fact —and, after soaring around our head a few times, start off as if on most important business. The timid novice who has just gained courage enough to stand near a hive is apt to be startled when this noisy blusterer appears; but there is no need to worry in the least, as this kind of bee is harmless so far as stinging is concerned. He is the drone, the possible father of a new generation of bees; utterly useless in production, he is a necessity in reproduction, at least of workers; but he is of no value in the defense of the precious food supply. He is a poor male creature, and nothing more. He is tolerated by the workers as a necessity while the possible need exists. The reproductive season past, he is driven from the hive without mercy and without hope. His life may be a merry and care-free one; but the end is always a tragedy.

THE QUEEN.

Once the novice attains the dignity of examining the interior of a hive and holding up frames for inspection he will be greatly astonished at the immensity of its population — thousands upon thousands of bees on every frame, seemingly all in active commotion — workers, every one. But, no! there's a drone, and there, and there. Then if one is lucky he may catch a glimpse of another kind — one with the pointed abdomen of a worker but ever so much bigger. Yes, that's the queen — no, not the ruler of the hive, though she was long supposed to be such; in fact, so far as we know there is no ruler of any kind in a bee-hive. She is the mother of the colony, a wonderful egg-laying device, said to be able to lay from two thousand to four thousand eggs in twenty-four hours, and, when necessary, in May, keep up this gait for days at a time. It is computed she can lay twice her own weight in eggs every day when at her full laying capacity. She gathers no honey, she nurses no babies, she supervises nothing. Her sole business is to lay eggs when and where the worker bees want them. They determine the family developments, she obeys their behests. All problems of sex seem to be within their control, so they decide the relative proportions of males and females in the next generation, and the mother comports herself accordingly. Queens are fertile females; worker bees are of the same sex, but sterile, being incapable of sex relations with the males; but the worker bees control, from the moment the egg is laid, the development of the reproductive organs of the females.

AN ALL-INCLUSIVE GENERALIZATION.

In the preceding chapter we saw that the general structure of bee society is remarkably like that of human beings. We learned that property is the bond of union, and that it is held in common. We have now learned that the administration of the hive is controlled by all the workers, the owners in common. We are now in position to conclude our comparison of the social organization of bees and men by one sweeping generalization that may be startling to some. Government is a function of capital. It would appear to be a natural law on this earth that the formation of society is due to the necessity of protecting property — that is, something on which labor has been expended, and, no matter what the form of society, whether communistic or competitive, the actual administration of affairs will be conducted by the owners of the capital. The nominal form of government among men is of little moment. The difference between an absolute monarchy and a republic consists chiefly in this: the one persists where land is the preponderating source of wealth; the other, where commerce is more

important. In the one the big land-owners are the actual rulers; in the other, the big capitalists.

THE LIFE HISTORY OF THE BEE.

Since bees are insects, their life history is the same as that of other members of that great division of the animal kingdom. First, there is the egg, from which emerges the larva or grub, which, after a period of voracious feeding, passes into the chrysalis stage. In due time it develops into the perfect insect, making its entry into the bee world in full size, and in almost complete possession of its ultimate capabilities. The worker bees take part in the routine work of the hive in about twenty-four hours; but the queen and drones need several days before they are sufficiently developed for their special mission.

The rate of development from egg to insect is not the same for worker, queen, and drone. In the case of the worker the necessary period is twenty-one days; for the drone, twenty-four days; but the queen hastens through the change in from fifteen to seventeen days. When but a few days old she mates with a drone in the air during what is known as the nuptial flight, after which she never leaves the hive excepting with a swarm, when she accompanies the bees to their new home, where she resumes her duty of egg-laying. One impregnation from the drone is sufficient for her life, which may continue for several years.

The most remarkable feature in the life history of the bee is the control the queen apparently has over the sex of her progeny. As the egg passes to the exit she may or may not permit a sperm to join it. The eggs that are fertilized develop into females; those not impregnated produce males, so that drones have no male parent. The progeny of a queen bee that has not been mated will consist of drones only.

The worker bees determine the development of the fertilized eggs. After the larvæ hatch out, all are fed alike for three days, then those intended for workers are given less nourishing food, thus hindering the growth of the sex organs. The larvæ destined to be mother bees are lavishly fed throughout with highly nourishing food. Some day human beings will come to know as much as bees do now, and then they will not expect fine children from underfed parents. The family may be the crowning glory of our civilization; but as a means of producing well-nourished children it falls far behind a bee-hive.

It is at present held as a pious opinion, but not proven, that the queen has direct control over the sex of her progeny. We have seen that the administration of the hive is in the control of the workers, since ownership is vested in them in common; that their power includes determining the sex qualifications of the females. Is it not possible that the decision of sex is also within their province? We have seen that government in society is fixed by a natural law, that it is apparently all-inclusive, therefore one may be pardoned for doubting that sex distinction is beyond their control when the degree of qualification of one sex is within it.

All eggs are laid in cells in the combs. Worker-cells are the smallest, usually numbering twenty-five to the square inch: drone-cells are considerably larger, averaging sixteen to the square inch. Both kinds are horizontal. Queen-cells are unique in shape and position, being decidedly large, and are hung perpendicularly on the combs. Both worker and drone cells are also used as storage combs for honey and pollen when occasion demands.

Victoria, B. C.

A NATIONAL HONEY-ADVERTISING CAMPAIGN.

A Proposed Plan for Increasing the Consumption and Uplifting the Prices of Honey; the Value of Systematic Advertising.

BY F. B. CAVANAGH.

Indiana bee-keepers have proven themselves up to date by appointing at their State convention a committee to promote a system for a national advertising campaign. The committee has not reported as yet, but will confer with the several associations for advice, approval, and support.

Advertising has become an essential factor in our great nation's welfare—so much so that it is impossible to achieve success in the sale of any product without it in some form or other. It is a safe and sane method of telling the public what we have to sell; where it is, and how good it is. The house-to-house canvass is good education for the few, but it will never reach the millions, much less convince them of the merits of honey, nor persuade them to order by mail as would national advertising. The world is alert to the possibilities of advertising, and the door of success is open to the judicious advertiser. It is the modern business method.

Notice, for instance, the different lumber associations that are spending hundreds of thousands of dollars in display advertising. They are certainly securing results or they would not continue in the enterprise.

Honey is produced from one end of this broad land to the other, both in quantity and quality. It should be an article of universal diet; and the only thing lacking to make it such is sufficient forceful display advertising, properly followed up with a *uniform* grade of choice honey. Bees and honey offer rare opportunities to excite human interest. Notice the effect of the caged-bee demonstrator at the fair. Think of the talking qualities of the delicate honeycomb, delicious nectar gathered by the busy worker from the fragrant flowers. "How doth the busy little bee?" and so forth. And then it is all strictly true; and how the world loves an advertisement which rings

true! Science has augmented the word picture with that of the camera wherewith we are able to stand at work handling bees, extracting and packing our honey in the full gaze of the astonished and admiring public should we but choose to enter the field of national advertising. The leading magazines offer possibilities not found elsewhere in reaching the right class of people; and when bee-keepers once awake to their possibilities of advertising and *act*, the glucose trust will have received the hardest blow of its history.

A few bee-keepers and honey-dealers have openly contended that honey could not be sold at an advance over the present prices. "The people would not eat it," they say, "because it is considered a luxury," which statement alone is sufficient proof that an advertising campaign is necessary to educate people in demanding honey as a daily ration and a luxury as well. On the other hand, we need not increase the price to the consumer. They are paying now in the cities an average of 20 to 25 cts. per pound for extracted honey, and we can market it for less by direct means. Some are complaining because the honey jobber buys low-priced honey and sells low-priced bottled goods. Bee-keepers often produce a high-grade article, which, through lack of a knowledge of advertising, they are unable to market at any thing but a low price. If a man fails in the quantity of production he has done no injury to his neighbor; but if he fails to make a proper sale he has injured the market to a certain extent for his brother bee-keeper. The question is, will it not pay us to employ the assistance of an expert to help the producer out in the work with which he is entirely unfamiliar? If we get this class of bee-keepers into the association, thereby controlling the supply, and at the same time creating a greater demand, we shall force both wholesale and retail prices to a proper level with other commodities.

Did you ever stop to think that the American people have shown by their actions during the past years that they are more than willing to pay for the increased cost due to advertising if the advertiser will only give them reliable quality, purity, and service? Practically every manufacturer under the sun has taken advantage of the plan, and is growing rich thereby—excepting the bee-keeper—and he hasn't waked up yet.

The plan I have in mind is a broad one, requiring the support of and benefiting the bee-keepers all over the United States. A central office should be located in one or two of the largest cities in the country for the purpose of getting out advertising matter and pulling orders from the inquiries received. The central office should be under the control of an expert advertising man, and an expert bee and honey man for reasons obvious to all. Sales would be made from the office, and orders shipped direct from the member's apiary, treating all members in equity. A schedule of prices should be in force for retail grocer, jobbing and wholesale trade, and for manufacturers' grades of honey for the various locations.

A SYSTEM TO SECURE UNIFORM QUALITY.

One necessity is that we offer only a uniformly high grade of honey. Without this requirement we should only waste our money in advertising. I would suggest that we use our registered trademark of quality, and that each member be required to furnish the association with a large sample of each grade; also that every member be held legally responsible to furnish honey which is equal to the sample in every respect. No doubt there would be better ways which others will think of to accomplish the end sought, without objection on the part of the member.

Quality in honey is characterized, as all are aware, by many other factors than the source from which it was gathered. The new system should *demand* an article of proper body or specific gravity—one which is well strained, and with flavor, color, and cleanliness all taken into consideration. Lastly, the cases would have to be nailed properly before shipping, and a uniform system of straining and settling adopted. I believe that extensive producers are already realizing as never before the utility of having large storage-tanks for use in extracting time; for not only can a more uniform and cleaner grade of honey be produced, but a material saving of labor be effected by their use.

As different localities have acquired different tastes for honeys it would be necessary for the central offices to be intimately acquainted with these conditions throughout the country, so that white honey would be offered to those accustomed to the taste of such, and the stronger amber honey placed where it is preferred.

The association would have to be reimbursed by some definite system—perhaps by levying a certain percentage on the selling price, which would be the approximate increase over the ordinary net wholesale price, and which would be the appropriation for advertising and managing expenses.

As all advertising of this nature depends on long continuance for the fullness of its results, it is reasonable to suppose that the first year would not be as profitable as the succeeding years. A provision would be necessary that the members aid the association by making private sale of any balance which the association failed to dispose of in due time. Bee-keepers who are capable of intelligent marketing should also be encouraged in assisting the association by making independent sales whenever possible to do so at the association prices. There should also be a provision to return to the members in annual dividends all excess of the appropriation above selling expenses. The object should be, not so much to appropriate enough advertising to sell all of the honey in the country as to take care of the honey which is now sold at a sacrifice, and also to build up an *enormous demand* for our product at an advance of the present prices. If

the quality of our product could be assured to the public, our honey would not only sell for more to the consumer, but it would actually be worth more.

This problem is one involving a great many obstacles, perhaps the greatest of which is the question of getting the bee-keepers organized; but the profits are *sure* if we can once get a proper organization. How do I know this? Simply because the history of every successful institution has proven it. We are a fraternity of specialists who are thinly scattered, and who, I believe, are representative of more than the ordinary amount of intelligence. An organization of farmers would be impossible and impractical, but not so with bee-keepers. We have already proven the practicability of organization for selling, in several of our States. If we will now give the matter national prominence I am confident that bee-keeping can be put on a much more profitable basis in a short time. We know that the world is in ignorance as to our profession, and it is time that we blow our own horn and let every one know what kind of people we are, for it is certain that the glucose trust is not going to tell the world any thing to our benefit in their advertisements.

In writing the above I realize my limited knowledge of advertising. I do not claim to be an advertising man, but a bee-keeper; and I am trying to put forth this idea from a bee-keeper's standpoint. One thing we can all do; and that is, to look and see all around us the wonderful institutions which have been built up through persistent advertising alone. The advertising of a superior article will build up an enormous business. The question is, what are we going to do about it? and are we willing and ready to take advertising on its merits, judging from what it has done for other lines of business? If we commence advertising we must continue it on an extensive scale, for there is no use in shooting elephants with a pop-gun. Such an association is going to require some money and backing; but the final results will much more than justify the outlay, and will increase the demand for the association article and raise the price far in excess of the initial cost of such an advertising campaign.

As I am one of the committee to look into this matter I feel the need of suggestions from practical bee-keepers everywhere. Write your ideas to me personally or to your association, with which I shall eventually confer. Will you do at least this much for the present promotion of a national advertising campaign? Will you give your hearty support to the movement when the time comes that bee-keepers will see and embrace this opportunity to enlighten the world as to our product, as to its purity, heathfulness, the facility with which they can be served—to sell our honey everywhere to everybody, and to place our industry deservedly high in the estimation of the American people?

Hebron, Ind.

INSTINCT ALWAYS THE SAME.

BY J. E. HAND.

Considerable space in bee-journals is being devoted to the subject of eliminating the swarming instinct of bees by careful selection and judicious breeding. While examples are not wanting to prove the wonderful possibilities along the line of selection and breeding, there is a limit to man's power in this direction. He may, by careful selection and judicious breeding, establish a strain of bees that will unerringly transmit to their posterity characteristics of a highly desirable nature, such as gentleness, hardiness, industry, etc., but he can not take one iota from the nature of one of God's creatures. Every female that is born into the world in a normal state is endowed from on high with the mother instinct; that is a part of her nature, and no amount of selection and breeding can rob her of it. We hear a great deal about Leghorn fowls having been bred for egg production for centuries, until finally a non-sitting strain has been propagated.

The writer has been interested in poultry all his life, and especially in Leghorns for commercial egg production. He has not allowed hens to incubate their eggs, and from their roaming disposition and their wonderful power for egg-production they are not as prolific breeders as some other kinds; yet the mother instinct is as highly developed in Leghorns as in any other breed of fowls. Let no man delude himself with the idea that he can propagate a non-sitting strain of fowls or a non-swarming strain of bees.

In this connection I wish to quote the words of Moses Quinby, a man of wonderful intellectual powers, and an authority on apicultural subjects: "Let us fully understand that the nature of the bee, when viewed under any condition, climate, or circumstance, is the same. Instincts first implanted by the hand of the Creator have passed through millions of generations unimpaired, to the present day, and will continue unchanged through all future time till the last bee passes from the earth. We may, we have, to gratify acquisitiveness, forced them to labor under every disadvantage; yes, we have compelled them to sacrifice their industry, prosperity, and even their lives have been yielded, but never their instincts. We may destroy life, but can not improve or take from their nature. The laws that govern them are fixed and immutable as the universe."

Birmingham, Ohio.

Information Wanted in Regard to Conditions in Virginia.

I have read considerable about different bee localities, but I have never read any thing about the possibilities of bee culture in Virginia. I should like to hear from some of the bee-keepers from that State. What part of the State is considered the best locality for bees? Will sweet clover grow there? and what is used mostly for honey production? WM. FITTERLING.

Palisade, Colo., Feb. 6.

Heads of Grain

from Different Fields

The Condensation of Moisture in a Hive in the Winter.

If a pan of water is boiling on a stove in the winter time when the outside temperature is about zero, water will soon be running in drops down the windows; but there will be none on the walls of the room, as they are double, and therefore warm. The glass, on the other hand, being thin, is cold, and the moisture in the air is quickly condensed. This is just the principle made use of in Jay Smith's winter cases as illustrated on page 599, Oct. 1, 1909. The sides and bottom of the hive not being protected, they are kept cold; and the top, protected by the cork cushion, is warm. Instead of cork I use cushions made of rabbit fur directly over the super covers. Over this I put a sack of clover chaff from the clover-huller, as this is very fine and compact. This latter cushion is 6 in. thick. Over all this I put a Smith winter case 14 in. deep, covered with galvanized steel. A weight in the shape of a stone on the top of the telescoping cover makes the packing still more compact. My entrances for strong colonies are 3 x ⅜ in., and still smaller for weaker colonies.

The colder the sides and bottom of the hive when the inside air is warm, the less moisture there is in this air; therefore the bees are warmer and more active, for they do not feel the cold so much if the air is dry. The smaller the entrance the better, just so the bees have pure air.

I run for extracted honey, and do not use excluders. With Jumbo brood-chambers, would a queen under these conditions lay eggs in the four outside frames of a twelve-frame hive? or would she go up into the center frames of the super, allowing the four outside frames to be filled with pollen and honey?

How many frames of brood would an average frame of pollen enable the bees to rear?

Jonesboro, Ind. C. A. NEAL.

[Your philosophy regarding the condensation of moisture is correct; but we advise you not to go too far in making the entrances too small, else you may rue it in the spring.

With regard to the queen and how she would scatter her brood when using a Jumbo brood-chamber, much would depend upon the queen and the time of year as well as the honey-flow that may be on. We can hardly tell you whether she would go above or below; but we think she would give the preference to the brood-nest, as a queen is inclined to spread out *laterally* rather than go above a bee-space into another set of frames.

As to your last question, we can give you only a very poor guess. One frame of pollen may be sufficient to furnish a colony all the nitrogenous element it would need for brood-rearing, if none were being gathered, for two or three weeks, or perhaps for even a longer period.—ED.]

Red-clover Bees do Work on Red Clover.

There has been some discussion in regard to long-tongued bees, and it seems to me some of our queen-breeders have been criticised more than they deserve. Although not a queen-breeder I rear a few queens for my own use, and I have also bought queens from different breeders. What I have to say has not been solicited by any one.

I have bought the so-called red-clover queens, and they have given perfect satisfaction. Do they work on red clover? Last year was very dry, and there was scarcely any white clover in blossom here; but the bees were fairly wild on the red clover, and it was the first crop too. When it was cut for hay a day afterward, I went out to see if it was ready to put in the barn; and, to my surprise, I could see bees still tumbling around over those heads of red clover that had already been mown a day, and were nearly ready to be put in the barn. Bees not of the so-called red-clover strain were nearly idle, with the exception of one colony whose queen, a yellow one I bought of Swarthmore. This colony also worked well on red clover and stored a fair surplus; but the bees from this queen are not hardy. Now, I hope our good queen-breeders will continue their good work with due respect to any Burbank follower who can give us red clover with corollas short enough for honey-bees with ordinary tongues to work on.

Deerfield, Minn. J. F. BRADY.

The Proper Location of an Apiary in a Pasture Lot Next to a Wheatfield.

I am in trouble about my bees. I live in a small town, and last year rented two adjoining lots for my chickens and bees. These have now been sold, so I must move the bees to a new place. I have the use of three lots across the alley from the rectory as a pasture for my horse; but the bees seem cross, and I am afraid they will injure my horse. This pasture is about 180 feet square, and on the southwest side (where I had thought of putting them) is a neighbor's wheatfield. I do not want to be a nuisance to my neighbors either. Would it be safe to move my bees there (ten hives) if I fasten crash sacks along that side and in front, so as to compel them to rise above the height of a horse immediately after leaving the hives.

How close could I put the fence in front of the hives?

What is the "sweet clover" spoken of in GLEANINGS? Is it the sweet white clover? Can it be sown on land already in a fairly good sod?

Adamstown, Md., Feb. 13. G. W. THOMAS.

[We would not advise you to put the bees in the pasture lot up next against the wheatfield. There is always danger, when bees are so placed, that they will attack a team of horses when they go by drawing the mower and reaper. Your better way is to put the bees in the center of the lot, then put a fence around them to keep the horse from getting up close to the hives. Make the little yard large enough so that the animal can not get any nearer than 25 or 30 feet of the entrances of the hives. A still better plan would be to locate your apiary in your lot back of the rectory. If you place the entrances of the hives so that no one encounters the flight of the bees while they are at work in the fields you would probably have no trouble from their stinging any one. Of course, you would observe the usual precaution of using smoke and avoiding all robbing.

The sweet clover usually spoken of in GLEANINGS is the white. There are two other (yellow) varieties, one known as *Melilotus Indica*, which is an annual, and *Melilotus officinalis*, which is a biennial. Both are good for honey, and bloom a little earlier than the ordinary white sweet clover.

In our judgment you could not grow any sweet clover on well-sodded land. It seems to thrive best on embankments, side hills, and where almost nothing else will grow.—ED.]

W. S. Pouder's Method of Liquefying and Bottling Honey.

Does Mr. Pouder always leave the top of his filling-tank uncovered? and will the effect be damaging to the honey if closed?

Whitestone, N. Y. ADOLPH LOEHR.

[Mr. Pouder replies:]

We leave off the cover of our filling-tank while in use, because some vapor from the heated honey would condense on the under side of the lid; but I would not consider the matter of very much importance, as not enough moisture would accumulate to injure the honey. After the lid is removed from my filling-tank I still have in place a removable strainer made of finest wire gauze which protects the honey from dust or insects. I have an improved and rapid method of liquefying honey which is all strained into my filling-tank, and the tank is then used to bring honey to the proper temperature for bottling, which it does rapidly and uniformly.

Indianapolis, Oct. 16. WALTER S. POUDER.

A Sour Smell around the Hives that did Not Come from Goldenrod.

There was a big crop of aster here this fall, and some of my hives were filled up to the outside frames, so I have but little fear for the winter. I winter outdoors without any packing, simply contracting entrances to ⅜ x 8, and I never have any trouble as long as there is a good fall flow.

There has been much discussion about the sour smell around the hives in the fall, and somebody said it came from goldenrod. There is but very little goldenrod in this locality, the fall flow being almost entirely from aster; yet the sour smell was very strong in and around my yard.

Louisville, Ky., Dec. 16. J. B. CHRISLER.

[It has been reported that certain fall sources of honey would give off a sour odor. We have never noticed any thing of that kind in our locality. We are not so sure but asters have been mentioned in this connection. Perhaps some of our readers can throw some more light on this subject.—ED.]

Some of the Alexander Plans Not Suitable for Average Localities.

Will you please answer the following questions?

1. Would it pay to run a few colonies for extracted honey, and extract it often, and feed it during the honey-flow to colonies run for comb honey, so as to get a greater surplus of comb honey as Alexander advocates?

2 Which feeder for brood-rearing do you consider best for spring use—the Alexander or the Doolittle?

3. What is your opinion about extracting the honey from the hives in spring to make room for brood-rearing, and then feeding a little warm syrup daily as Alexander did? Would they not rear brood as fast from their capped honey in the hive if given some water and kept warm?

4. Will two or more mated queens in the same hive lay eggs during the honey season without molesting each other, as Alexander's experience indicates? What is your experience in regard to this?

5. Do you know why a plurality of queens in a hive tends to prevent swarming?

6. Would you advise me to rear my own queens? I need about three dozen this spring, and I have never reared any.

7. Do you know whether extracting the honey from extracting-supers every week will cause the bees to store more honey than if the extracting-supers were tiered up on the hive, and all left to be extracted at the close of the season?

Swea City, Ia. ALBERT SWANSON.

[1. Under some circumstances this may be practicable. Ordinarily we would say, however, that it involves too much expense and trouble; but sometimes the seasons are so peculiar, and stop off so suddenly, that it is necessary to feed back extracted honey in order to get a large number of unfinished sections properly filled for market.

2. The Alexander and Doolittle are both good feeders for brood-rearing. The Alexander is a little handier when it is once applied. The Doolittle feeder, however, is easier to put into the hive, because it involves no change of the hive-stand. If the brood-nest is full of frames, then the Alexander feeder is the better.

3. We would not advise it. Alexander lived in a peculiar locality; and what was possible and practical for him to do, very often was not feasible for others under different environments. Bees will not raise brood as fast from capped honey as when fed daily a thin syrup.

4. Usually it is not practicable to run more than one laying queen in a brood-nest at a time. Sometimes during the height of a honey-flow two laying queens will work together side by side; and, under some peculiar conditions, as many as a dozen or more may be so worked; but the average beginner (and we would say most veterans) would have all kinds of trouble in trying to work the scheme. Our experience is that it is not practical, as a general plan, for the production of honey.

5. No, we do not; and you will remember that Mr. Alexander said he could not explain the reason. We would somewhat question whether a plurality of queens would keep down swarming. It may have happened to do so in Mr. Alexander's case for the one season; but for year in and year out it is our opinion that, even if it were practical to work more than two queens to a brood-nest, it would have rather the opposite tendency—namely, to force swarming. A crowded brood-nest (or, rather, a lack of room for brood with a large force of bees) is one of the conditions for inducing swarming—not checking it.

6. We would advise every bee-keeper to learn something of the art of rearing queens. Where one does not require more than two or three dozen in a season it is probably cheaper and better for him to buy them in dozen lots. If, however, he requires anywhere from two to three hundred, he would do well to learn the art of queen-rearing and rear the bulk of his own queens. To change or renew stock he should buy some breeders.

7. We do not believe there would be much difference in the amount of honey stored. The difference, if any, would be in favor of the colony whose combs were constantly extracted; but there would be a greater difference so far as the work is concerned, and that difference would be in favor of tiering up and not extracting until the end of the season. The honey would be riper and richer in every way. Where one can afford to have a large number of combs we would advise him to tier up and extract toward the close of the season or after it, as it is more convenient.—ED.]

Black Chickens Stung to Death, and the White Ones Escaped.

Last spring a stray swarm came into my yard and clustered on a pile of supers. I was away from home at the time and could not attend to them, and they became very cross. We had a hen with a flock of twelve chickens running in the bee-yard. Seven of them were black and five were light. The bees stung every one of the black ones to death; but all of the light ones escaped. Was it just a "happen so"? I think not.

I hived the swarm on my return home the next day, and they made nearly 100 lbs. of surplus honey, so I was well paid for the chickens they killed.

J. RIDLEY.

[The fact has been noted over and over, that bees are more inclined to sting black clothing than light. Numerous reports have shown how bees will sting black dogs and black chickens when they will not attack white ones. As a general thing, bee-keepers when among their bees should wear light-colored clothing; and while we go among our bees with various kinds of hats, wearing light and dark colored suits, yet when one expects to work among bees day in and day out he had better adopt the light or white colored suits and hat, not only because they are less objectionable to the bees, but because they are more comfortable to the wearer.

As indicative of how bees will sting a black spot on a dog, the following, from Mr. H. C. Driver, will be found to be a case in point.—ED.]

Bees Sting a Black Spot on a Dog.

A few years ago we had a pup that had one black ear and a black spot on the rump—the furthest from the "bark," and part of his tail. Whenever he went near the bees so as to cause them to sting him they would be sure to attack him on these black spots, and, as nearly as I can remember, I do not know of a single instance when they stung him elsewhere, although they may have done so. It seems to me I can see him yet, sliding along, trying to scrape the bees off, and rubbing the one side of his face and black ear over the grass as he came down through the yard.

Another reason why I think bees are more inclined to sting dark clothing than light is this: I very frequently wear a black shirt among the bees; and, to prevent being stung so badly, I wear a white jacket over this. For a while this jacket was ripped near the shoulder, and the bees would sting me furiously here, where the black shirt was exposed, and would line all around the sleeves where they extended out from underneath the jacket, and sting.

Beech Creek, Pa., Dec. 20. H. C. DRIVER.

Feeding Granulated Honey at the Entrance of Indoor Colonies.

I put my bees in very light this fall. The cellar keeps about 42° all the time, and I have been feeding them candied honey at the entrance. They seem to be doing very well; but I should like to know if I am doing right. I have 80 colonies, and wish to bring them through if I can.

Harper's Ferry, Ia. T. KERNAN.

[You can use granulated honey in the way you describe; but rock candy made of pure granulated sugar would be a better feed, and there will be less waste. The bees will utilize the free honey or liquid portion among the granules of granulated honey, and the dry granules themselves will be left untouched, probably much of it falling on the cellar floor.—ED.]

Comb-honey Separators of Perforated Galvanized Iron.

Instead of wire-cloth separators in comb-honey supers, why not use separators made of galvanized iron, the spaces punched out, for which an inexpensive machine could be used? I should think they could be made cheaper than of wire cloth, and be easier to clean when necessary.

Fredericktown, Mo., Jan. 18. J. BACKLER.

[A few years ago perforated metal separators were discussed to a considerable extent in these pages, and many thousands of them were sold, and used by bee-keepers, especially in Great Britain; but in late years, on account of their coldness, wooden separators or fence separators have very largely taken their place. A wire-cloth separator does not have the same body of metal for the surface that a perforated metal separator has, and, consequently, it is not as objectionable from the standpoint of cold. From our general observation of the use of the two kinds of separators it is our opinion that the wire-cloth separators are so far ahead of the perforated metal ones that the latter ought not to be considered at all.—ED.]

The Shaken-swarm Plan Without Increase.

Here is a plan for preventing increase on which I should like your opinion: Having all hives set in pairs during fruit-bloom, place a super of sections on each one, allowing the bees to draw out the foundation. At the beginning of the clover flow place a third hive between each two, putting the two supers on it. Then shake the bees and queen from hive No. 1 before the entrance of this third hive, as well as all the bees from No. 2 except one frame, with the adhering bees and queen. Place this frame of bees and queen from No. 2 back in its own hive, and set this hive away, putting a queen-excluder over it, and then hive No. 1, with all its brood, on top, all unsealed brood to be placed below the excluder, and the sealed above, the object of this being to get the upper hive ready for removal as soon as possible.

Would not this last colony build up very quickly? and should there not be enough bees to take care of the brood? A double hive of brood should make a rousing colony.

The shaken swarm, having practically all the bees from two hives, ought to do well. If I am wrong, please let me know; but the plan appears very simple to me, and one that promises much. I use Danzenbaker hives.

Frankfort, N. Y. W. E. BENNETT.

[The plan you propose is feasible, except that there will be danger that the brood in No. 1, moved to a new location, would become chilled on account of the lack of sufficient bees to take care of it. If, however, when the flow opens up, the nights are hot the young hatching bees will take care of the unsealed brood in the lower story. It would be far better for you to put in No. 1 *more* bees if you wish to carry out the plan.

Yes, colony No. 1 will build up very rapidly after the young bees begin to hatch, and the hive on the old stand ought to do well also. As a general thing, however, you would do better to follow some one of the plans for shaking laid down in our text-books, or, better, try your plan and one of these others, and compare results.—ED.]

Bees Clustering Below the Frames in Outdoor Wintering.

On page 32, Jan. 15, Dr. Miller says the colonies which look "goodest" to him in his cellar are those which cluster below the bottom-bars, etc. The editor answers this by saying that in outdoor wintering if the entrance is of the usual size the bees would hug up against the top of the hive. My experience with some of my colonies this winter convinces me that there are exceptions to this rule. Every fortnight or so I take a stove-hook and push it into the entrances of my colonies to rake out the dead bees. I have 20 colonies, 18 packed in leaves with tar-paper covering, and 2 which I bought later are newspaper wrapped with a grocery box telescoped over them. Each time when I did this cleaning, in 3 of these 20 colonies I pulled out *live* bees with the dead ones. I can't see the cluster in those covered with tar-paper, because of the air-space between the same and the entrance further in; but the one packed independently, with an entrance ⅜ x 4 (which I think is a usual one) has the cluster directly in front over the entrance *clear down to the bottom-board*. It was there when I purchased them early in December, and has remained there until now. This is a 1910 swarm, in fine shape when I bought them in a ten-frame hive filled full of honey. I conclude that the two packed under the tar paper have the cluster in the same position. The entrances there are about ½ x 3 inches.

Ashton, Ill., Jan. 23. REV. GEO. A. WALTER.

[A good deal will depend on the temperature outside when you rake the dead bees out of the entrance. The average position for a cluster of bees for outdoor-wintered colonies is in the front part of the hive and directly over the entrance. As the weather warms up, the cluster will naturally expand, reaching down to and possibly coming in contact with the bottom-board. It is presumable that you would not attempt to rake out the dead bees on the coldest days, but only during moderate weather. If so, it is not at all surprising that you would rake out some live bees. We would not suppose that you would care to disturb the bees in zero weather, and hence we assume that the time for raking out the bees would be when the weather had moderated.—ED.]

Number of Bees in a Quart; When to sow Buckwheat.

I have had quite a curiosity to know how many bees there are in a full-sized swarm. A day after some very cold weather it was warm enough for the bees to clean house, and from one hive about half a pint of dead bees were carried out; and on making a count I found there were 737, which would be nearly 1500 bees to the pint, or about 3000 to the quart. When I examined the dead bees I found that not many of them were bloated.

What kind of meal is best to use for artificial pollen? We never have enough natural pollen; and when should this artificial pollen be supplied?

How late can buckwheat be sown for honey? I care nothing for the grain. It is the blossoms I want.

By looking at the map I find that our location here is a little south of Medina, so the weather conditions must be very nearly the same so far as temperature is concerned.

Goodland, Ind. DR. M. L. HUMSTON.

[Your count of the number of bees in a pint or quart is about right according to the count made by our Mr. A. I. Root many years ago. A quart of bees weighs about ¾ of a pound. We figure in round numbers that 5000 bees make a pound.

Theoretically the best meal to feed for artificial pollen is a pea or bean meal, because both are rich in nitrogen; but for all practical purposes a coarsely ground rye flour answers very well. Usually this will have to be fed outdoors from trays where the sun strikes it. As a general thing it is not practicable to give a nitrogenous food in the hive except by giving the bees a candy made of meal and granulated sugar. Rye meal in trays should be given if the weather warms up suddenly and there are no natural sources of pollen. When bees need pollen they will be found frequenting stables and chicken-houses, or a place where mixed chop feed is given; but as a general thing nature supplies pollen about as soon as the bees can use it to advantage. Ordinarily we do not fuss to give artificial pollen.

We have sown buckwheat as late as Aug. 15, and secured a good crop of seed. If one does not care for the seed, and is willing to risk an early frost, he can sow as late as Sept. 1, or possibly as late as the 15th. Much will depend on the locality. Buckwheat is a rapid grower; but if it should be touched by a frost it would be well to plow it under immediately; for the wilted stalks do not do very much good to the soil.—ED.]

Reo Runabout for the Apiary.

On reading your article about the Sears automobile I decided to drop you a line. I have a single-cylinder Reo Runabout that I find very handy for bee-work. I can put on 400 lbs. behind the seat and make 25 miles an hour. I have made 175 miles in a day.

La Salle, Col., Jan. 25. W. T. BRAND.

Poultry Department

By A. I. ROOT

THE CHICKEN BUSINESS IN FLORIDA; ITS POSSIBILITIES, ETC.

On page 27, Jan. 1, I made the following remark: "The explorer in nature's domains meets with many disappointments, and as a rule follows many false scents, etc.," and I want to give you an illustration right here. On the next page (after the above) I mentioned a buttercup hen that laid a very long peculiar egg every other day. Well, as she kept this up for several weeks I began to think she might make a pretty good record after all, say close to 200 eggs in a year; and as these long eggs contain almost a half more than a common-sized egg, and as she has never yet offered to sit, she might be quite an acquisition after all. Accordingly I began putting her eggs under hens and in the incubators; but—what do you think? Not one long egg hatched a chicken. It is true there was a large well-developed chick in almost every egg; but the shell was too thick or something else, for none of them seemed to get out. Let me digress a little.

For some time back I had noticed the advertisement of an incubator that was warranted to hatch every fertile egg into a good strong healthy chicken, or something like it. In fact, I believe I remonstrated with the makers, telling them that the best incubators in the world gave more or less chicks "dead in the shell." Their answer was that they would be exceedingly well pleased to have me try one of them; and if it did not do all they claimed, they would expect me to report the full truth, either for or against them, in my well-known frank and honest way. They said they would be quite *willing* to take their chances. Accordingly I paid them $7.00 for a Buckeye incubator, they agreeing to pay the freight, as it was so far away. Now, the Buckeye is a very pretty little incubator for the money, even if it is not as well finished as the new Cyphers; and, to be frank, it does not regulate as easily and hold the temperature exactly on the spot as does the Cyphers; but, much to my surprise, it actually did hatch every fertile egg but *one;* and this one was the one long Buttercup egg I put in to try them just *once* more. I then decided, rather sadly, I would give up trying to start a new strain of Buttercups laying extra long large eggs. But there were some more of these long eggs under some sitting hens; and it occurred to me they (my new breed of fowls) might, like ducks and geese, require more than the orthodox 21 days; and, therefore, after a hen had hatched all the chicks except from the long eggs I moved several of these to the incubator, and, sure enough, in from 22 to 24 days I had several nice strong Buttercup chicks.

Now, if you please, let us go back to that little Buckeye incubator that did, virtually, hatch every fertile egg. One swallow does not make a summer, and there are also quite a few "holes in a skimmer." The Buckeye holds just 50 eggs. I was somewhat surprised and disappointed to find, on testing out after 5 days, that 17 out of the 50 eggs were infertile. Let me say here before I forget it that the 32 chicks I took from the incubator were about the strongest and finest chicks I ever hatched, even under hens. They had big legs and great lusty wings, and were such a mass of down that I took them right from the incubator and set them loose in the Florida sunshine, and the whole 32 are alive now (two weeks old), and they never had a bit of artificial heat nor a hen to cover them. They just had the basket brooder I described about a year ago, with two cheap feather dusters hung to the handle (see page 806, Dec. 15). The basket (chicks and all) was carried into the incubator cellar every night for about a week. Now, why were there so many infertile eggs? Hens that stole their nests gave strong fertility. One found in the palmettos had 19 eggs, and 18 of them were fertile. I know that makes a big difference. This hen probably laid the whole 19 eggs, and very likely made it *her business in life* to see that every egg was a fertile one.

Once more, in testing eggs almost daily I have found that one particular hen lays a rough egg (that is, among the infertiles) every time. I really ought to spot her, and get her out of the way. Yes, I have tried swapping the roosters, and that may help the matter. Now you will have to let me digress just once more in telling my long chicken story.

Both of the two new poultry books put out by the *Farm Journal* people (The Million-egg Farm and the Curtis Poultry-book) recommend placing the eggs in the incubator with the small end down. Well, our apiarist, Mr. Mell Pritchard, told me over a year ago that a friend of his, when first filling his incubator, stood all the eggs on the small end until they were tested. Now, by so placing the eggs I got 81 eggs in the Cyphers tray (that was made for 70), and had 70 eggs strongly fertile (a trayful) at the end of five days. Of course, I could not turn the eggs for five days instead of three, according to the directions; but so far it seems (in two trials) to have made no difference to be noticed. One of our experiment stations has called attention to the fact that a sitting hen will always give a larger percentage of fertile eggs than any incubator. Just one thing more: After the chicks were out of that Buckeye I sold it to a neighbor, and sold her 50 eggs (from the same yard) to go with it. She has just sent word that only 22 of the 50 eggs proved fertile. Oh dear me! both lots of eggs that were so poorly fertile were fathered by my Buttercup rooster that I called worth $25.00.

YOUR MONEY BACK IF YOU ARE NOT SATISFIED.

It is getting to be quite the fashion now-

days to sell goods with the above understanding or agreement, and there is certainly an element of good in it. It has been suggested that the average country merchant can not stand such competition; but my opinion is that many, at least, of our country merchants will soon be obliged to step up a little higher. It is the Christian-like way of doing business. As a rule I have never been very favorably impressed with medicines and "tonics" for chickens; but recently our enterprising "chicken doctor," Dr. Conkey, of Cleveland, O., sent out one of his circulars about his "tonic" to make chickens lay, with the agreement, "money back," etc., with such extravagant claims that I ordered a 25-cent trial package of his agents in Tampa. Let me explain that our laying hens had not been doing very satisfactory work at any time since we came down here last November. Mrs. Root declared that many of them were too old, and advised selling them off; but it is, as a rule, bad policy to sell hens in the spring time, even if they are old. Well, they *did* start to lay better within two or three days after getting the tonic; but before rushing to conclusions we had better consider that it is just now spring time down here, and we have just been having an unusually warm and pleasant January. Besides, neighbor Rood has just commenced culling out his broken-headed cabbages and lettuce that will never make a head, and this thing alone should account largely for the increased egg yield; but there is one thing *more* about this egg tonic, and this is the very thing that has induced me to write it up. When I opened the package it set me to coughing and sneezing at such a rate I had to carry my wheat shorts and medicine out into the open air, and then I was obliged to turn my head to avoid the strong fumes of cayenne pepper and some other stuff I failed to recognize. Of course, I have known for years that poultry are fond of pepper, mustard, and other pungent herbs; but it was one of my "happy surprises" to see my whole dozen yards of over 300 chickens get into a panic just as soon as they had fairly sampled the new concoction. Let me stop right here to say Mrs. Root has been advising me to get rid of the Leghorns just because they persist in thinking they are going to be *killed* every time a stranger or any thing unusual comes into the yards. Why, a few days ago, when I had more eggs than I could carry in all my pockets, I took off my fur cap to hold the contents of a big nest. Just as soon as I came in sight bareheaded, the whole tribe (hens and roosters) including a hen and chickens, ran and yelled "bloody murder," and when a customer wanted a dozen White Leghorn hens I was obliged to go out in the night with a lantern to get them. Well, with a pailful of middlings or shorts with a few tablespoonfuls of this tonic well stirred in, and wet up with water, I think I could pick up every wild chicken on the ranch, they are so crazy for it. May be it contains something fowls don't get down here in Florida; at any rate, it is worth all it cost to me to get my chickens tame, to say nothing about bringing in the eggs.

Now, lest I give friend Conkey a bigger testimonial than he deserves, let me remark that I recall that my brother last summer used to make a sort of "stew" of every thing the chickens liked, such as cheap fish boiled up and mixed with bran or shorts; and, as nearly as I can remember, he used the same old pail and long-handled spoon that I used. But how about the chickens I have hatched and reared since he left and went up to his Michigan home? Again, why did not Dr. Conkey, in his "flaming poster," say that chickens would be crazy for it after they once got a taste? After giving Dr. Conkey all this free advertising for his tonic, I want to say to him (and all the other venders of medicines for chickens), is it not time to stop charging half a dollar for a little box of salve that could be afforded for a dime and perhaps for a nickel?*

The great mass of poultry-keepers are poor people and do not have *dollars* to invest in things that may be needful. Are not small profits and large sales the better way to build up a big business?

FEEDING SULPHUR TO CHICKENS AS A PREVENTIVE OF VERMIN.

This in answer to query, page 806, Dec. 15th issue, "Does sulphur taken internally with the food get into the circulation so as to show its presence on the surface of the body?" I know as a matter of fact, and by my own experience and that of others, that if you use, say, half a teaspoonful or over of sulphur daily for a few days, say a week, then take your woolen undershirt and shake or brush the inside of it over a hot stove you will receive a decidedly affirmative reply to the query; and if with the human, why not with the hen, she retaining it under her feathers, where the heat of her body would generate sulphuric-acid gas—death to insects, etc.

FEATHERS FOR BROODING CHICKS.

I have been using a "hover" in a fireless brooder for about five years. It is made of mosquito-netting, hanging loosely, filled with loose feathers, with a thin cover tucked over feathers tacked to frame of hover. It gives plenty of ventilation, and is good for the chicks.

Elwood, Ind. D. NEILSON.

SOREHEAD; POND'S EXTRACT A REMEDY.

I have just read your letter in GLEANINGS for Sept. 1. Try dipping your chickens' heads in Pond's extract two or three times. It will, I think, cure sorehead every time.

REDBUGS; WET SALT A REMEDY.

As to redbugs, I have found that rubbing thoroughly with wet salt will knock them. I hope you will find these things satisfactory.

When you spoke of the cornfields of Southwestern Ohio you made me homesick.

Greenville, Texas, Sept. 7. T. P. FLAIG.

SULPHUR FOR VERMIN; STILL MORE ABOUT IT.

Bro. A. I. Root.—In regard to sulphur ridding poultry of insects, I will say it might be all true. Years ago I used to handle Texas range horses, and many of them would be so full of ticks that it

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*After paying 50 cts. for a box of salve for "stick-tight fleas" I afterward got a nice little bottle of carbolated vaseline (at the drugstore) for 5 cts., and the latter was even better, for it did not take the feathers off the chicks. I am glad to add that this winter we have so far no fleas at all, nor any thing else on the chicks, little or big.

did not look as though another tick could find a place to get hold. I would give all such horses a big dose of sulphur, and blanket well for two nights. The ticks would then disappear.

Caldwell, Ida. J. E. MILLER.

"STICK-TIGHT FLEAS," "SAND FLIES," ETC.

I note your attack on so-called "sticktight fleas." We have a few here on our young biddies, but I raise about 200 every year, and all I do is to grease the old hen well under the wings, and the biddies will get grease on their heads, and that will run them off. We crackers call them "jiggers," or "chicken fleas," and the old crackers say the Yankees brought them here from the North.

But speaking of gnats as a biting insect caps the climate. We have gnats here, but I never heard of their *biting* even a Yankee. You are mistaken. Your so-called *gnat* is a "sand-fly" that breeds in the sand along the coast. Oh! but they do bite, and will go through any cheese-cloth and in your hair; but we have none in the Lake region. Gnats are troublesome at certain times of the year. They are particularly fond of your eyes, ears, and nose, but will not bite. Well, friend R., I have a formula that will drive away all gnats and sand-flies, but I scarcely know whether or not to give it to you, as you might form a bad habit. I never tried it, but have seen it tried by the old crackers further south. Take a stick, say three inches long. If your mustach is not too long, put a small piece of well-dried cow-chip on one end; set fire to it, and go about your daily avocation. Hold the stick in your mouth.

Winter Haven, Fla. A. B. KREIDER.

CONTROLLING THE SEX.

Here is still another testimonial, and it comes from a State entomologist and from an experiment station of national celebrity. You will notice at the close the author says he prefers not to have his name published.

STATE OF MINNESOTA,
ENTOMOLOGIST'S OFFICE,
AGRICULTURAL EXPERIMENT STATION.

Mr. A. I. Root:—I note in your October 15th issue an experience that both you and a Mr. Blair had with certain matings of fowls. It may interest you to know that, several years ago, in Oregon, I had a large Barred Plymouth Rock hen, very heavy, and a prolific layer. I mated her with a Silver-lace Wyandotte rooster, carefully preserving the eggs. From these eggs I obtained a goodly proportion of hens, as I remember it, and every hen was a jet black with a metallic luster and blackish legs, fairly heavy, and an excellent layer. The roosters from these eggs were all marked like Plymouth Rocks—that is, like their mother.

If you make use of this information, kindly do not make use of my name.

St. Anthony Park, Oct. 26.

You will see from the above that both pullets and roosters all take after the mother. I confess this whole thing is a puzzle to me. Suppose we have a Barred Plymouth Rock male with Wyandotte pullets. In that case would the chicks, pullets, and roosters all take after their mother? Will those among our readers who have had experience in this line tell us about it?

A GOOD WORD FOR BURBANK AND THE WONDERBERRY.

Mr. Root:—In Dec. 15th GLEANINGS the wonderberry is referred to again in not very complimentary terms, therefore I take up my pen in its defense. We raised quite a patch this season, and canned some twenty quarts when they got ripe, and yesterday we had wonderberry pie for Sunday dinner, and the whole family pronounced it delicious; and I think future generations will rise up and bless the name of Luther Burbank. You are right in regard to the *size* of the garden huckleberry; but if it were as *large again* I would call it worthless.

Greenfield, Ill., Dec. 19. W. G. SECOR.

Health Notes

By A. I. ROOT

CURING OUR TROUBLES WITH DRUGS AND MEDICINES; HOW MUCH CREDIT BELONGS TO THE MEDICINE?

For a long time I have felt that I have had something to say on this subject; and my good friend Keck, at the close of his article (see page 709, Nov. 1, 1910), seems to call forth just now what I have long had in mind. I am sure you will excuse me for intruding some of my personal afflictions, especially if you have patience to follow me through.

Twenty years ago or more I noticed a queer spot on my back. At first I thought it was a form of eczema; but it grew so slowly, and resembled a wart so much, that I let it pass until I discovered of late that it was increasing in size and had got to be about as large as a silver half-dollar. Noticing what the Cuticura people say about their salve for eczema I commenced using it every time I took a bath, say once a week or oftener. This was about two years ago. I used it faithfully for about a year, but it seemed to do no good. In fact, I felt that the spot kept getting larger; but in noticing on their circulars that some things of that kind need an application every day, I commenced putting on Cuticura daily. After about a month of this treatment I was satisfied that the trouble was disappearing. By another three months it was almost entirely gone, and at the end of the year there was hardly a scar to show where it had been.

Now, the above, if I were to stop here, would make a splendid testimonial for the Cuticura people who charge 50 cts. for a little tin box of their salve containing scarcely more than a teaspoonful. While this was going on I was also fighting stick-tight fleas on our own chickens. I greased their heads with a salve that cost 25 cts. a box, and a very small box at that. Somebody suggested in a poultry-journal that vaseline is just as good as the high-priced salves; and carbolized vaseline, that costs only *five* cents a box, is still better; and my brother, a druggist, ventured the suggestion that any kind of grease, say chicken oil, would be just as good as the high-priced salves. And then it occurred to me that simply greasing the spot on my back every day with *any* kind of oil or grease might have accomplished the same result. Now, friends, who is right and who is wrong about it? With my busy life I can not well make tests that should settle the matter. Our experiment stations, equipped by our different States, or hospitals, perhaps, should make the test and inform people. When I protest against the enormous price, 50 cts., for a little bit of box of Cuticura, I am told by friends that the manufacturers *must* have an enormous profit to pay for advertising, and that without this enormous and expensive advertising

they could not catch the millions of people, and cure them as they have cured me. Notwithstanding, I do think they might make a smaller price and *still* get rich. Let me say to their credit, however, that the voluminous circular or pamphlet they send free on application, telling all about our skin diseases, is certainly worth something. In this respect they are doing missionary work.

Now, while I am about it, I want to speak of poultry remedies. In one of the journals right at hand, about twenty different maladies among chickens are mentioned, and a medicine is prescribed for each. The price is 50 cts. a box. There is quite a lot of salves, and different kinds of salve for each malady.

Now for the last paragraph in friend Keck's letter. Some months ago I got a box of the remedy he mentions—Yougart. I have been taking two tablets every day, and my digestion has been excellent; but at the same time I have been taking a daily bath, massage, and going without my suppers. Was it the Yougart that made me feel so well or these other things? As Dr. Miller often says, "I don't know." I have been praying that the heavenly Father would give me wisdom in all these matters. I do not know that I should have mentiontioned Yougart at all; but about two weeks ago I finished the little box, and my digestion has not been so good since then. Was the Yougart so beneficial or was it something else? T. B. Terry has recently declared quite vehemently against charging a dollar for this little box of tablets containing concentrated buttermilk or something of the sort. Yes, a great lot of other people think as friend Keck does, that they have been greatly benefited by Yougart. But, listen. Since I have spoken about Oxydonor and Oxygenator, a lot of circulars have been sent me. I will mention briefly one of the testimonials. A little girl had fits. Her mother paid doctor after doctor big sums of money, but her affliction became worse instead of better. Then she paid $14.00, or perhaps $40.00 (I can not remember which), for that silly trap about as big as a nest egg, and hitched it to the girl's ankle by means of a wire. She never had any more fits afterward, so the mother said, and was getting strong and well. How do I explain it? Well, the most probable explanation to me is that no such mother or little girl ever existed. Some mother may have been *hired* to furnish the above. The Duffy whisky people are accused of doing this kind of work; but if there is such a mother and little girl, nature might have got ready just then to help the little girl outgrow her malady.

Let me repeat an incident of some little time ago. I got a severe "crick" in my back by lifting. Ernest said an osteopathic doctor could fix me out immediately, so I would be all right in the morning. I said I would give five dollars to have the thing done. I was interested in it from a scientific point of view. Ernest telephoned the doctor to come right down; but he was away from home, and could not come till the following morning. But the experiment was never made, because, after I got a good sound sleep, I was entirely well. In the morning no symptoms remained of the distressing trouble of the night before. Now, in the above I am not saying any thing against the science of osteopathy. I am only reminding you of what everybody ought to keep in mind—that we get over things of this sort, many times, without doing any thing at all. Had the doctor come down and treated me, I do not suppose anybody could have persuaded me that his treatment had nothing to do with my recovery.

Now, when you are tempted to buy expensive remedies at the drugstore, think of what I have been telling you. Most of the liniments, witch hazel, etc., direct that they be applied with much rubbing, and the rubbing does the business, *not* the medicine. The State of Ohio saw fit to send a representative recently to talk with me about Electropoise, Oxydonor, etc. In speaking of the testimonials from those who have used them, I said to the doctor: "The directions for using Electropoise are, after hitching it on the ankle, to lie down on the bed, and remain so for an hour or more—well, does not common sense teach, as well as past experience, that if the average tired nervous woman will go off by herself in the middle of the day, and take a good rest, after an hour or two she will be greatly benefited?" He assented, and later I submitted the matter to Mrs. Root, and she said she had tested it a thousand times, and found it true; and she did not have any Electropoise hitched to her ankle either, thank God.

Heigh-ho! Right here comes a testimonial in favor of Electropoise. Read it:

Mr. Root:—In your issue for Oct. 1, p. 642, in your reply to Otto Saurer, you speak of the Oxydonor and Electropoise as worthless, with Mr. Collingwood, of the *Rural New-Yorker*. I think it is fair to hear both sides. I have no financial interest in either of these machines; but we have both of them, and either of them will cure (or perhaps I should say relieve) a case of frosted feet quicker than any other remedy I have ever known, and I have had the advice of one of the best physicians in the country too. When, a few winters ago, I used the Electropoise for another ailment at a time when my feet were so swollen and sore that I could hardly walk, the feet suddenly got well. I had made a discovery, and that without the exercise of any faith in the matter. I have, since that, tested this truth, and twice on cases where the men could not walk, and in every case the feet have got well as fast as possible, and without regard to their faith. Since my discovery I have wanted a chance to make it public. You have made the chance for me. You who have genuine Electropoises or Oxydonors, do not throw them away. Your neighbor may have trouble with his feet this winter.

ALANSON E. RITTENHOUSE.

State Road, Del., Oct. 7.

My good brother, you say in the above your feet "suddenly got well." I believe you, and I am glad they did get well; but how can you prove that Electropoise had any thing to do with it? See what I said about the crick in my back that disappeared so quickly that it seemed almost miraculous.

Let us now submit the matter to the good hard common sense of the readers of GLEANINGS. This Electropoise that you think cured you is much like the nickel-plated handle to a bicycle. Inside is some sulphur and a little sal-ammoniac. A wire is put through this mixture, and the other end of the wire is hitched to your ankle. The Electropoise is dropped into a bowl of ice water. No electricity passes through that wire. This can be proven by any battery-tester or volt-meter, and there is no science about it, as any scientific man can tell you, and I claim there is neither *sense* nor science about it. Hitching the wire to a horse-shoe would do the work just the same; or nailing the horse-shoe over the door to cure frosted feet would have just as much effect. I suppose the sulphur and sal-ammoniac are put in to make people believe it is something like a dry battery. The ice water is to make people believe that it works something like a thermo-electric battery, where the current is produced by keeping one part hot and the other part cold. You call it a machine. I submit to the readers of GLEANINGS whether it should be dignified by calling it a machine or a toy. It is exactly like the wire that was twisted about a nail in that $50 clock arrangement for curing various diseases—see page 642, Oct. 1st issue.

In your closing sentence you unintentionally inform us that a lot of people have paid out their money for Electropoises which have been thrown away, or probably tucked away up in the garret. In talking with a lady who insisted it is a good thing, as you do, she admitted she had not used it for *several years*. When I asked why she did not *continue* using it if it was such a "valuable instrument," she evidently found herself in a pretty close corner. Finally she got out of it by saying that even great inventions are usually forgotten after they have had their run. I reminded her that such inventions as clothes-wringers, sewing-machines, coal-oil lamps, telephones, etc., were none of them put away in the garret after they have had their run.

Now let us have another glimpse of patent medicines before closing. In my hand is a bulletin from the Ohio Food Department, presented by R. W. Dunlap, State Food Commissioner. In it is a list of all medicines found in our drugstores, giving the percentage of alcohol, cocaine, and other habit-forming drugs. How many different medicines are there in the drug-stores? Well, this book contains over 80 pages, and there are about 50 medicines mentioned on a page. Something like *4000* different medicines are manufactured and kept on sale to cure our infirmities! How many of these medicines do you suppose T. B. Terry uses in his family and among his grandchildren? Not one; and, may God be praised, there are a good many more families who use no medicine at all. Well, if I am right, people are beginning to learn that a large part of these medicines have no more to do with the recovery of the patient than Electropoise that our good brother tells us about. Of course, such things as corn-plasters, courtplaster, etc., have their uses, and it may be well enough to keep them in the house; but I begin to discover that, if we live and take care of our feet as God meant we should, there would be no need of corn-plasters.

This bulletin suggests that a large part of these medicines owe their virtue to the alcohol they contain. After taking the stuff the patient feels better as a matter of course; but a day of reckoning comes sooner or later, and sometimes it is a terrible reckoning. I was told of a lady a few days ago—a Christian who stands well in community, who had been taking *Peruna* until she could not live without it. Her family physician finally found out what she was doing, and told her it would be very much cheaper, and better for her health, to buy good whisky, and drink it every day, than to use what she was using. The representative of our Ohio Food Commission mentioned above informed me that Peruna had been taken in hand, and that hereafter all the Peruna put on the market would contain a sufficient amount of a laxative to *prevent* its being used as an alcoholic beverage. May God be praised for Ohio's Food Commission. Have you something like it in your own State?

SPOILING SHOES WALKING IN WET GRASS; SEE PAGE 569, SEPT. 1.

If you will obtain from the Albert H. Riemer Shoe Co., Milwaukee, Wis., a pair of wooden-soled shoes or boots, and have some one tack an extra sole of leather on them, then learn to walk flat footed, I think you will find conditions materially benefited. I am now using the pair I bought last October; have used them continually in all kinds of weather, and not had wet or cold feet. They come in whole sizes, 6, 7, 8, no half-sizes. They retail in Baltimore, shoes, $1.50; $3.00 for 16-in. boots.

Lake Roland, Md., Sept. 5. BENJ. B. JONES.

Friend J., there is another point in favor of wooden-soled shoes or something equivalent. Almost every fall when it begins to be cold and wet, if I do not look out and keep my feet dry and warm I have an attack of sore throat, catarrh, stoppage of the nostrils, etc. For some little time I did not catch on to the fact that these troubles were the result of going about with cold wet feet; and almost every fall I forget once or more times my former experience. Well, drying and warming the feet thoroughly, putting on dry stockings, and, if necessary, good warm overshoes, causes the sore throat to let up almost at once. I suppose it is mostly elderly people who have troubles of this sort. Now, there is something about it I do not quite understand. Wading about in the wet grass barefooted in the morning does not bring on sore throat nor any thing of that sort. Perhaps one reason is that, after this wading in the grass, the feet are wiped dry, and you put on good warm dry shoes and stockings. Sitting down, say, to read, with damp or wet shoes and stockings, seems to be what brings on the trouble. Although I have never seen the wooden-soled shoes, I have before had excellent reports from them.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. Root, Assistant Editor
A. I. Root, Editor Home Department
E. R. Root, Editor
A. L. Boyden, Advertising Manager
J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX MARCH 15, 1911 NO. 6

Editorial

THE HONEY-COOKING RECIPES.

In response to our two requests for cooking recipes, using honey, a large number were sent us. After having thrown out duplicates, also all which were practically the same as those given in back numbers of Gleanings or in the A B C and X Y Z of Bee Culture, we still have a list of nearly 100 which appear to us most excellent. The list includes cake, cookies, bread, biscuits, gems, doughnuts, jelly and preserves, candy, popcorn balls, salad dressing, pancakes, cereal coffee, puddings, vegetables, pie, baked apples, custard, junket, layer-cake filling, mince meat, etc. We have been very glad to issue the proper credits that we promised. So far as possible, in the case of duplicates, credits were issued for those received first; but there were many that were practically the same as the ones in the A B C and X Y Z of Bee Culture, and for these, of course, we could allow nothing.

We believe that a book or booklet giving a large number of practical ways of using honey in cooking will help considerably in educating the public as to its value as a food; and honey is not expensive when the quality of the product is compared with that made with cheap molasses and glucose.

THE QUESTION OF A WINTER NEST AND ITS RELATION TO LOCALITY.

In the general discussion that has appeared between Mr. J. L. Byer and ourselves it might appear that there was a vital difference between us as to our practice and belief; but a more careful reading of the articles and the footnotes on pages 19 to 21, Jan. 1, and 65 to 67, Feb. 1, as well as pages 134 and 135, March 1, show that we are nearly if not entirely of the same mind when *we take into account the difference in the localities* south of the lakes and that portion north of the lakes where Mr. Byer lives.

Our correspondent has sent in another article, and this ought properly to appear in this (March 15th) issue before the reader loses all connection or is ready to turn his attention to matters relating to *spring* rather than *winter* management. But, by the time this article was sent to us in Florida (where we are temporarily residing) it was too late for it to get back in time for that issue, and hence the only alternative is to use a portion of it in the editorial department, which is printed on the last form. The articles in our March 1st issue, together with the general footnote, which our correspondent had not seen, very largely anticipate some things that he has to say, so we will omit that portion. Apparently laboring under the impression that we are still wide apart he says:

> In the footnote to my article the editor refers to my admission that, in the cold spell, I found the bees for the most part below the honey, and says that on this point there is no difference between us. Please remember that this was in January when the examination was made, and that over the bees there was "at least four or five inches of sealed honey" at that time—indeed, in many of the colonies there would be six inches. How much honey would there be in the top of combs at that date, if in the fall there had been but two or three inches of honey? Here in Ontario by the first of February, or along that date, there would be *none*, and, just as sure as fate, in this present winter, colonies that were in that condition in the fall will be dead, either of starvation or dysentery, before spring. Now, while I was not advocating *solid* combs of honey in the center of the brood-nest, I wish to remove a wrong impression given in regard to Mr. McEvoy's practice of wintering outdoors on that system. It will be noted that I specified that I would want the combs in the center of the brood-nest filled at least *half way* down. One of friend McEvoy's strongest arguments in defense of his system is that it prevents the colony starting a lot of brood early in January, when we generally have a week or so of comparatively warm weather—not often mild enough to allow a flight, yet enough so to start a lot of brood in colonies having a lot of empty comb in the center of the brood-nest.

Notice he says he is not recommending "solid combs of honey;" that he has advocated that he would "want the combs in the center of the brood-nest filled at least half way down." For a locality much colder than ours we say amen to every word of this. We based our original statements on pages 19 to 21 on conditions as they exist in the average locality where bees are wintered outdoors. In a locality as cold as that in which Mr. Byer lives, the great majority of bee-keepers winter *indoors*. Mr. Byer's locality represents unusual conditions, or, rather, we should say, conditions in respect to cold not found in localities where bees are wintered outdoors. As editor of a bee-paper we try to fit the *average* locality in any directions that we may give. When a locality has a condition that is out of the ordinary for the practice recommended, due allowance must be made. We therefore cheerfully accept Mr. Byer's recommendation or correction, if you please, for a locality as far north or as cold as he has. That bees need more honey above the cluster for colder regions is but natural.

As to the reason for shutting out brood-rearing, Mr. McEvoy has already explained himself in our March 1st issue, page 135.

E. R. ROOT IN FLORIDA.

FOR two or three years back I have cherished the thought that I would visit the one State in the Union into which I had never set foot. One thing and another have delayed that visit until this winter. Our youngest, a little six-year-old (A. I. Root second), came down with whooping-cough. As he was having it very hard, the doctor said that we had better take him to Florida at once. How to get him there without exposing other children was a problem. We decided to secure a drawing-room, or state-room, on a Pullman where wife, boy, and I could travel by ourselves to Baltimore. Thence we took a state-room on a boat to Jacksonville, and from Jacksonville we took another Pullman drawing-room direct to Bradentown. We arrived on Saturday, the 25th of February, in the land of sunshine and flowers. What a contrast! It was cold and rainy at Medina when we left, and at Bradentown it is hot and dry. It was excessively wet at Medina, and excessively dry here. But, notwithstanding, I find just the country I have pictured in my mind's eye—a beautiful climate, tropical vegetation, and a bracing air. While the A. I. R. second still "whoops" he is much stronger, although we have been here but four days. Now, you will wish to know what I think of A. I. R.'s Florida home. Say, it would do you good to see him play with his chickens, his posies, and his plants. He has his place nicely fixed up; and as he takes you over his grounds you can't help sharing his enthusiasm. How he delights in showing the visitor his latest acquisition, this new plant, his ducks, his Buttercups, his coops, his waterfall, his creek back of the lot! and Mrs. A. I. R. too—what a world of good it is doing her! Say, you needn't tell my wife; but mother's cooking does taste *so good!*

Many people have been ordered by their physician to go to Florida, little dreaming that their poor health is really a blessing in disguise. I have met many persons who, before they came here, were verging on the brink of the grave; but after a few weeks or months of this climate they have found the "fountain of eternal youth."

But what about Bradentown in particular? I don't know much about other spots in Florida; but I see tropical vegetation in all its glory. The freeze that visited many parts of Florida within the past week has done no damage here; indeed, Bradentown, by reason of its peculiar location on the bay, is protected in a way that most towns in this part of the State are not. Orange-groves are being set out everywhere around here, and old trees show that the climate here has been kind to them. The people are of the best from all parts of the United States; indeed, I don't know of any community where one will find better company than here. Many bee-keepers who have read GLEANINGS have located here, not necessarily to keep bees, but to raise fruit, keep poultry, or raise garden truck. If it keeps like this we shall have a GLEANINGS family here.

There! some of you will think I am trying to boom Bradentown. Neither my father nor myself have any land to sell. We are not interested in any scheme. A. I. R. came here to get health and rest, and has found both. E. R. ROOT.

NEW EDITION OF ADVANCED BEE CULTURE.

ABOUT twenty-five years ago W. Z. Hutchinson, editor of *The Bee-keepers' Review*, was producing comb honey by hiving swarms on frames without foundation. In many respects this was similar to the Simmins non swarming plan; but Mr. Hutchinson, apparently, did not have so much in mind the idea of preventing swarming as the production of fancy comb honey, and at the same time save the cost of foundation. His experiments at the time were written up fully in GLEANINGS. These articles aroused so much interest that A. I. Root prevailed upon him to write a booklet describing his system. This appeared in due time, and was entitled "The Production of Comb Honey."

In the meantime, Mr. Hutchinson started *The Bee-keepers' Review*. After this had been running a few years, during which time he took up special topics, the edition of his little book was exhausted, and he was prevailed upon again to write a much larger work, taking in not only his system for the production of comb honey but all these other special-topic subjects as well. The new work, entitled "Advanced Bee Culture," appearing in 1905, was printed and illustrated on the finest enameled book paper. The illustrations were all original, for the author had taken up photography. Some of his photographs are veritable works of art.

While the work was designed for only a very limited class of bee-keepers, the edition was exhausted some months ago. Having a good many calls for it I wrote to Mr. Hutchinson, inquiring why he could not get out a new edition. I received back word from his wife that Mr. Hutchinson was sick in the hospital, and had been there some months. After our friend had partially recovered, the thought occurred to me that possibly I myself might be able to revise the book by inserting in their proper places recent editorials that had appeared in *The Bee-keepers' Review*. As there seemed no immediate prospect of his early recovery, I wrote him suggesting that I undertake the work for him, saying that my somewhat extended experience in revising and revising and revising again the various editions of the A B C and X Y Z of Bee Culture might qualify me for a similar work on "Advanced Bee Culture."

After some correspondence this was agreed to. The task then devolved upon me of going over old volumes of *The Bee-keepers'*

Review since the last edition of "Advanced Bee Culture" had been published, selecting such of the editorial writings as would be suitable to incorporate in the new work, and crossing out old matter that might be in conflict with it. After a few evenings' work (for I had no other time to devote to it) I finally got the matter all together and turned it over into the hands of the linotypers—not until, however, I had submitted to Mr. Hutchinson all the changes that I proposed making and the manner of incorporating the same into the work. I received a postal from the sick man, reading something like this: "I marvel at the skill of your selection, and also your manner of joining new matter on to old; in fact, you have made just about such changes as I would have made had I the strength and the health to do it."

During the years since the first edition of "Advanced Bee Culture" was published, Mr. Hutchinson has had a large experience in the field, especially in out-apiary work. He and his brother Elmer have tested many new devices, as well as having discovered some new kinks in the trade. The result of all these experiences was written up from time to time in the pages of *The Bee-keepers' Review*, and the task that devolved upon me was to select this matter from the pages of *The Bee-keepers' Review*, and signed articles of his that appeared in the columns of GLEANINGS. All these were woven into the main body of the work.

Some minor changes are made all through the work; but we will speak of only the principal changes. For example, in the chapter entitled "Producing Good Extracted Honey" I have incorporated editorials from *The Bee-keepers' Review*, and a portion of a series of articles by Mr. Hutchinson on the subject of "Producing Extracted Honey," that appeared some time ago in these pages. This new matter has been added to the old in such a way that the whole reads like one continuous story. The new matter deals with the question of extracting the honey, of tiering up and extracting after the harvest is over, securing workers for the harvest, warming up the honey, uncapping-barrels and tanks, with quite an extended description of E. D. Townsend's uncapping-box. The steam-heated uncapping-knives and power-driven extractors received their fair share of attention, for, in fact, the Hutchinson brothers tested them quite thoroughly during the last three or four years in their northern apiaries. In fact, this whole chapter fairly bristles with the experience of actual *field* work.

Then we find, a little further on, an entirely new chapter on the subject of "Developing a Mail-order Trade for Honey." This is nothing more nor less than a reproduction of an article or articles that appeared in GLEANINGS over a year ago. It takes up the all-important question of how to sell extracted honey, how to advertise, how to secure two or three cents above the market for honey in original packages.

On page 145, under the head of "Foul Brood" appears a discussion of the subject of European foul brood and its treatment, especially how to cure without destroying either the brood or the combs. On pages 154 and 155 is quite a little new matter under "Apiarian Exhibits at Fairs."

The chapter on "The Rendering of Beeswax" is quite extensively revised. A recent editorial by Mr. Hutchinson describes the W. J. Manley method of rendering wax. As this method is clear up to date in every particular, nearly all the old matter was stricken out, and the new substituted.

Some new matter was added to the chapter of "Outdoor Wintering of Bees," and on page 164 we find another new chapter entitled "Automatic Transferring."

In the chapter on "The Influence of Temperature in Wintering Bees" we find some quite extensive revisions, taking up the special question of how to build bee-cellars at moderate cost. Here again we find the author drawing quite extensively from his experience in building bee-cellars in Northern Michigan. This one chapter, to the one contemplating a bee-cellar, is worth the price of the book many times over.

The chapters "Fertilization of Queens in Confinement," "Commercial Queen-rearing," and "Ventilation of Bee-cellars" are omitted from the new edition, either because they were out of date or because they conflicted with some of the author's recent utterances in *The Bee-keepers' Review*.

Taking it all in all, the new edition is entirely the work of Mr. W. Z. Hutchinson. While I have acted in the capacity of reviser I have added no word of my own except here and there to put in a connecting link in order that the old matter might join on smoothly to new. Taking it all in all, there have been added between thirty and forty pages of entirely new matter, and something like an equal number have been stricken out, so that the new edition will be about the same size as the old one; but instead of being sold at a price of $1.20 it will be sold for an even dollar, postpaid.

As a writer on bees Mr. Hutchinson has few equals. For clearness of style and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and the useful from an extended discussion is intuitive. The last edition of "Advanced Bee Culture," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by a master of the art of boiling down discussions.

I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced bee-keeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it in connection with some other work like the A B C and X Y Z of Bee Culture, or any text-book designed especially for the beginner class.

E. R. ROOT.

Stray Straws

By DR. C. C. MILLER, Marengo, Ill.

MR. EDITOR, your idea of the bees' get-together-in-a-ball idea, p. 136, is O. K.

INSTEAD of nailing up bees in the hive, as suggested, p. 123, it might cause less worry to take them in the cellar.

"MAY GOD hasten the day when good women shall do at least *some* of the voting," p. 117. Make it "vote same as men," Bro. Root, and I'm with you.

DO BEES gnaw down entire old combs and rebuild, p. 88? Possibly; but if so it seems as if I ought to have seen some indication of it after keeping so many old combs all these years.

FRIEND CAVANAGH, you suppose, p. 109, my foul brood was "treated the same season as discovered!" If you promise not to tell, I'll own up to you that I discovered it in one hive two or three years before treatment, but thought it was poison.

THAT WEIGHING-DEVICE, p. 114. Suppose one side of a hive heavier than the other. Place it on the weigher with the heavy side toward the scales, and let it weigh 50 pounds. Now turn the hive with the light side toward the scales, and it will weigh more than 50 pounds. In general, the closer to the scales an object is placed, the lighter it will weigh.

QUITE RIGHT you are, Mr. Editor, in telling C. A. Neal, p. 149, that his queen will spread out rather than go above; but taking the question just as he puts it: "Will a queen in a twelve-frame Jumbo lay in the four outside frames, or will she go up in the super?" my answer would be that she will do neither. Generally the central eight Jumbo frames will be enough for her.

"WHAT'S in a name?" says the editor of the *Irish Bee Journal;* but he seriously objects to the long names that are now given to foul brood and black brood, My sympathies are with you, Bro. Digges. But I am told there is a kind of necessity in the case. Our State laws are against foul brood, and black brood would not come under that head; but American foul brood and European foul brood do. Well, there's no law against contractions; and we can say A. f. b. and E. f. b.

ALIN CAILLAS, *L'Apiculteur*, p. 464, estimates that a bee carrying .0007 oz. of honey at a load will make 12,632 trips to fill a section 4 inches square and 1 inch thick. If it average ⅛ of a mile to the trip, it will travel as much as a third of the way around the world. In a colony of 120,000 bees, if 80,000 are fielders, and each one makes 10 trips of ⅛ of a mile daily, the total travel for the day will be more than twice the distance to the moon. As flyers, the Wright brothers are not in it with the bees. [If a bee carried .0007 oz. of *nectar* it would have to make nearly twice 12,000 trips in order to make enough honey to fill a section 4 inches square and 1 inch thick.—ED.]

IT'S A TOUGH JOB for me to make out the meaning of things in French journals, but it's a comfort to know that Frenchmen sometimes get things twisted that are said in English. In a Straw, Dec. 15, I spoke of the size of worker-cells, and then, changing the subject, said: "If your foundation hangs within ⅛ inch of the bottom-bar, I guarantee your bees, if they are like mine, will increase that ⅛ to ⅜." In *L'Apiculteur*, p. 75, it appears in this fashion: "Dr. Miller says to Mr. Root, that, if the foundation be enlarged by ⅛ of an inch, he guarantees that his bees, like his own, will increase from ⅛ to ⅜"!

"IF THE MAJORITY in any community want saloons, they can have them, as things are at present," page 120. That's true; but let's not have things continue as at present. A community ought to be allowed to vote out a thing that's wrong; but no community has a right to vote *in* a thing that's in and of itself wrong. In that respect the saloon stands solitary and alone as the only thing inherently wrong that people are allowed to vote *in*. Ever think of it? If a community were to vote *in* polygamy—and some communities might want to—it wouldn't be allowed for a minute. Why should it be allowed to "vote in" saloons any more than polygamy or stealing?

F. B. CAVANAGH, you're harping on the right string, page 146. What we want is a campaign of advertising—not local, but national. No thirty-cent business, but thousands of dollars. With the right kind of advertising, honey should become a staple instead of a luxury, and should take its old place alongside of butter in price. If one-fourth as much honey were consumed as butter at 10 cents a pound it would total more than $180,000,000. If we could reach that amount by advertising, don't you believe it would be a good stroke of business to spend one per cent of it in advertising? Even if we spent only one-tenth of one per cent it would give us the neat little sum of $180,000. But without speculating on future increase, what bee-keeper can not afford to spend for the right kind of advertising $1.00 for every $100 his crop brings? Let's see what that would amount to with present conditions. I think Dr. Phillips estimates the present output at $20,000,000. At $1.00 for every $100 that would give us $200,000. We are well able to do that if Cavanagh, Tyrrel, Rauchfuss, and others will only get us together. I'd be glad to chip in on that scale if it brought us only enough more to pay for the advertising. It would be worth it to know that all over the land every one was eating honey. Health of nation. But it wouldn't turn out that way. I feel sure that every dollar invested in that kind of advertising would bring back at least ten. Let's do it.

Bee-keeping in the Southwest

By Louis Scholl, New Braunfels, Texas

ABOUT THOSE HONEY RECIPES.

We have noticed with much interest the matter of honey-cooking recipes, and the interest that is being taken in them at the present time. We have wanted to mention this matter for some time, but we have not completed our work on the matter entirely as yet. For several years we have been at work on a list of *real good honey-cooking recipes*, such as can be used as per the directions given, without getting a lot of unfavorable results, as has been our experience when we tried many of the recipes that have been published. The trouble with them has been that they are very much out of proportion as regards the ingredients used; and the result is, that the much-expected honey cake or cooky does not come up to any thing like the great expectation that most persons have about a honey-cooked article. This is wrong; and, instead of creating a greater demand for honey for cooking purposes, the very opposite is likely to take place.

This fact came to our notice very strongly since our exhibitions of more than thirty different varieties of cakes and cookies at the various fairs for several years. Our exhibits have attracted much attention, and the demand for recipes grew, but we were not able to furnish them, as we did not have them printed. One year we distributed several thousand honey-cooking leaflets at the fairs. That was before we exhibited very many honey cakes. Later we found that the recipes were not reliable, and that it was necessary in almost every case to change the quantities given, or something else. When we returned to the fairs the next year we learned from a large number that they had not been able to get the results that we had from the recipes received from us, and we have not made use of any more of the leaflets, just for that reason.

Now we are making an entirely new list of all the various cakes and cookies tested. Of course, it will be understood that we are not condemning all the recipes; but there are so many of them that we have failed with that the entire list ought to be revised, even if some of them give good results. And, again, it must be remembered that "many cooks spoil the pie," and this may be one reason to which some of the failures may be attributed. In the meantime let us have all the good recipes in which honey is used more or less; and if any of them need trying before they are in such shape that every good housewife can use them without getting bad results, why—well, somebody will have to try them out. [We agree with you; and for this reason we decided from the very start to accept no one's word for any thing. The trouble is, that the originator of a recipe often fails to mention some little important detail, and the result is failure. But this is also true with recipes of any kind.—Ed.]

BREEDING LARGER BEES.

The more we study this question the more we wonder if it may not be possible. We need only consider for a moment the great work done in improving all kinds of animals, improving not only certain qualities, but increasing the size materially. It takes many generations before some of the final results are obtained; but we have the proof that all this is possible by proper selection and breeding, and the proper care and feeding has something to do with it also. The question is, how to proceed with the improvement of the honey-bee to accomplish similar results. And then the question arises as to what would be the advantages of the larger bees. This is work for the experiment stations.

Whether an increase in the size of the cell in which the bee is reared would have any bearing on the matter could, perhaps, be observed by careful experimentation carried on for a number of years and through many generations of the bees selected for the test. Not only this, but several strains of bees should be tried—each under various conditions, since all these factors may have some important influence.

We have noticed in our observations that a great difference in the size of the workers of different colonies does exist. The progeny of a fine queen may show extraordinary size, while that of another queen may be remarkably small. After investigating more closely we have come to the conclusion that there are at least two reasons for the smaller size of the workers in various colonies: First, the naturally small size due to the queen alone; second, the decreased size of the worker-cells of old combs in which many generations of bees have developed. Such observations can be made in a neglected or "run-down" lot of bees where the old combs have been left undisturbed for years, the brood-nest being confined to the same area. In this case the size of the cells should make a difference. On the other hand, the deterioration in the quality of the queens in such a neglected condition is the main cause of the smaller-sized workers.

We have, therefore, two factors which account for a *decrease* in the size of the workers, so why may not other factors have some influence toward an *increase* in the size of the worker bees?

We grant that the use of larger worker cells in a haphazard way will not bring any certain results. Neither can we expect that the size of the worker bees can be increased by the most careful breeding by selection or otherwise without resorting to something larger than the regular-sized worker-cells in which to rear them. But we have some faith in breeding for larger size by careful selection in connection with a gradual increase in the size of the worker-cells.

Siftings

By J. E. CRANE, Middlebury, Vt.

The best and most concise statements on indoor wintering we have ever found are on page 779, Dec. 15.

The advice of Wesley Foster, page 6, on "jumping the price to large buyers," is first rate and worthy the attention of those who do so.

On page 4 Dr. Miller again expresses his conviction of the value of breeding for a non-swarming strain of bees. Footnote says, "Good for you! We grant *something* can be accomplished." I say, good for you, Mr. Editor.

I don't agree with you, Mr. Editor, when you say, p. 772, Dec. 1, that propolis could not be furnished for less than $5.00 per lb. with which to make varnish. I should have been glad to receive ten cents a pound for some forty or fifty pounds the past season when we were through cleaning sections.

It is interesting to know approximately that it takes 37,333 bee loads of honey to make a pound of honey. This means more than a million flowers visited. It might be well to remember this as we complacently spread our bread or buckwheat cakes with honey these cold mornings, and boast of our success as bee-keepers.

I was much interested in M. A. Gill's statement, p. 771, Dec. 1, that the average yield of sugar from beet as grown in Colorado is about 16 per cent. It is just one hundred years since Germany commenced the manufacture of sugar from beets, when the sugar content was less than 7 per cent. See what can be done by careful breeding and selection.

I was much interested in the editorial, p. 745, Dec. 1, 1910, on the value of corrugated paper on the bottom of wooden cases, as compared with no-drip cleats. I felt sure of its value when I recommended its use four years ago, and it is quite right to advise those who have cases with drip cleats in them to rip them out and substitute corrugated paper.

On p. 46 Mr. Gately tells us of the value of foundation in securing surplus section honey, estimating the gain at from five to twenty-five per cent. If we call it fifteen per cent (and my own experience would place this estimate as conservative) on a crop of fifty pounds per hive, it would make 7½ pounds, which, at 14 cts., would be $1.05; and if we take out 25 cents for the value of the full sheets of foundation we still have 80 cts. per hive as above, where starters are used, to say nothing of the improved appearance of the sections.

On page 777, Dec. 15, the editor gives some vigorous blows against "our antiquated methods of shipping comb honey." Good! lay it on till all know the value of cushioning every case. I have sometimes thought I was saying quite too much in praise of corrugated cases where every comb was cushioned by two or three thicknesses of this paper; but the more we use them the better pleased we are.

Mr. Doolittle's advice on books for beginners, p. 36, is good, and I believe he is quite right when he places the A B C and X Y Z at the head of the list. And then he tells us how he used and "swore" for thirty-five years by the Gallup frame. I am glad he doesn't swear by that frame any more, but uses a good standard Langstroth instead; but for all this we shall always hold that little square frame in grateful remembrance as we recall the wonderful lessons in the principles of bee keeping that father Gallup gave us, using that same frame to illustrate his ideas.

I believe the editor is quite right in thinking that the explosion of beeswax was caused by steam; and quite right is the advice to introduce water before the wax is melted. Better still, to my mind, would be to melt in a double boiler. If wax or combs are melted in water, great care should be taken not to let it get too hot, for, as sure as you do, it will boil over, when it will at once burst into flame as soon as it strikes the hot stove. I have twice come near serious loss from this cause. When making wax, it is never safe, when melting up over a stove, to leave the room when the water and wax are near the boiling-point.

"Candied comb honey—what shall we do with it?" p. 29. I'll tell you what I do with it. Get it all together with any cappings with honey in them, and put in a double boiler or capping-melter, and heat just hot enough to separate the wax from the honey; and then if the honey is not good enough to sell for table use, keep till I need it to feed, which is not, usually, a great while. Every pound of such honey fed in spring where needed will doubtless result in two pounds of new honey more than the colony would have produced if it had not been fed. Capping-melters are useful for this purpose.

Evidently D. M. Macdonald doesn't believe in sealed covers, for he says, p. 9, that "The nearer you go to hermetically sealing up the body under a press of heavy coverings, the nearer you go to defeating the very end you are striving to attain. The body becomes bathed in perspiration, and

discomfort follows. Bees breathe all over their bodies; and if their primary and secondary organs can not get full play they are not wintering under favorable circumstances." Well, he is well north of the fifty-fifth parallel, and sees the value of sifting out the moisture and retaining just the heat.

On page 748, Dec. 1, nearly a column is taken up in discussing the non-swarming race of bees. May I inquire what is meant by a non-swarming race of bees? Are we sure we understand each other when this term is used? Do we mean a race, breed, or strain of bees that will, under normal conditions, but rarely swarm—say not more than from one to four or five per cent annually? or do we mean a strain that will *never* swarm under any conditions whatever? If the latter is meant, and the same test is applied to non-sitting breeds of fowls, can we say we have any non-sitting breeds of fowls?

On page 32 Dr. Miller wonders why Mr. Latham's honey should not granulate like other folks' honey. I think I can see a twinkle in his eye as he reads the editor's comments, and saying to himself, "Simple enough if you only know how." Mr. Latham teaches science in the schools of Norwich, and practices it when he is at work with his bees, and performs some stunts with his bees and honey that would surprise some bee-keepers older than himself. For instance, he wintered some thirty or forty nucleus colonies last winter in an out-building, without the loss of a single colony, and an average consumption of only 1¼ lbs. of honey per colony.

I do not think Doolittle is wise in advising what is practically a hexagonal plan of apiary, see page 783, Dec. 15, unless there are a good many shrubs and trees. I have tried two such, and gave them both up after a trial as impractical. The loss of young queens and even full colonies was too great. No way suits me so well as to have the hives in groups of ten, two facing north, three east, two south, and three west. Where there is much wind, say from the north or west, face those on that side the same as on the opposite side, when the bees will fly through the center of the group. Wind is very bad for bees, especially when wintered out of doors.

I suppose nearly or quite three-fourths of the honey from Vermont has gone to market this year in paper cases, and there would have been a still larger proportion had not bee-keepers had on hand a supply of wooden cases. While we believe these cases are better or safer so far as breakage is concerned, yet we find that even they are not "fool-proof;" and where honey is shipped long distances in small lots, and likely to be changed from one car to another, it is desirable to crate them with a layer of straw or excelsior on the bottom. "Now, then, will the bee-keepers of this day and age wake up and put their honey in more up-to-date cases?" as you say, page 778.

Wesley Foster, p. 750, Dec. 1, says labels on cases of comb honey should be six by eight inches, and the words "Fragile! Handle with care, this side up," printed in red ink. Now, this is all right; but I like a red or yellow paper with print in black quite as well. He says, further, that honey in 60-lb. cans should have the cases bound with strap iron if the honey is liquid, and he is right. I wish some of those Western bee-keepers could see some of their cases of honey when they reach us here in the East. It would do their souls good, or ought to. Keep on hammering, my brother.

On page 782, Mr. Scholl still talks "bulk comb honey." I wish he would tell us how we are to market, say, 25,000 lbs. of comb honey and 10,000 lbs. of extracted, with markets from thirty to two hundred miles away. The bulk of honey is consumed this way in cool weather. If we cut our combs into chunks and fill with extracted honey, say in September, it will be all solid in a month's time. If we wait till later, the extracted will get solid before pouring it over the combs. If melted and poured on them it is likely to get solid again before it reaches the consumer. Besides, honey-consumers hereabout are somewhat like the boarder who found hairs in his butter, and told his landlady that he did not object to hairs, but preferred to have his hairs and butter served on a separate dish. So our honey-consumers seem to prefer to have their comb and extracted honey served in a separate dish.

At a recent meeting of the Vermont bee-keepers, Mr. Terry, president of the Vermont Horticultural Society, gave us a fine address on the value of bees in the apple-orchards of Vermont. Among other things he said that in Grand Isle Co., where are located some of the best orchards of the State, the orchards all blossomed profusely last spring, while only a part of them produced large crops of fruit. He said further, that he and another party examined every orchard with great care to discover, if possible, the cause of failure in some to produce as heavily as the others. The results of examinations showed in every instance that, where there were failures to produce abundantly, there were no bees, or too few to be of much use, and, further, that where a good supply of bees was kept, there was in every instance a large apple crop. A few orchards produced heavily where there were no bees kept in the immediate vicinity. This puzzled them as to the cause until it was discovered that every orchard producing heavily where no bees were kept was in the immediate vicinity of heavy forests where wild bees could do the work.

Bee-keeping in Southern California

BY MRS. H. G. ACKLIN, GLENDORA, CAL.

Mr. G. M. Gress, formerly of Minnesota, but now of Sioux Falls, S. Dak., who is spending the winter in Pasadena, reports a very good yield of comb honey from yellow sweet clover last season. The seed of this clover was sown by a bee-man of Sioux Falls. Would it not be a wise move for our bee-keepers to do likewise—especially near the coast, where moisture is almost sure during the entire year?

I note that Redlands has been selected by the manager of a moving-picture company as an ideal place to get the "real spirit of the west" views. Thirty people are to pose, etc., in canyons, preferably Santa Ana and San Timoteo. I was wondering if there would not be more of the "real spirit of moving" than is generally shown in pictures if that troup were to get banked up against some of the big apiaries located in those canyons.

Coöperation! What does it really mean? and why is it more difficult to secure it in the honey business than in all other industries? I live in an orange section—orange-groves north, south, east, and west. Now, if some of the "little" growers, like myself, for instance, should get in a hurry for money, and sell their crops to outside parties for less than the association can get, I wonder what would happen. That seems to be the greatest stumbling-block to organization among bee-keepers. Orange-growers work on the mutual plan. In fact, the growers own the association. At the annual meeting they elect the men they want to carry on the business for them the coming year. Expense is shared, and profits divided. The grading rules are established on a firm basis. The people at the packing-houses attend to that. Any stockholder can make investigation if affairs are not run to suit him. I think everybody around here belongs to an association. Of course, right here the honey business is not as extensive as the orange industry; but there are apiaries located all along the foot-hills. But there was a time, also, when the orange industry was not as extensive as at present; but the growers were organized just the same. Why can not the honey-producers do the same thing?

In listening to discussions on this subject at conventions one is thoroughly convinced that coöperation is what bee-keepers now most earnestly desire. In union there is strength. A demand coming from an association has more weight than when coming from a committee. If banded together like some of the other industries, bee-keepers could demand certain laws, and eventually get something near what they wanted.

There are many ways in which the bee industry could be benefited. We need a State foul-brood law; and the office of inspector of apiaries should be given to a man fitted for the place instead of a man chosen on account of his political affiliations. And his deputies should be chosen along the same broad lines. We also need an iron-clad State law against adulteration of honey. And when those laws are enacted, men should be elected to office who will see that they are enforced. All this could be accomplished if bee-keepers were a unit.

How can bee keepers become a unit? I see no way except through organization and coöperation. Drop all minor matters and work with an earnest determination for the one great object—complete organization. It matters not if one man gets his foundation at one place and another one section boxes somewhere else; it is not necessary for the organization to be a supply depot. The one great object should be to control the sale of honey. If some bee-keeper must have money at once, let the organization buy his honey. I know I am getting into troubled waters in making the above statement; but will some one please propose a better plan? Right there seems to be the greatest obstruction to organization. But how did these other mutual associations get started that are now on so firm a basis? It is more difficult to grade honey than oranges, and more opportunity for unfairness exists; but we must not be overcome by these obstacles. Disinterested parties should have charge of these matters. Bee-keepers will never come into their own till these problems are fairly and squarely met and conquered. And, as in all other great reforms, agitation is the only way in which to get parties most interested to considering and planning the best method of procedure.

Another Colony that Deserted a Hive Full of Honey in the Fall.

A Mrs. Byron, of this place, told me of a swarm deserting a hive, the same as Wm. Shields reports, p. 51, Jan. 15. The honey-flow stopped about Sept. 15, and on the last of October the bees were there. By the middle of November the bees were all gone. She had left the upper hive on, as she had lost bees the winter before for lack of food. There was over 80 lbs. of sealed honey in the hive; no dead bees in it. It was a large swarm. They took possession of the hive in June, and had done well. I saw them in September, and they were above the average. I thought she must be mistaken about their leaving, but she is positive.

Ignacio, Col., Jan. 24. A. I. MILLS.

Bee-keeping in Louisiana

Why is it that we hear so little from Louisiana? It is a natural bee country, and bees are now, Jan. 15, working as though it were summer, bringing in any amount of pollen and some honey. White clover is coming out fine. It generally blossoms in February. I expect to run three small yards this season, and shall have about 100 colonies at the home yard.

We can produce the honey here, but we have no near market. I am expecting to ship to Chicago, but I wish I could sell nearer home.

There are a good many colonies here in barrels, boxes, and hollow logs, and the owners never hear any thing about a standard hive or a bee-book.

Hamburg, La. F. M. MORGAN.

Conversations with Doolittle

At Borodino

HOW TO TAKE CARE OF COMBS AFTER BEES HAVE DIED.

It looks as if I should lose some of my colonies before the honey season opens. As I am anxious to keep the same number, and perhaps increase somewhat, please tell me how to care for the combs and hives so that they will be suitable to stock up with again, either by hiving swarms or making colonies by dividing, etc.

If these hives and sets of combs are properly taken care of they can be used again. Many seem to think that, because the combs are somewhat moldy or spotted, they should be thrown away or melted up, and the hive scalded out or destroyed; but years of experience shows me that, with the loss of any colony during the winter, we have not suffered so great a loss as the first thought would indicate. If we do not lose more than one-third of the colonies, the loss is little more than the honey that these bees have consumed; for, with the remaining two-thirds of the colonies left, we can soon be back to where we were before, if the combs and hives are properly cared for.

The combs should be attended to in the early spring, before the weather becomes warm, otherwise they will become foul.

Of course, the bees will clean up very offensive combs; but by a little work on our part we can keep them in fairly good condition. The best way to store such combs is on long racks made of 2×6-inch scantlings, 12 ft. long, nailed on the under side of the roof of the store-room, the right distance apart so that the frames can hang on them as though they were in hives. By nailing these the right distance apart, after the first two are up, it takes only one more scantling for each row of combs. I formerly used inch stuff; but when these 12-foot spaces were filled with combs, many of which contained considerable honey, the supports were not stiff enough to hold rigidly without springing out of place under the weight, when the ends of the top-bars would slip off. Moreover, with several rows of combs the top-bars of the frames would have to rest one on top of another if supports one inch thick were used.

These long supports are much preferable to hive-bodies for holding the combs, as the air can circulate all through them, and any combs may be selected, and those empty or containing honey can be seen at a glance. Even if we never lose any colonies during the winter the idea is a good one, as the racks are so handy for storing extracting-combs or any combs which, for one reason and another, are not in use. However, if any one thinks otherwise the hives can be used. When any colony is found dead, carry the hive to the room, open it, take out the first comb, and, with a stiff brush-broom, sweep off all of the adhering bees and scrape off all brace and burr combs from the top-bar and then it is ready to hang in the rack overhead.

For scraping frames and hives at a time when the wax and propolis are hard and brittle, I know of nothing better than an old chisel, the square corners being just right for all flat surfaces, and the cutting edge for cleaning out the rabbets on which the frames hang. After all the combs in the hives have been treated like the first one, scrape the empty hive to free it from burr and brace combs, knobs of propolis, or any thing else that would interfere with the easy handling of the frames of combs in the future. Especial attention should be given to both sides and bottoms of the rabbets. In storing away the clean combs they should not be pushed together as close as they would be in the hive, as the close spacing is a great inducement for the wax-moths, while the abundance of light furnished by the wide spacing keeps them away. Besides this, the wider spacing gives better circulation of air, and allows the combs to dry out at once—thus keeping them sweet and clean.

The hives I would store in an attic, piling them criss-cross, so the air may circulate through them; then by the time they are wanted, there will be no offensive odor, dampness, nor any thing of the kind about them.

It is well to make an examination as swarming time approaches, especially if the weather is very warm; for the wax-moths are always on the alert, and if the room where the combs are stored is dark, these insects may start to work sooner than we expect. My storage room has three windows, which makes it nearly as light as though the combs were out in the sun; and by keeping each comb an inch or so from the other, I have very little trouble. I am careful to use those combs first which show any indication of the moths, so there is never much damage done.

During a good yield of honey from fruit-bloom, any especially dirty combs may be cleaned up by removing one or two frames of honey from each strong colony and putting these dirty combs in their places. I am referring now to very moldy combs, those having dead bees packed in the cells, moldy pollen, etc. These should all have been kept by themselves. Such combs placed in strong colonies during fruit-bloom will be cleaned and transformed within forty-eight hours so that they can hardly be told from the best in the apiary.

Eight and Ten Frame Hives.

I have 23 colonies, 14 in eight-frame hives and 9 in the ten-frame, and find that the latter are by far the best. My strongest colonies are always in the ten-frame hives, and they make more honey than those in the eight-frame. Besides this, the colonies in the ten-frame winter better, and are stronger in the spring. After this I shall have ten-frame hives only, and the Hoffman frame is good enough for me.

Chickasha, Okla. J. H. FLIPPO.

General Correspondence

THE ANATOMY OF THE HONEY-BEE.

Many of the Accepted Facts Shown to be Fallacies.

BY R. E. SNODGRASS.

What's the use of knowing so much, when so much you know ain't so?—JOSH BILLINGS.

For more than three centuries the honey-bee has been the innocent victim of the grossest kind of anatomical misrepresentation. No other insect has suffered so at the hands of unskilled dissectors, no other has been so maligned by unscrupulous artists. After looking over the great mass of published accounts and drawings purported by their authors or copiers to illustrate the structure of the honey-bee, and after comparing these with the actual parts of the bee itself, the writer here takes the occasion of assuring the bee-keeping public or any suspecting entomologist that the bee is not nearly so bad as it has been painted. The detailed results of this investigation have been published as a bulletin from the office of apiculture, of the Bureau of Entomology, of the United States Department of Agriculture (Technical Series No. 18). While full credit must be given to those authors of conscientious work who have described and figured what they saw, even though they did not see rightly, we can not condone the practice common among many writers on bees of making full descriptions, and especially complete pictures of things they saw only in part. While, perhaps, few writers have actually put into words *descriptions* of organs and structures they had not seen, few, on the other hand, have hesitated at publishing *pictures* of things they never saw clearly, or at filling in elaborate details from their imaginations. This attitude is hard to explain; for why is it not just as reprehensible to publish a drawing that depicts for facts things that were never seen as it is to describe for truth what one never saw?

When Swammerdam wrote about bees, away back in the seventeenth century, and drew pictures of their anatomy, he probably did the best he knew how to do or could do in his time and circumstances. But we can not see any excuse for some of the gross inaccuracies made by writers during the last fifty years, some of whose productions are so far from the truth that a mere mistake of observation could never account for them. For example, Samuelson and Hicks (The Honey-bee, 1860) represent the mandible of the worker as having a row of seven teeth on its cutting edge! Girdwoyn (Anatomie et physiologie de l'abeille, 1876) and Girard (Les abeilles, 1878) are responsible for some of the worst, and, at the same time, some of the most widely spread examples of anatomical absurdities in pictures. The former wrote a pretentious memoir on the anatomy and physiology of the bee, accompanied by twelve large plates which received two medals at the time in Austria. This is the source of the much copied illustration of the respiratory system (see The Honey-bee, 1904, Fig. 27). Some of Girard's drawings are probably the crudest ever published in insect anatomy. In his book we find the original of that common picture of the bee's heart, which represents the latter as a pale band extending through the middle of a black field supposed to have the outlines of a bee's body (see The Honey-bee, Fig. 28). This is too ridiculous to deserve comment. It is safe to assume that the artist never saw the dorsal vessel of a bee. Girard's illustration of the sting is a design with absolutely no anatomical meaning, and is physiologically impossible. His pictures of the male and female reproductive organs, while crude, are better than some of the others, and are evidently taken from Clerici (L'Ape sua anatomia—suoi nemici, 1875).

To Leuckart we are indebted for several very instructive pictures of the interior of the bee. His combination drawing of the alimentary canal, the respiratory system, and the nervous system has been very widely copied. (See Lang's Text-book of Comparative Anatomy, Fig. 320; Packard's Text-book of Entomology, Fig. 426; Root's A B C and X Y Z of Bee Culture, page 11; Cowan, The Honey-bee, frontispiece; Cook, Bees and Bee-keeping, Fig. 27. Cowan copies a modification of the drawings from Witzgall, while Cook makes a modification from Cowan.) The picture, as just stated, is instructive in a general way; but the shape of the air-sacs and the disposition of the tracheal tubes are nothing like these organs in the bee itself.

The popularizing of any subject in science has always been a difficult task because the public wants something interesting to read, and the bare facts in most cases can not be made into entertaining literature; while, on the other hand, an embellishment of these facts by additions from the writer's fancy is not science. Of all the books written on the bee, there is no doubt that the first volume of Cheshire's Bees and Bee-keeping (1886) has done more than any other to popularize the subject of bee anatomy. But there is also no doubt that Cheshire was careless in his observation of details, and that he did not appreciate the true value of evidence. Therefore he was prone to build up theories on altogether too small a basis of fact. His work, however, is probably the most readable and the most read of all descriptions of insect anatomy. His pictures are good from an artistic standpoint, are intelligible, and have been widely copied even into purely scientific texts. Yet it will be evident to any one who carefully examines the internal organs of the bee in nature that Cheshire made little effort to reproduce faithfully the exact shapes of the organs and their parts. A scientific picture depends for effect upon

detail. This, Cheshire's illustrations have, but in far too many cases it is an artificial detail.

When a practical bee-keeper writes a book about bees, dealing principally with the methods of manipulation, he can not be expected to include any thing original on the subject of anatomy, and he would make a great mistake in attempting it. Hence we pass over the host of such writers who have taken their anatomical information from those who have pretended to make a special study of this subject, and who have credited their illustrations to the proper sources. But we can not understand how a professed scientist can write a book on the structure of the bee, and illustrate it with so many ridiculous drawings as occur to-day in one of the most popular works on the subject. It would not be so bad if the author did not pretend to have made a personal study of anatomy; but since we have reason to suppose that the author had at least looked inside of a bee, how then are we to explain his use of many drawings that give no conception of what the parts look like?

Let us examine a few of the figures found in this book. First is Witzgall's modification of Leuckart's combination drawing of the alimentary canal and the tracheal and nervous systems, on a black background. It may be enough to show two cylindrical air-sacs on each side and a number of tubes going off from these in the abdomen through the thorax and into the legs, and call it the tracheal system; but any one who has ever looked into a bee knows that the air-sacs do not have any thing like the shape shown in this picture, while a careful examination shows that the tracheal tubes are altogether different. Again we find an original drawing to illustrate the mouth-parts. The idea probably was to simplify the facts for the sake of "the student," for there are several drawings extant that might have been used showing these organs pretty much as they are in the bee. On another page we find Girdwoyn's illustration of the "ærating system." The artist may be credited with having seen two air-sacs in the abdomen, but he certainly did not see any thing else that he drew. However, the original author may not have known better; but we wonder how "the students" are reconciled to the absolute nonconformity between this picture of the tracheal system and that shown elsewhere. In another place we come to that masterpiece by Girard which shows the heart of the bee as a tube running straight through the body, and having swellings in the abdomen, thorax, and head. As a representation of the dorsal vessel of the bee this is an absurdity; but it is evident that it is intended for such by the black silhouette of a bee's body in which it lies. Now, how can an entomologist use a picture that represents the heart of any insect as widest in the thorax, and that depicts it as having two chambers in this region and one in the head? The statement in the text, that "there are five ventricles," adds nothing that conteracts the falseness of the drawing. There is shown an original drawing of the sting and its larger poison-gland. Here, again, details are very greatly simplified, and things are shown as they do not appear in nature. Further along, we find Girard's picture of the male reproductive organs, probably taken from Clerici. There may be something present in this figure to represent most of the parts present in nature, but they certainly have no such appearance in the natural condition.

The wording of a text may be such that, while it gives little or no information, it at the same time avoids saying any thing that is untrue. On the other hand, in a picture every line drawn says something; and in a book purporting to give scientific information the drawings should tell the truth or else not be used.

The writer hopes that, after this brief review, the reader may be impressed with some doubt of the value of many published works on bee anatomy. On the other hand, many very excellent contributions to the subject have been made by scientific workers; but these do not come so often to the knowledge of bee-keepers. Such works are discussed and given full credit in the bulletin above referred to.

A secondary object of this investigation is to point out the limits of our actual knowledge concerning many of the common functions of the bee. In almost all cases the evidence is insufficient to warrant the acceptance of any particular theory or prevalent opinion. For example, nothing is yet really known about the process of digestion. Honey and pollen, which constitute the food of adult bees, are ordinarily supposed to be digested and even absorbed in the stomach. Cheshire says, "the chyle stomach is lined by an intima, or inner membrane, carrying a cell layer, the cells composing which appear to be of two kinds, having distinct functions, one secreting a digestive fluid (gastric juice) from the surrounding blood into the stomach, so that the contents of the pollen grains may be made fit for assimilation by a transformation not unlike that liquefying gluten in our own case; the other absorbing the nutrition as prepared, and giving it up to the blood—these cells representing the absorbent vessels of ourselves and higher animals generally." It scarcely needs to be pointed out that all this description is, most evidently, made up out of the writer's imagination. No kind of evidence is offered as proof, and the statement is a very fair sample of a great many of Cheshire's lucid explanations. They sound like descriptions of real facts, just as his drawings look like portrayals of real things. The present writer has found, from the examination of the contents of many stomachs, that there is much reason to doubt that either digestion or absorption of pollen takes place in the stomach. Honey and nectar may be absorbed from this organ, but the pollen certainly appears to be digest-

ed in the small or even also in the large intestine.

This subject of digestion leads to a discussion of the origin of brood food, concerning which writers on bee physiology are divided into two classes—one holding that this substance is produced in certain large glands situated within the head of the workers, the other claiming that it is formed in the stomach, and is simply regurgitated "chyle." On each side there seems to be evidence contradictory of the opposite view. In the first place, the mouth of the stomach is so constructed that regurgitation of its contents looks impossible; yet Schönfeld claims to have produced regurgitation by artificial stimulation of the stomach. The contents of the stomachs of bees examined by the writer, however, show no resemblance to the brood food or to royal jelly, being a dark brown mucilaginous slime containing pollen grains. On the other hand, Cowan points out that the work of Planta, showing that there is a constant difference in the food of the various forms of the brood at different stages, indicates that the substance is not produced by glands. Cheshire, after advancing his arguments in favor of the glandular origin, ends with the statement that "the naturalist will, in delight, realize that his bee is more a wonder of wonders than he had before imagined." But the days of delight in imagination are over, and we need some hard investigation of all the facts bearing on the subject before we can have any opinion worth having on the origin of the brood food and royal jelly.

Another of the "wonders of nature" usually pointed out in the bee is the so-called stomach-mouth, supposed to be for the purpose of taking the pollen from the nectar within the honey-stomach. Again looking to Cheshire we get the information that, "while the little gatherer is flying from flower to flower, her stomach-mouth is busy in separating pollen from nectar." This is a very pretty sentiment, but the author does not give us sufficient evidence as to how such hidden secrets were revealed to him. It is hardly enough to catch a bee in the field, cut it open, and see the stomach-mouth working, for it does this on any occasion when dissected from a freshly killed bee, whether there is pollen in the honey-sac or not. To the writer it seems much more probable that the stomach-mouth is simply an organ for passing any kind of food from the honey-stomach to the true stomach, comparable with the similar organ possessed by other insects, rather than a special structure of the bee for separating pollen from nectar.

These are but a few of the problems directly suggested by a study of the anatomy of the bee. A thorough knowledge of anatomy is, of course, fundamental to a study of physiology, and a knowledge of physiology is again most essential in the investigation of all forms of diseases—a subject of vital importance to all bee-keepers. If we add to these subjects a study of the senses of the bee, its behavior, and its place in nature, the field for future work enlarges without limit, and the student realizes that a lifetime might be spent in exploiting this small insect. Since, however, all of us seem to prefer to do several things in a lifetime, it is evident that it will require several investigators to find out yet all there is to know about this already much studied creature, the honey-bee.

Washington, D. C.

A STANDARD HIVE.

The Ten-frame Hive Used in New Zealand Exclusively.

BY I. HOPKINS.

I was much pleased, Mr. Editor, in noting your remarks on this subject in your issue for Nov. 15, and quite agree with you as to the great advantages that would result to bee-keeping in your country could a standard hive be adopted. There has been sufficient time to test the various forms of frame hives that have been in use since Langstroth gave us his, and I don't think there would be any difficulty, at the present time, in deciding which is the most convenient and best. The advantages of having one form of hive in use are so many and so great that I think it folly not to use every endeavor to bring so desirable a condition about. It is a national and an urgent question, and therefore comes properly within the scope of your National Bee-keepers' Association, which, in my opinion, is the right party to deal with it.

You, Mr. Editor, are not altogether blameless for the present condition of things as I see them. It seems to me that you have been too ready to publish illustrated articles on so-called improvements from inexperienced contributors which were any thing but improvements; and the fact of your publishing such articles under big headlines has given them such prestige that, no doubt, many beginners have accepted the improvements (?) as the latest thing out. It is usually the inexperienced who bring forward the doubtful improvements.

In speaking of the advantages of having but the one form of hive, I do so from some experience. It was my good fortune, in 1877 and '8, after experimenting for some years with various forms of primitive hives, to obtain a copy of Langstroth's "Hive and Honey-bee." After some little study I concluded the ten-frame Langstroth hive was just what I needed; and after a season's experience I felt quite satisfied with my choice. At that time there were no frame hives but my own in use in New Zealand. Shortly after, I contributed a series of articles on modern bee culture to two leading daily papers, always advocating the ten-frame Langstroth; and in 1881 I published the first edition of my bee manual in which I gave full instructions for making it, and compared

by diagrams the Langstroth frame with the Quinby, open and closed end; Adair; American; Gallup, and Abbott's Standard.

Being, as it were, forced for the time into the supply trade, as well as running a bee-farm, I made none but the ten-frame hive; and in after years, when I was asked by new arrivals from England to supply them with the British standard hive, I always suggested such a prohibitive price that they were forced to accept the only hive then made, and in most cases they afterward acknowledged they were pleased. I was frequently asked to make the Heddon (which I had tried myself); the Danzenbaker when it was boomed, and other hives of different dimensions; but I always asked too big a price. My friend Mr. Brickell, at Dunedin, also acted similarly, so that to-day I do not personally know of one single hive in use in New Zealand other than the Langstroth, and, with one exception, they are all of ten frames. In the case of this one exception, the owner told me that, were he starting again, with the knowledge he has gained, he would give up the twelve-frame hive for the ten.

I believe that New Zealand is the only country in the bee-keeping world in which the one frame and the one hive are used throughout; but I can assure you, Mr. Editor, it took some fighting through the press to keep this condition of things, and there is no fear now but that it will remain so.

Manufacturers need keep only one kind of hive and frame in stock, with extractors and other appliances suitable for it, therefore they can be sold cheaper on that account. Knowing from experience how great are the advantages, I can only hope that you will awaken such interest in the matter as to bring about, sooner or later, the adoption of a standard hive.

Auckland, New Zealand.

TEMPERATURE OF BEE-CELLARS.

Weak Colonies Successfully Wintered in a Cellar where the Thermometer at Times Stood at 33° F.

BY F. L. POLLOCK.

It has been frequently stated that a temperature in a bee-cellar averaging lower than 40 is almost sure to result in the loss or weakening of colonies. With regard to this, an experience of my own in the winter of 1909 may prove interesting.

My cellar is about 16×20 feet, under my house. It is floored with brick, and the walls are merely boarded against a heavy clay soil. It has two windows, both banked with earth in the winter, and it is entered by a short flight of steps from a board woodshed where the temperature stands about the same as out of doors.

Nov. 2 I placed nine colonies in this cellar. All these were weak, none having bees enough to cover more than four combs, and all were short of stores. The hives were blocked up an inch from the bottom-boards, front and rear, and were placed on stands about two feet high. The brood-chambers were not contracted. Each colony was given a cake of hard candy weighing three or four pounds. This was laid flat on the top of the frames, and warmly packed with paper and cloths, and a telescope cover placed on top of all. Fruit and vegetables were kept in the cellar, so that some one entered it several times every day with a light, letting in a rush of cold air, for the door opened practically out of doors. During November the thermometer averaged about 40. In December it sank to an average of 38, and remained so during January. February was a cold month, with outside temperatures falling frequently below zero, and several times as low as 10 below.

In the cellar the mercury hovered about 36, and two or three mornings I found it down to 33. I tried placing a very large lamp on the cellar floor, which brought the temperature up two degrees; but I decided that this was useless, since not only did the light disturb the bees, but as soon as the lamp was removed the temperature crept back to where it was before.

I had very little hope of bringing my weak colonies through. March, however, turned out unusually mild, and the cellar rose gradually to 40° again. All the colonies were still alive; but I felt sure that they must have dysentery or something, though I could see no sign of it, and I set them outdoors as early as I dared, April 3.

Now, every one of those nine colonies seemed as strong as when I put them in the cellar. The worst sufferer had not more than half a pint of dead bees on the bottom-board, and most of them had merely a handful. They had consumed almost all their candy, but not much of their honey stores, showing, I think, that the cluster had been unable to move freely, and had fed upon what they could most easily get at. No queens were lost, and there was no trace of dysentery.

I can attribute this successful wintering to only two things: First, the candy stores; second, the fact that the cellar door was opened so frequently that there was a plentiful supply of fresh air. The conclusion would seem to be that proper stores and ventilation are more important than temperature—at least, within certain degrees.

It appears that cellar-winterers in Canada do not demand as high a temperature as seems to be required in Ohio. One of our most successful bee-keepers considers a temperature of 36 to be about right, claiming that the bees remain more dormant, using less vitality, and coming out better in the spring.

This winter I have 22 colonies in the cellar, all of them stronger than the ones I have mentioned, and with their combs full of sugar-syrup stores. I battened up doors and windows, and went south to spend the winter. The temperature will be higher,

but there will be less ventilation. I am quite anxiously awaiting the time when I can return to learn the result.

Stouffville, Ont., Can.

[A small number of colonies will often winter well in a cellar when a large number would come out in the spring in very poor condition. A cellar 16×20 would ordinarily be considered of good size; when, therefore, you place only 9 colonies in that cellar you have a number so small that they could hardly befoul the air, especially when you open the cellar frequently. Such a small number could stand a much lower temperature (because of tbe comparatively good air) than a large number with poor air.

You will probably find that, during this winter, the larger number will not come through in as fine condition, and we would, therefore, be glad to have you report the results in the spring.

No, temperature is not as important as ventilation. With good ventilation the bees can stand considerable range from a high to a low and from a low to a high temperature; but when the air is fouled by the breath of a large number of bees, too warm or too cold an atmosphere is apt to cause disastrous results.

The general verdict of bee-keepers over the country is that from 43 to 45 is the best temperature for a bee-cellar; and if that temperature can be maintained between 40 and 48 in a reasonably dry cellar supplied with fresh air, the bees (other conditions being equal) should come out in fine condition.—ED.]

SOME COMMENTS ON DISCUSSIONS AT RECENT CONVENTIONS.

Advertising Honey.

BY F. GREINER.

The turning of our product into cash, and obtaining the best possible price, is one of the things uppermost in bee-keepers' minds. Speaking of extracted honey, one of our friends at the Geneva convention said: "Because we ask so *little* for our honey, people are forced to think it is not worth much. An opposite policy followed would produce the opposite result." Others entertain the idea that the people are not acquainted with the article, and therefore do not use it. Advertising is recommended. Educating the public by advertising, and setting forth the high qualities of honey, would undoubtedly have a beneficial effect. Such advertising as is done along the line of breakfast foods, soaps, etc., is, however, all out of the question, because no one bee-keeper can be expected to do this, on account of the tremendous sums it would require. All bee-keepers together can not do it, because they can not be united. A cheaper way of advertising must, therefore, be resorted to, which, however, will not prove nearly as effective. The New York State Bee-keepers' Association has decided to have school-pads made, the front pages of which contain matter relating to bees and honey. I would suggest that it be principally *honey*. We don't care to interest the people so much about bee culture as we do about the product.

As a means for making people better acquainted with honey, it was suggested and urged to make more elaborate exhibitions at fairs. Instead of occupying a little side table in the great exhibition building in Syracuse we ought to fill the whole room now generally occupied by fruits and vegetables. This could be done, and the impression created that there is honey without end in the State. This would cost the bee-keepers a great deal of money. But few exhibitors could obtain a premium, and all the reward they might get would be, perhaps, the chance to sell their honey. If it were noised about by advertising that all of New York honey was to be on exhibition at our State fair, buyers might flock to Syracuse, and, in course of time, regularly make their purchases at this time. We must not leave out of calculation that each exhibitor has to pay a big entrance fee, which might prove more to the advantage of the agricultural society than to the exhibitors. On the whole, the scheme looks doubtful to me.

A better distribution of our honey, and also of many other agricultural products, would probably raise the prices; but the higher the price is, the less will be consumed of those articles which can not be regarded as necessities; and when honey goes above a certain proportionate price, other sweets are given the preference. All theorizing will not alter this fact. I believe in every laborer receiving fair pay for his work, and it strikes me that the bee-keeper is doing as well as laborers employed in other fields. There is a decided aversion here to paying more for honey because "the bees work for nothing and board themselves." (?)

DISEASE ON THE INCREASE.

The next subject, and one of gravest importance, is foul brood. No bee-keepers' meeting has been held for the past ten years here without this subject taking up a great deal of time. When the European disease was first discovered in our State it was found present in four or five counties. The bee-keepers hastened to inaugurate a measure to stay the spread of the disease, and four inspectors were appointed by the State to confine and stamp it out. Year after year we anxiously asked the inspectors, "What about foul brood?"

"Oh! we have it under control," we were answered; but after ten years of efforts on their part, with the help of one of the bee-keepers, the disease is now in almost every county in New York; and we heard some one say at the National meeting in Albany, "The time is near at hand when *every bee-keeper* will have the disease in his yard." This is discouraging news; but if this is a fact, it will be well for us to prepare for the worst. The Seneca Co. bee-keepers are having a taste of the disease just now. They

have lost heavily already, and they say the shaking plan did not save them, but cost them lots of money.

Mr. J. T. Greene told us at the Ontario Co. meeting that he expended $750 a year ago on Italian queens and comb foundation. The disease, however, reappeared in the shaken swarms, and he is pursuing different methods with better results, but finds it absolutely necessary to use young Italian queens in connection with his treatment. Only such combs are destroyed as are very badly affected; the rest are placed in upper stories over excluders, queens left below. After ten days the brood-combs are returned. By that time the combs have been cleaned out. It will generally become necessary, when foul brood makes its appearance, to reduce the colonies in numbers, uniting two or more till a good force of bees is at hand in every hive. Following this method of treatment he succeeded this past season, so that he could sell $2000 worth of honey, with his bees much improved, though not entirely cured. Mr. Greene is preparing to rear his own queens next season, although he says that queens can not be reared in colonies affected with European foul brood; but queens reared in foul-brood-affected vicinities may be better—the theory being that the bees become more and more immune, only those surviving that are most disease-resisting.

WINTERING IN SINGLE-WALLED HIVES.

The subject of wintering has also not entirely lost its interest among the bee-keeping fraternity. There were several at the New York State meeting, as well as at the Ontario Co. meeting, who had come to the conclusion that chaff hives are not needed for outdoor wintering—in fact, they preferred the single-walled hive with a good packing of forest leaves on top of the brood-chamber, and no sealed cover. Mr. H. L. Case went so far as to say that he would give more for a colony in a single-walled hive thus prepared than for one in his large cumbersome Quinby hives, other things being equal. Dr. Schamu was a second to him. However, there was some opposition. Mr. Howe came out strongly on the other side, claiming that, in his northern clime, bees could not be wintered out of doors by any method with any degree of safety. Some years they might winter, and some they would not.

I once visited Mr. Howe's bee-cellar after the bees had been in it several months. It was in March, and the bees were very quiet, the hives clean. We "poked" around among the hives for a half-hour without the bees becoming in the least disturbed. We even turned some hives up to observe the color of the bees, etc. Mr. Howe's bee-cellar is under his dwelling; has a cement floor, ventilation through a tube upward; no special provision is made for the incoming of fresh air. There were 275 colonies stored in it; passageways were left between the rows of tiered-up hives. Most hives were painted, but some were not. The fact that the large stock of new hives was painted or being painted shows that he considers it best to paint. The bees have usually wintered well in this cellar.

OBTAINING A LARGE NUMBER OF QUEEN-CELLS CHEAPLY.

We seldom hold a bee-keepers' meeting when the subject of queen-rearing does not receive its share of attention. Mr. Case gave his rather novel plan of having quantities of fine queen-cells built. It was given a year ago as well as this year at the Ontario Co., N. Y., meeting. The plan is this: A nice clean comb is given to the breeding colony. Four days later the comb, then full of eggs and larvæ, is prepared in a warm room as follows: With a knife incisions are made with the rows of cells, to the midribs, all over the comb. Then with a chisel every other strip is removed, leaving the rows of cells separated. In every row thus left, every other cell is destroyed with a match. Thus prepared, the comb is given to a queenless and broodless colony above the top-bars of frames horizontally supported with space enough to allow for the queen-cells to be built. The bees take very kindly to such an arrangement, he says, and build a great many fine cells (he has had 75 built on one comb at one time). It beats the larva-transfer method "all hollow." The writer of this believes the above a very good plan where one needs many cells at a time. Dr. Phillips, of Washington, gave very much the same method of producing queen-cells, at our State meeting in Geneva, Dec. 12, 1910.

A QUICK WAY OF FINDING QUEENS.

Having so many cells to dispose of, it will be necessary to find many queens, and a quick systematic method for finding them will be welcome, particularly with black and brown bees. The Hannemann method of running the bees through a sieve recommends itself. Mr. H. L. Case and the inspectors in our State employ it. They shake the bees off their combs into a box with a perforated queen-excluding metal bottom reaching partly up the sides. The box (or sieve) is placed in front of the hive entrance. The one I have used stands on short wire legs. The bees, when dislodged from their combs, climb hastily through the perforations and back into their hives. The drones with the queen are left behind. Mr. Case says he finds a queen every five minutes with this arrangement. I would say I have also used an entrance-guard for the same purpose, but the bees are then a good while longer getting back into their hive than they are with this sieve.

Naples, N. Y., Jan. 13.

Odor of Tobacco from the Cigar-box Killed the Bees.

Referring to the bees in the cigar-box, p. 52, Jan. 15, surely the odor of tobacco killed the bees. I had the same experience. Don't go hunting bees with a cigar-box either.

Rolfe, Pa. J. WHEELER.

BEE-KEEPING IN THE HIGHLANDS OF MEXICO.

Carl Ludloff and His Simplex Hive.

BY O. B. METCALFE.

Returning now to Mr. Carl Ludloff and his Simplex hive, as he is now manufacturing it for sale and his own use at Irapuato, Mex., we have a very good picture of Mr. Ludloff together with his home apiary of Simplex hives. The man in the background is his Mexican helper, who works for the small sum of 75 cents per day and boards himself. I could plainly see that he was nothing but a helper in the real sense of the word; but, even as such, when one considers that his pay is the equivalent of only 37½ cents U. S. currency, it certainly is cheap labor. Plenty of such labor may be had, and even cheaper, in Mexico.

A glance at Fig. 8 suffices to show that this apiary is kept in perfect order. Every thing is neat, clean, and orderly, each hive being well made and perfect of its kind. Seeing this I expected to find the inside of the hives well kept, and so it turned out. While in the apiary with Mr. Ludloff we opened a number of hives, and every one of them showed careful manipulation and a thrifty condition of the bees. On the hive just in front of Mr. Ludloff a little slat can be seen, and on the back of this a small piece of paper. This is one of his score-cards, and each hive has one on which a record is kept of what it did all through the season.

Fig. 9 shows three of these Simplex hives. The first and second ones have the shingle water-sheds removed in order to show the cattail-flag mats in position, while the third has this mat removed to show the frames serving the double duty of frames and inner hive walls. The two end frames are filled with matted bullrush about one inch thick, so as to form ends for the hive. Each hive has 17 frames and 2 division-boards, which are used to contract or expand the space occupied by the bees to suit the size of the colony. Thus if a colony needs one or two more frames the division-board is moved over a frame or two. In size the frames are 10×15½ inches, inside measurement, and of a thickness to take one-pound sections. Each frame holds eight sections; and when the apiarist wishes to run for comb honey he places several frames with sections on either side of the brood with one frame of solid capped honey between the sections and the brood.

In sections Mr. Ludloff uses foundation starters, but nothing of the sort in his brood-frames. In these he uses what he calls a wire starter. This wire starter he makes by stretching a single strand of No. 30 tinned wire across the top of the frame within ⅛ inch of the top-bar. He claims that, without fail, they will start the comb along this wire, and I am inclined to believe that it would work in most cases, for I have often noticed that the bees draw combs straighter in wired frames than in those without wires, and that they are fond of starting comb any place along horizontal wires. Some will wonder what object there is in finding out new things about starters when every one knows that it pays to use full sheets of foundation. But I doubt if full sheets would pay in most places in Mexico. I certainly was surprised to see how little drone brood Mr. Ludloff has in his hives. I could not understand it until he afterward told me that he never kept a queen more than one season.

Fig. 10 shows a Simplex hive opened up, with a good covering of bees on the brood and honey. It also shows one divisible frame, which is used for making increase, or for sending a small nucleus by express. The entrances, as can be seen in the cuts, are very small; but Mr. Ludloff keeps even these half stopped most of the time, and claims that the lack of ventilation is one of the strong points in his hive for his location.

To describe in detail the operation and the many advantages Mr. Ludloff claims for his Simplex hive would take much space. In a few words I will tell how the hive impressed me. I feel that it has the good points of being warm and of being easy to handle or manipulate so far as working in the brood-nest is concerned, and that it is evidently cheap of construction. But it seems to me that it would "fall down" in that the place for storing surplus is not above the brood-nest; for, if I understand the bees' nature, they will store honey above the brood-nest further from it without swarming than to one side of it, because the heat which rises from the brood-nest can be used in working the wax. Furthermore, while the manipulation of brood in the Simplex hive would be very easy I do not think the taking-off of honey would be as easily done as in our standard American hive with its super for surplus. However, because of the very high price of lumber in Mexico, and because of the high duty and freight charges on our American hives, the Simplex hive may be the practical one for that country; but I feel sure that the merits of the former as an ideal hive do not justify Mr. Ludloff in the bitter impeachment he is waging in Mexico against them.

Mr. Ludloff claims that his flow often shuts off very quickly, and that severe robbing is the result. For this reason he has made a bee-tent of canvas as shown in Fig. 11. Two men can carry it any place with little or no effort, and it looks as though it might be pretty handy and comfortable. It affords a shade as well as protection from the robbers, and has a rack around the walls to hold tools while moving from one hive to another or when not in use.

The queer cylindrical hive shown in Fig. 12 is the kind used by the Mexican bee-keepers around Irapuato. They are mostly kept suspended under the eaves of the houses, and the honey is taken from them in the



CARL LUDLOFF AND HIS SIMPLEX HIVES.

same manner as their brother bee-keepers take it from the yucca-trunk hives around Tampico. It is made from slits of bamboo, woven basket fashion, and is plastered over with a coat of mud to keep out the air.



Fig. 17.—Cluster of orange-blossoms and fruit.

CONDITIONS IN MEXICO AS A WHOLE.

Summarizing my trip of investigation through Mexico I will say that I do not intend at the present time to locate any bees in the republic on the strength of any thing I saw; but I wish to call attention to the fact that I did not visit the low and strictly tropical regions. I was told that one could buy bees in yucca-trunk hives around Tampico for a dollar a stand. There might be some money made there buying them and working exclusively for wax; but I would advise any one interested in this sort of thing to go and thoroughly investigate it before closing out any bee-outfit he already has. I had read and had been told that living is very cheap in Mexico, but I did not find it so. I got double the number of dollars when I changed my money at the line, but it went about twice as fast; and with many of the common articles of food, two dollars in Mexican money will not buy as much as one dollar will in the United States.

Mesilla Park, N. M.

BEE-KEEPING IN FLORIDA.

The Surplus-honey Sources.

BY E. G. BALDWIN.

Continued from last issue.

While in a general way the northern half of Florida (see map) is the land of the pine, and the southern half the land of the palm, the dotted areas will give in a more comprehensive way the sections of the various honey-producing sources. Of the fifteen odd sources of possible surplus honey, a glance will reveal the truth of the claim that the large majority of them are trees, not plants. Name any other State of which this can be said.

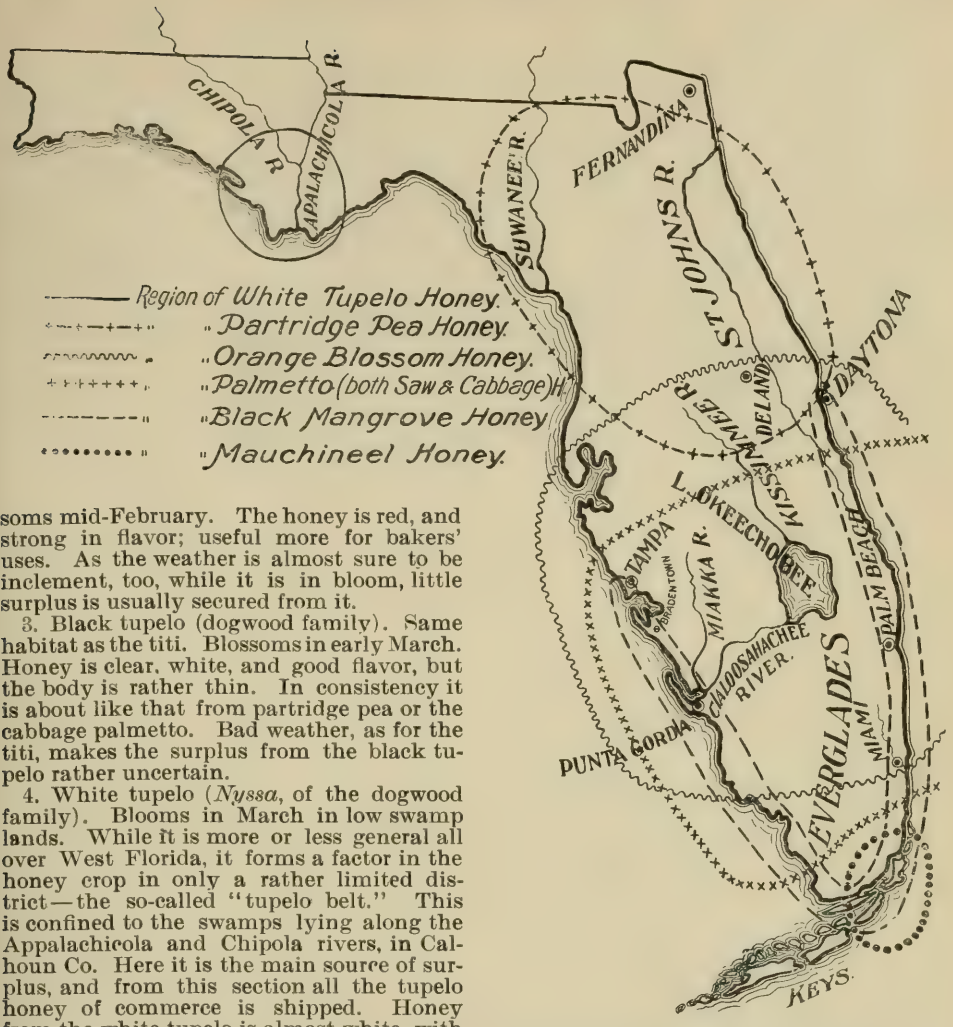
These, considered singly and in their seasons, are about as follows:

1. Wild pennyroyal (of the mint family); grows in the southern half of the State, blossoming in January and February. The honey is clear and of good flavor and body, but the yield is slight, as a rule, nor does it figure very largely in the honey put on the market. Weather is apt to be uncertain while it is in bloom.

2. Titi (*Cyrillaceae*, or titi family). An evergreen that grows in pine swamps in the northern portion of the State; gives surplus only in the extreme northwest in the so-called West Florida. It blos-



Fig. 27.—Orange-trees produce the finest honey in Florida when taken pure. When conditions are right the nectar can be seen shining in the blossoms.



soms mid-February. The honey is red, and strong in flavor; useful more for bakers' uses. As the weather is almost sure to be inclement, too, while it is in bloom, little surplus is usually secured from it.

3. Black tupelo (dogwood family). Same habitat as the titi. Blossoms in early March. Honey is clear, white, and good flavor, but the body is rather thin. In consistency it is about like that from partridge pea or the cabbage palmetto. Bad weather, as for the titi, makes the surplus from the black tupelo rather uncertain.

4. White tupelo (*Nyssa*, of the dogwood family). Blooms in March in low swamp lands. While it is more or less general all over West Florida, it forms a factor in the honey crop in only a rather limited district—the so-called "tupelo belt." This is confined to the swamps lying along the Appalachicola and Chipola rivers, in Calhoun Co. Here it is the main source of surplus, and from this section all the tupelo honey of commerce is shipped. Honey from the white tupelo is almost white, with just a tinge of lemon hue in the sunlight that is very beautiful. The body is thick and the flavor is exquisite. It reminds one of the "smack" of "bumble-bee honey" of boyhood days; and that is a high compliment too, let me hasten to explain to those who have never been so fortunate as to remember how that tastes. Some would pronounce it even superior to that from the saw palmetto or mangrove. Tupelo honey, we are glad to say, is now sold under its own name. Seven years ago the writer tasted some so-called tupelo honey in the office of Mr. J. H. M. Cook, in New York, which he now knows was *not* pure tupelo honey; for the *pure* article will not granulate, and that was candied hard. By the way, that particular honey had been sold to Mr. Cook as "orange honey," just because it came from Florida and the name was suggestive. Tupelo honey needs no such recommendation now. I am indebted to Messrs. Higgins and Hollinger, of Wewahitchka, West Fla., for a sample of pure white-tupelo honey, and I must pronounce it about as fine an article as I have ever sampled.

5. Orange-blossom honey (all of the citrus family). The best sections of the State for this tree are from the north-central portion to the southern end of the peninsula. It blossoms in late February or early March. There is no more beautiful sight nor sound nor odor than an orange-grove in full bloom, the air redolent of perfume, and the air alive with humming, toiling bees amid the snowy petals (Fig. 17) that shine like stars from out the masses of shiny green leaves. See Figs. 27 and 29 for good illustrations; but no picture can do justice to the reality. The honey is light amber, clear, and almost transparent—clearer than that from saw palmetto, though the body is not quite so heavy. The flavor is delightful; "fruity" is about the term for it; the aroma of the blossom is in it—a perfume not found in any other honey I have ever tasted. I once



where there are extensive groves and nothing else to bloom at the same time, or its color is darkened and its flavor changed by the admixture of poorer grades from other sources." For example, the wild cherry blooms profusely in almost all orange-growing sections, and about simultaneously with the orange. Again, the orange-tree yields nectar profusely only about two years in three. Even when it does yield, it is an extremely difficult thing to get colonies up to proper super-strength in time for the flow. No; pure orange honey will never become a glut on the market. There is this additional difficulty that bee-men in this particular section have to contend with: Our summer honey is dark and strong. Unless all this honey is taken out of the combs by the time orange begins to bloom, some of this dark

sent a sample of this honey to Mr. Ernest R. Root, who replied as follows: "We are inclined to think the flavor is a little finer than any thing of the kind we have ever tasted." Of course, this means *pure* orange honey. It is not easy to secure it in a pure state. Mr. W. S. Hart, of Hawks Park, Fla., says in the *Irrigator*, page 373, Vol. II., No. 12, "Pure orange honey is unexcelled in color, body, or flavor; but it is and always will be scarce, as it can be got only



Fig. 29.—Orange-grove in full bearing, De Land, Fla. The fragrance of the blossoms comes from the honey.

honey is sure to be carried up into the supers, when the queens commence to "spread themselves" in egg-laying. It does not take much of the dark honey to mar the flavor and dull the color of the choice orange honey. As a rule, orange honey does not candy easily. The past year was a marked exception to the rule, however. It is probably due to the other honeys mixed in with the orange.

6. Andromeda (a scraggy shrub of the heath family). Blooms in the central and northeastern part of the State for about four weeks in March and early April; yields but little three years out of four. The honey, too, is reddish yellow, thick and pungent, not very valuable as a surplus-honey plant.

7. Gallberry or holly; a tree that grows in almost all parts of Florida. The northern portions, however, are more suited to its best growth. Blossoms anywhere from mid-March to early May, depending on the season and the latitude, but almost always along with other honey-bearing sources, so that the honey is practically never obtained pure. For example, on the east coast, in the neighborhood of Daytona, it blooms along with the saw palmetto, and the resulting honey is a blend of both. Both happen, luckily, to be good in flavor and alike in color, so that the result is satisfactory. Were it not a fine honey it would ruin many a ton of choice palmetto honey. Even where it is not sufficient for surplus, it comes at a time favorable for breeding up colonies for coming harvests of other sources. When bees are working freely on the gallberry their hum can be heard for many yards in all directions. It is my observation that the male holly seems to yield even more abundantly than the female.

8. Saw palmetto, commonly dubbed "scrub" palmetto (*Serenoa serrulata*); a shrub with creeping trunk, leaves erect and fan-shaped, often standing six or seven feet high. It thrives on sandy soils, moist preferred. Hummock lands are best for its growth. It blooms from April, in the south, to June in the northern sections of its habitat. The blossoms are small, greenish-white, arranged on a plume-like stem that grows out from a central bud in the head of the plant, at the base of the leaves. They are fragrant, though not so large and showy nor so aromatic as the blossoms of the cabbage palmetto. The honey from the saw palmetto is lemon-yellow in color, thick and waxy, and of pronounced but delicious flavor. Is not *quite* so transparent as pure orange honey, but seldom candies, and makes a choice table article. Mr. O. O. Poppleton pronounces it the best honey in Florida, "with possibly the exception of tupelo." It is liked by almost every one at first taste; is a trifle milder than even orange. My friend Mr. Harold Hornor, Philadelphia's most energetic honey-dealer, tells me that he prefers it to all other honeys from this State. He has bought it for years past. Forest fires often damage wide tracts of this most valuable bee forage, though only for that year. This will be referred to later under "Difficulties of Florida Bee-keeping."

De Land, Fla.

To be continued.

BEE-KEEPING AS A HOBBY.

Tools and Dress.

BY F. DUNDAS TODD.

Chapter Five.

The tools essential for the practice of bee-keeping in a small way are neither numerous nor expensive, consisting practically of a smoker and a hive-tool. As the latter may be dismissed in a few sentences we will speak of it first. Its principal use is to force apart the frames in the hive which are generally glued together by the adhesive mentioned in the previous chapter—its name, by the way, being "propolis." As any



Fig. 1.—Nickeled-steel hive-tool.

piece of strong light metal is fit for this simple work we find many bee-keepers content to use a screwdriver or inch wood chisel. But once in a while we need something to scrape away the accumulations of wax and propolis from the frames, or the deposit of dead bees and other waste matter on the

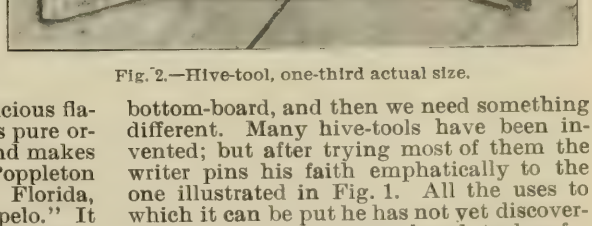


Fig. 2.—Hive-tool, one-third actual size.

bottom-board, and then we need something different. Many hive-tools have been invented; but after trying most of them the writer pins his faith emphatically to the one illustrated in Fig. 1. All the uses to which it can be put he has not yet discovered, for it is as handy as a bench-tool as for the purpose for which it was specially designed. The lower figure in the cut shows it used for scraping frames; the upper, how the flat end is inserted between two hive-

bodies to break propolis connections. The rounded shoulder at this end is just the thing to get leverage when prying frames apart.

THE SMOKER.

Any one who has ever indulged in the excitement of a combat with even a single bee would be apt to think that the word "fear" did not occur in her vocabulary, and that no power on earth could bring her to subjection. But even the bee has her moments of weakness, though the writer can not for a second admit they are due to a streak of cowardice. It seems to be rather complete indifference to immediate surroundings while she is making provision for a great calamity that is impending. For countless ages the natural home of the colony bee has been in the hollow trunk of some monarch of the forest where the most terrible fate that could threaten would be destruction by fire. It seems to the writer that, as a consequence, there would be developed an instinct in the race that, on the first hint of smoke, would make each bee gorge herself with honey preparatory to a general flight to some safe region where the work of the colony could be resumed. When, therefore, we wish to enter a hive we force smoke into the interior. On opening it we find most of the inmates with their heads in the cells lapping up honey, and more or less indifferent to the monster who is invading their home. In times not so very long ago, bee-keepers used very crude methods for driving smoke into a hive, such as burning rags or rotten wood in an open pan, and blowing the smoke into the chamber with breath from the mouth. By a happy inspiration Moses Quinby combined a bellows with the holder for the burning material, and paved the way for the smokers of to-day, one of which is shown in Fig. . Essentially it consists of two parts—the bellows and the stove. When the former is quickly compressed it forces air into the stove under the grate on which rests the cotton or linen rags (never woolen), rotten wood, pieces of old discarded hive-quilts coated with propolis, oily waste, or short lengths of well-dried fruit-tree prunings; in fact, any thing handy that will smoulder slowly and give off pungent smoke. The best substance the writer has ever used is greasy waste. Enough of

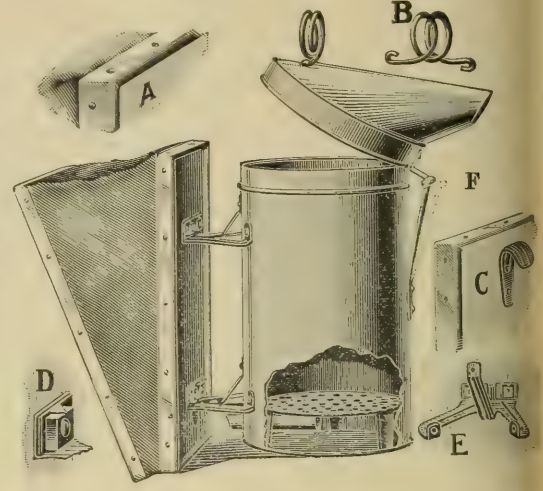


Fig. 3.

this to last for a whole season may easily be had for the asking where a steam-engine is used. The current of air drives a volume of smoke through the nozzle into the hives or across the frames as may be desired.

COSTUME.

There is nothing very stylish about the raiment recommended to be worn while one is working in the bee-yard. Like that of many other pastimes it is peculiar to itself, consisting essentially of hat, veil, and gloves; but, though the head gear is generally of ample dimensions as regards the brim, it can not be grouped among the "merry widow" type, nor can the veil be deemed a variety of the "automobile" style. The gloves may or may not be worn. Bee-keeping is like golf in this respect, for no particular regulation prescribes the proper dress wear for the hand. The brave baron of old worked up quite a reputation for courage by killing off miserable wretches on foot whose sole protection was a leath-jacket, while he himself was mounted on a horse which, like the rider, was encased in steel. His long lance drilled a neat hole in the skin of the foot soldier whose short



Fig. 4.—Two different types of smokers, the hot and the cold blast. The hot blast is to be preferred, because it is much more efficient.



Fig. 5.—Ordinary black net bee-veil with rubber cord around top and bottom.

spear could not reach even as far as the horse's nose. The twentieth-century successor of the warrior bold of the Dark Ages is the bee-keeper. He wisely envelopes himself in a coat of mail impenetrable to bee-stings, then attacks the horde with a smoker. He differs from the baron most honorably in one respect — he does not give donations to wandering minstrels for composing lying lays about his courage.

HAT.

Any old hat with a fairly broad brim is good enough for bee-keeping providing there are no holes in it. The wide brim keeps the veil away from the wearer's face and neck.

VEIL.

The veil problem is one that most men must settle for themselves—at least, that is the experience of the writer. He began with the ordinary veil shown in Fig. 5, but found it very unsafe, as holes were continually appearing in it. Now many old-time bee-keepers are perfectly satisfied with this form of protection, so it must be safe enough for careful people; but the writer may belong to a different class. Besides being about six feet in height, he is continually bumping his head against such simple things as branches, which a shorter man can miss without any effort. Men of the modest stature of five feet and some inches generally prune fruit-trees to clear their own height, and then wonder why a big fellow can not take care.

The Alexander bee-veil shown in Fig. 6 looked hopeful when it first appeared, and so one was made. It is assuredly a perfect protection from bee-stings, but the writer's head never seemed to get accustomed to it. He felt its presence too much all the time. One great merit almost reconciles him to it, however, and that is the wonderful freedom from forehead perspiration in hot weather



Fig. 6.—Alexander bee-veil.

when it is worn — no mean advantage, as will be appreciated by those who must wear spectacles. A hat-band is a great producer of perspiration, which soon runs down the brow and spreads itself over the lenses of the spectacles, blurring vision completely. Such problems as these rather complicate one in the choice of a veil. In the writer's case he decided that ready access to his glasses was of more utility than the almost entire absence of streaks of sweat on them. Hence he prefers the Coggshall bee-veil and suit shown in Figs. 7 and 8. This consists of a blouse to

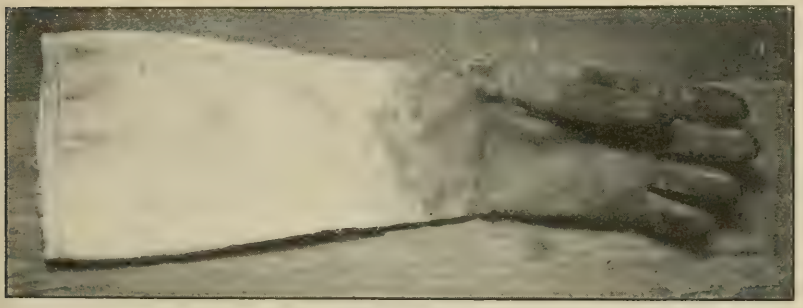


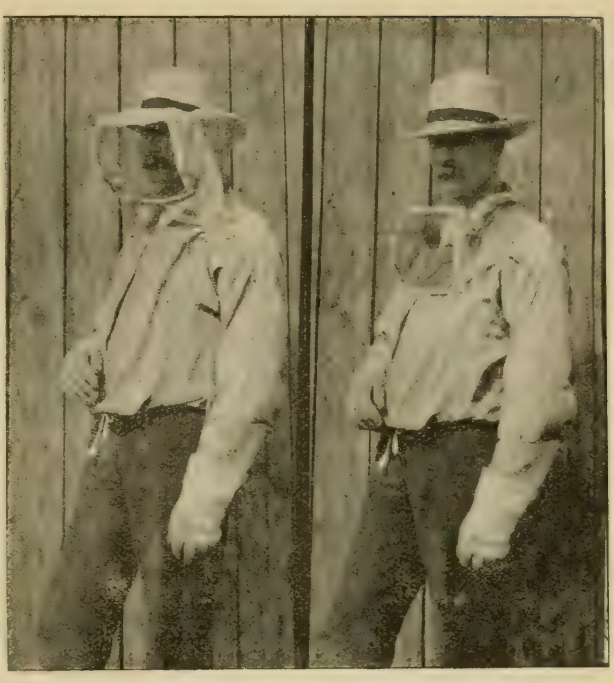
Fig. 9.—Bee-gloves with long sleeves to protect the wrists and arms.



E. D. TOWNSEND'S SPRINGBROOK APIARY, SHOWING EXTRACTING-HOUSE BUILT LIKE LUMBERMAN'S SHACK.

which is attached an upper part of netting that is faced in front with a square of black wire gauze. The simplest way to make this suit is to buy a cotton night-shirt two or three sizes larger than is usually worn; cut off a part above the shoulders, and another below the waist. From the remnants make extensions for the sleeves, long enough to come down over the knuckles, and cut a hole in the side for the thumb. The lower part of the blouse is taken up with a string gathered in the edges. It is drawn tight, and tied.

The visor in front of the face is made of black wire netting. Since the larger the mesh the easier it is to see, the writer uses a piece about eight inches square, with a mesh of eight wires to the inch. To prevent the wire cutting the netting it is edged with a strip of inch-wide oilcloth doubled all round and sown slowly on the sewing-machine.



Figs. 7 and 8.—Showing the Coggshall veil and suit.

White netting, such as is used for window curtains, is the best material to use for the upper part of the suit, as it permits of a free circulation of air. It should be quite loose in the back, but not so in front, for the closer it is to the face the better one sees. The upper part of the square of wire netting should reach the brim of the hat; if it does not, the sun's rays will strike the white curtain and irritate the eyes. It is better to sew the wire gauze in place before the white netting in front of it is cut away. The upper part of the white netting has a piece of elastic hemmed in to permit of the veil being speedily adjusted to the hat or freed from it.

The pieces that protect the hands are made sting-proof by being coated with paraffine. This is easily applied by means of a dessert-spoon while the melted paraffine is hot, running it where it is wanted, and spreading with the spoon.

Fig. 7 shows the veil in use; Fig. 8 how it can be lowered from the face for any purpose, such as mopping the brow, wiping spectacles, or to get a drink of water.

GLOVES.

When the simple veil is used it is better if the gloves have long sleeves, as shown in Fig. 9. If the stings reach through the cloth the gloves can be made absolutely sting-proof by applying a coating of linseed oil. This is best put on with a brush, taking care to use the least possible quantity.

With the Coggshall bee-suit, long sleeves to the gloves are unnecessary. A good glove for this outfit is one made of sheepskin, which, the writer has been told, is much used by the cowboys of the western plains. It is very thin, with a glossy surface which turns a bee-sting effectively. Such a glove can be slipped on when the occasion demands protection, and is as easily taken off.

The lower openings of the trowsers legs must be closed, either by the application of bicycle-clips, pieces of string, or by tucking them into the socks. High shoes are preferable to low. Ladies should wear a divided skirt fitting tightly to the ankles, or some kind of trousers under an ordinary short dress.

The writer has found the Coggshall suit to be perfectly bee-proof, and as handy to don and doff as an ordinary veil. When he is foolish enough to wear sleeveless undershirts, once in a while the bees of an ill-tempered hive will attack his left forearm and inflict a dozen or two of pricks that annoy for the moment, but the pain is gone in less than a minute.

Victoria, B. C.

BEE-KEEPING FOR BEGINNERS, ILLUSTRATED.

The Arrangement of the Apiary.

BY E. D. TOWNSEND.

A glance at the engravings will show the reader that our Charlevoix Co. yards are back in the woods, away from planing-mills or such conveniences. Under these circumstances we built the honey-house shown in Fig. 2 on the plan learned of the wood chop-

pers of this locality. After all the timber is taken off that is good for logs, etc., the remaining portion is cut into wood for different purposes. A "gang" of perhaps half a dozen families will put up shacks in a certain location where there is wood to chop, and then, after cutting what timber there is near, these shacks are taken down and moved. The material is rough lumber direct from the mill, and the frame and all is put up with as little nailing as possible, so that it may be easily taken down and moved. At the destination, each part being intended for a certain place, all goes together about right. Of course, some boards are spoiled in taking the building down and moving, and these have to be replaced. Tar paper does the rest—that is, it keeps out the cold and wet. In case of our building as shown, it keeps out robber-bees as well as the rain. We want the building cold to kill the moths during the winter, but, of course, we pay no particular attention to this feature.

Figs. 3 and 4 show that the location is protected, and they also give an idea of the wild nature of the surroundings. This particular yard is called Springbrook, so named on account of the beautiful spring about twenty rods up in the woods, from which a brook runs down to the very edge of the apiary, providing water of the finest kind for either man or bees.

The apiary proper is located on a parcel of level ground between two hills, with additional protection from undergrowth on nearly all sides. The foliage seen at the left of Fig. 3 is the wild red raspberry, and on beyond is the pasture from which most of the surplus honey comes.

Some of the colonies in this yard are a part of a carload bought and shipped in, and they are not yet in ten-frame hives, but they will be transferred next spring, as the frames are all of standard size.

In Fig. 1 the "push" behind the wagon is the writer, and it is a good picture of him too. His oldest son, Delbert, between the thills, has almost entire charge of the 260 colonies in this county. It usually happens that the ground slopes either toward or from the yard, so that a light load can be drawn by hand one way or the other. In this case the slope is from the yard, and so the load is pushed down to where the horse is tied. The horse, as shown, is hardly a safe distance from the bees, but it was hitched at this point while the picture was taken. At the last minute, when every thing is in readiness for the start, the wagon is drawn by hand near the horse, as I mentioned before, which is then hitched on and driven out of range of the bees.

If a load is to be drawn toward the yard during a part of the day when the bees are flying, so that it would not be safe to drive clear up to the honey-house, the horse draws the wagon as near as is safe, and then is quickly unhitched and taken a distance away and hitched; then the load is taken the rest of the way on a wheelbarrow.

Remus, Mich.

SWARMING PREVENTED BY PROPER CARE INSTEAD OF BREEDING.

BY J. E. CHAMBERS.

Although I am a firm believer in Carniolans, and have now nearly 800 colonies, I do not have over 6 per cent swarming. For some years past, the swarming habit has been slowly decreasing—I think in exact ratio to my better understanding of bee nature. Another factor, I think, is the use of large hives at all seasons of the year, with a good supply of honey and drawn combs. I think generous ventilation and shade also have something to do with the non-swarming of these bees — the so-called greatest swarmers on earth. But perhaps the most important reason why I have so little swarming is that I try to get every colony well started to gathering honey before the condition of the hive becomes crowded with young bees. With this object in view I winter all colonies with from 75 to 100 pounds of honey in the combs; and as soon as extensive brood-rearing is begun I extract clean—that is, if there is a flow on, or near at hand. This gives abundant room at the right time. Some foundation can also be provided, and fine combs for cutting can be secured. As is doubtless known, I produce bulk comb honey only.

For ten years I have been laboring to perfect a method of swarm control, and I think I have it at last; but I have awakened to find that the colonies that swarm do not pay me for the time that I lose in manipulating to prevent the swarms; yet there are some seasons when bees get only enough honey and pollen to rush brood-rearing, but not enough to store much; and it is then that swarming is a real problem, and I like to know that I am master of the situation.

CARNIOLANS AHEAD OF ITALIANS.

The late D. M. Edwards told me that only Italians were valuable for honey production in this section of the Southwest, and that Carniolans reared too much brood and swarmed too much. He also told me that I would have to amend my practice in regard to the use of excluders, and that no marketable honey could be produced except by their use. However, in spite of all this, and in spite of the fact, too, that my bees were shipped by rail over four hundred miles, and hauled by wagon seventy more, coming through in damaged condition, and that less than 400 colonies were in the field, I secured 34,000 pounds of comb honey, and it was marketable, as evidenced by the fact that I sold it in the local market and at top prices.

During the past year, when bees of all kinds were in a state of starvation, dying and deserting their hives in a wholesale manner, I again proved the vigor of the Carniolans and the ability of this race to stand up against adverse conditions when all others diminished or died outright. I secured $3000 worth of honey and made 20 per cent in-

crease, and my apiaries are to-day in better condition than I ever had them before.

SHADE AND EXCLUDERS.

I certainly believe in shade, and just as certainly do I not believe in excluders. In this climate one would be blind if he could not see how bees suffer without shade, so that great numbers are engaged in carrying water on hot days. The water-carriers are reduced in number when shade is furnished.

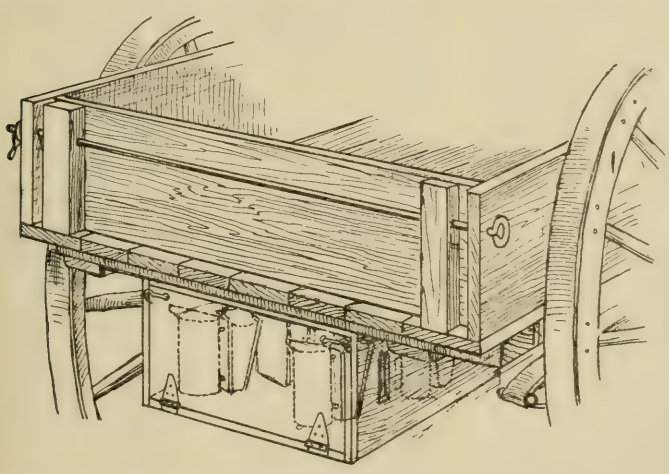
I can not comprehend how any one should wish to use an excluder that enforces such discomfort on the poor bees. I agree with Mr. Scholl that it is a honey-excluder as well as a queen and drone excluder. I may not be as scientific as some, but I should hate to see the day come when I would be compelled to use excluders, as I should certainly regard them as a handicap of the most unpleasant kind.

Uvalde, Texas.

A BOX FOR CARRYING SMOKERS.

BY WESLEY FOSTER.

In going from one apiary to another in our rounds it is very convenient to have a lighted smoker on hand so there need be but one lighting of smokers during the day. It is not safe to carry the lighted smokers close to any material that might be easily ignited, as the fire always gets to burning briskly before the yard is reached, owing to the draft caused by the moving wagon. Then the smoke is disagreeable to have continually blowing into one's eyes. We fixed



a box with a hinged door fastened by means of bolts to the under side of the wagon-box at the rear end. The box will hold four Jumbo Root smokers standing upright, and is made out of a wooden case that holds two sixty-pound cans. The box might be lined with tin, though we have found this unnecessary so far. The sides are bound with strap iron to add to the strength, as the jolting of the wagon would soon shake every thing to pieces if the corners were not bound securely.

Boulder, Col.

HOW TO KEEP BEES FREE FROM EUROPEAN FOUL BROOD.

BY D. E. ROBERTS.

Our problem is not how to cure this disease, but how to make our bees stay cured. One step toward a permanent cure would be to transfer the bees in box hives into the "bonnet" of the owner. The constant contamination from the old box-hive colonies is what makes trouble.

Another thing that all of us can do who have bees on movable frames is to keep all colonies at all times as strong as possible. This is difficult, under the circumstances, we know; but colonies which we think are well over the disease toward fall can be fed abundantly, and thus be carried over the sluggish period to a time when we can do something with them.

"Strong colonies" is a term often used, but I have never read an explicit definition of it. At present I take it that a colony is either strong or weak according to the work it has to perform. Last summer I formed ten nuclei. As a matter of experiment a queen-cell was grafted on a comb that was not above suspicion—in other words, a comb that contained disease. This comb with its adhering bees, in addition to those of two other brood-combs, was placed between two solid frames of honey. This was done with all ten; and afterward eight of the nuclei showed no sign of disease. I suppose this would substantiate Dr. Miller's theory, page 753, Dec. 1, 1910. (By the way, I am glad the doctor has the disease among his bees; and, although I hate to say it, I hope he will not run short of material until he is through experimenting.) But these ten nuclei, I think, show what a few young bees with a young queen will do if put to work in the right manner.

All of the so-called cures of European foul brood seem to have one point in common—that is, the arrest of brood-rearing. Apparently, nature also works this way. I have had colonies that became healthy without any help; and the conditions when this occurred were about as follows: All colonies at the time were not overwhelmed by the disease, but had perhaps over half of the brood capped. The honey-flow was abundant, and the queens were in condition to allow themselves to

be restricted in their egg-laying. The honey, consequently, took the place of the dead larvæ, instead of more eggs, and the brood became more compact and finally healthy.

I came to the conclusion long ago that any number of old bees with an old queen does not constitute a *strong* colony. Young bees with a young queen abundantly supplied with stores in the fall, and well protected during the winter, are the prime factors in the control of this disease.

Knox, Ind.

FURTHER PARTICULARS IN REGARD TO THE LONG-IDEA HIVE.

BY GEO. SHIBER.

Having received a number of inquiries in regard to my artic e, page 421, July 1, 1910, about the Long-Idea hive, I wish to give a little more information in regard to it as used in my locality.

A subscriber in Cuba wants to know how I manage when I have swarms, adding that such hives would be too heavy to lug around. Yes, they are too heavy to carry around very much; but I never have had to move any of them on this account, for I do not remember ever having a swarm issue from any of them. Most of the hives contain 32 to 34 frames, and this size is nearly swarm-proof in New York State. From what I have read of conditions in Cuba, I should expect more or less swarming, even with the Long-Idea hive.

The entrance of these hives is in the same place as usual—that is, in the middle of the hive at right angles to the frames. In the illustration, page 764, Dec. 1, 1910, the entrance is in the broad side, facing the front. I never tried an entrance in the end with the side pointing toward me in the picture, but I do not believe I should like it.

Another subscriber, Mr. F. McCann, La Gloria, Cuba, wishes to know if it would not be a good idea to have an entrance in both ends—that is, at the end where I am sitting in the picture referred to above, and also in the opposite end. If I lived in Jamaica or Cuba I think I would try it, provided the entrance in the long side at right angles to the frames, as we use it, did not reduce swarming; but, as I said before, I am not bothered very much with swarming. The only objection I can think of with the two entrances is that I should think the queen would scatter the brood too much. Mr. McCann, in his letter, said he had built a few Long-Idea hives having the double-entrance feature. I should be much interested to read his report after he has tried them.

I have never tried a cover made in sections. Mine are nearly all of ⅞ hemlock boards, cleated at each end, and covered with waterproof paper. If I could get galvanized iron at 4 cts. a square foot in Cuba I would use that material; but why would it be necessary to have this over a cleated wooden cover? Why would not galvanized iron do alone to keep out the rain? Plenty of quilts could be supplied over the frames. Right here I should mention that a number have thought a bee-space necessary over the top-bars in this hive; but please bear in mind that I do not tier up stories. The illustration referred to shows that there is quite a little space between the top of the frames and the top of the hive—about two inches, in fact, which is plenty of room for quilt and packing. The space between the bottom-bars and the frames and the floor is about one inch.

I do not have all of my bees in this style of hive, as most of them are in eight and ten frame hives. I have had only about 15 or 20 in the Long-Idea hives for a few years back. During the harvest the Long-Idea hives are all right; and to my northern friends who are interested I wish to add a word of caution against building a lot of them, as it is very difficult to winter colonies in them successfully. I have tried wintering them outdoors, leaving about ten or twelve frames in the middle of the hive, and packing at each end and on top of the frames. I took special pains to pack about a dozen in this way in the fall of 1909, but the result in the spring of 1910 was disappointing, for the colonies, though they came through alive, were weak, and only about five were really first-class. I have never succeeded in wintering out of doors with these hives. I wish I could report otherwise, for I hoped I could use the hives at outyards and save the trouble of putting them in the cellar; but now I lift the frames with the bees into regular bodies and carry them in the cellar; and in the spring, when they need more room, the Long-Idea hives are filled up.

This winter I have no bees in these hives out of doors, all of them being in the cellar. Perhaps in Connecticut the winters might be milder; and to any one in that State, so inclined, I would by all means recommend a trial, but on a small scale at first. My cellar has given such excellent results in the past that I can hardly expect to find a more profitable way of wintering, as the temperature is almost constant at about 42 to 43 degrees Fahr. If the outside temperature drops to eight or ten degrees below zero I usually find the cellar temperature about 41 degrees. I have never tried this hive for comb honey, but I do not think it would answer at all.

Randolph, N. Y.

Idaho as a Bee State.

To those bee-keepers of the East and Middle West referred to by Mr. Wesley Foster under "Bee-keeping and Homesteading," page 750, Dec. 1, 1910, I wish to say, if you do not find what you are looking for in Colorado come over the Hill to the Gem State. There is yet homestead land to be had near good bee-pasture. I am not a shark or a real-estate agent—just a plain bee-keeper, but will gladly furnish information to any one interested.

Caldwell, Idaho, Dec. 26. J. E. MILLER.

Heads of Grain

from Different Fields

Getting Rid of Dark Honey in Bait Sections.

When putting my colonies into the cellar for winter I removed the supers, intending to put them back on in spring. On examination I found the sections partly filled with very dark honey, which, if put on, would spoil the first crop of sections next summer. Would these be fit to use again if left to the bees in spring to be emptied and stored in the brood-chamber, which would insure plenty of food? Any information will be esteemed a favor.

NOVICE.

[This question was referred to Dr. C. C. Miller, who replies:]

It would be a nice thing if you could put on the super in the spring, and count on the bees to empty out all the dark honey before filling the sections again. But they will hardly do that unless the brood-chamber be emptier of stores than is advisable. They seem to think that the super is the proper place for some extra honey, and will be slow about cleaning it out unless hard driven for stores.

If you set the supers out in the open, the bees will rob out the honey; but they will also tear the sections—that is, the comb—to pieces. To avoid that, you must cover up the supers and allow an entrance for only one bee at a time. If there are many supers in the pile, allow such an entrance for every three or four supers. Your neighbors' bees, however, may get the lion's share. If there is danger of that, start the bees at work in the evening. Put one or more sections at the entrance of one or more hives, and, when covered with bees, remove to the pile. That ought to start the work. Then after flying has ceased in the evening, or before it starts next morning, remove the supers or close up tight, and expose again next evening, just before flying stops. Or you may extract most of the honey, leaving the bees to do the final cleaning A special holder may be made to hold the sections in the extractor; or you may get along with merely a frame two inches wide to hold the sections. But you must handle them carefully so they will not tumble out. In any case, there is danger that some of the honey is candied, and it is possible that the best thing may be to melt the sections, lifting off the cake of wax when cold. Next time be sure to get such sections cleaned out in the fall, before the honey candies.

C. C. MILLER.

Rearing Good Queens in March in Texas; Making Increase for an April Flow.

I intend to rear a few queens in March, but I do not know whether I can rear good ones so early; therefore I have decided to ask you a few questions:

1. On Jan. 28 my bees began to gather pollen. Do you think I can rear good queens in March by putting one story of sealed brood on a strong colony, and, ten days later, removing the queen and giving them a comb with young larvæ from my best queen, as Dr. Miller describes in his "Forty Years Among the Bees," and trim the comb as he does? In addition to this I wish to feed them half a pint of thin syrup every night.

2. If I begin to feed my bees now, will it be possible to make two colonies from one by the Alexander plan and have them strong enough for the first honey-flow, which comes in April?

Brenham, Texas. J. R. KUBITZA.

[This was referred to Dr. Miller, who replies:]

1. You ought to be able to rear fine queens in that way, but likely you have set the date rather early. No amount of feeding can get you in much ahead of the usual time when bees prepare queen-cells for swarming. Likely you will find the most difficult part the getting of the right kind of a comb from your best queen. If you take an old comb you will probably get but few cells started on it—possibly none, for the bees will be just as likely to start cells on any other comb in the hive. But if you have the young and tender comb, as described in my "Forty Years," there will be no cells worth minding anywhere except on that one comb. So you must try to get that comb started some time in advance. If you have your best queen in a strong colony, and give an empty frame with mere starters, you will, as likely as not, have the frame filled with drone comb. You can avoid that, of course, by giving a frame filled with worker foundation; but you will have better results by taking away most of the combs from your best colony. If they have only three or four frames of brood, and an empty frame be put in the midst, you may count on the prompt building of just the kind of comb you want. If the bees are getting natural stores, the feeding you mention will not make any difference.

2. The probability is that you will find the plan for early increase a dead failure with you. It is easy, however, for you to make a trial of it with one or two colonies, and then you will know better than any one could tell you.

C. C. MILLER.

Feeding Molasses and Sugar in North Carolina.

To prevent bees from robbing each other when being fed is a serious matter. I have some colonies that must be fed not later than February 15, and possibly before then, and I dread it, because of sudden changes in temperature. After a few warm days there may be cold north winds; and if there is no honey-flow it is necessary to keep up feeding after it is once begun. Would it be safe to feed sugar-cane syrup or molasses, diluted with sugar (granulated) and water to be equal in density to 3 parts sugar and 2 water? Would it be less exciting to the bees?

How many pounds of sugar would be required to make, say, twenty pounds of sealed stores, such as bees need for winter food?

Ronda, N. C. J. R. BRYANT.

[If you have much trouble from robbers while feeding, feed toward night or after the bees have stopped flying; and do not give any more feed than the bees can take up in one night. For your purpose we would use a Doolittle division-board feeder, or a bread-pan and cheese-cloth, placed in a super or upper story above the frames. In any event we would not use an entrance feeder; and it is better not to use even an Alexander feeder, because the odor of the syrup so near the outside of the hive would have a tendency to attract robbers.

We have had no experience in feeding a combination of molasses and a syrup made of granulated sugar and water. If your bees can fly during the time they are fed we would use the cheaper feed or molasses; for we assume that a syrup made of granulated sugar would be more expensive than the unrefined molasses direct from the sugar-cane. If, however, you wish to make a mixture of the two, we would prepare the granulated-sugar syrup so that its body or consistency would be the same as that of molasses—that is, mix the sugar and water, two parts of sugar to one of water; then stir the two syrups together.

As to how many pounds of granulated sugar it would take to make 20 lbs. of sealed stores, this depends. A good deal would depend on how thick the syrup was when it was fed. A syrup of two parts sugar to one of water, when fed to the bees and capped over in the combs, has shown a loss of about ten per cent. In other words, for about every 10 lbs. of two-to-one syrup fed, you might expect about 9 lbs. of sealed stores; or, again, 6⅔ lbs. of granulated *sugar* would make about 9 lbs. of stores when sealed. If you fed a syrup of equal parts of water and sugar the loss due to the expulsion of water would be much greater of course—just how much we can not say.—ED.]

The Proper Paint for Hives.

Several articles have appeared relative to painting hives; and as I have had twenty-two years of experience, sixteen of which was house and ship painting, I will offer a few suggestions.

To get the best results when no color is used, mix carefully 80 lbs. of pure white lead and 20 lbs. of the best American zinc. Put the Japan (not patent drier) in with the lead and zinc, and mix all together with a small portion of oil to make a stiff batter. The zinc is lighter than the lead, and it will require considerable mixing to have the materials blend well. For this amount of material, use one quart of good Japan, and thin with pure raw linseed oil, using about four gallons to the hundred. Boiled oil should not be used, as manganese is used to form the drier, and this is destructive to the pigment. If the painting is done close to salt water

little more zinc, say about five pounds, can be added safely; but if too much zinc is used it will cause cracking. I have used this mixture for many years for vessel work and for seashore-cottage painting with good success.

The life of linseed oil when mixed with pure white lead is about four years. When zinc is added it increases the wearing qualities of the oil from two to three years. It is better not to apply the paint in one heavy coat, as two coats are preferable, sufficient time being allowed between for the paint to harden. It is a bad plan to use pure lead for a paint where cattle can get to it, as pure lead chalks off, and the cattle lick it so much that they get the colic. I should think this might prove detrimental to bees also, as the fine particles wash off with the rain; and should bees partake of the water it might poison them.

Philadelphia, Pa. J. T. MORIARTY.

Deaths from Stings Rare.

Please note the attached clipping, which may be of interest to you. However, I am skeptical as to the poison causing the woman's death. I am more inclined to think that the aged woman had a bad heart, and that the over-exertion in trying to escape from the bees caused her death, and not the poison. Here is the clipping:

Mrs. Christian Knouse, of Mt. Pleasant Mills, Snyder Co., died from blood poisoning caused by bee-stings a few months ago. The deceased was over 60 years of age. On the homestead she and her husband kept bees. Two months ago, while working with a swarm, both of them were severely stung. Mr. Knouse recovered from the poison of the bees, but Mrs. K. took to her bed and never recovered. Blood poisoning from the stings is believed to have been the direct cause of her death.

Have you ever known of a death caused by bee-stings?

Huntingdon, Pa., Jan. 14. S. A. HAMILTON.

[We have known of cases where persons have died from the effects of a severe stinging. Death, however, always followed within a comparatively few hours. In all such cases the developments have shown that the persons who have died have had very weak hearts. Cases of fatalities from bee-stings are very rare indeed. We can not recall more than half a dozen in all our experience of over 25 years with this journal, where persons have died from the effects of one or more bee-stings.

This particular case, however, is a little peculiar. We should naturally think that a case of blood poisoning would be of more rapid development than that indicated in the clipping. It seems that death did not take place until two months after the woman was stung. While it is presumable that the bees were the indirect cause, the probabilities are that any other shock or injury would have caused death in much the same way. The poison of the bee-sting is antiseptic, or at least said to be so by some scientific men. It is altogether improbable that a case of blood poisoning could have developed from these stings.—ED.]

Settling-tanks Used Five Years with Good Results.

I have used settling-tanks some five years, and they have proved satisfactory. As I am a poor man, and thought those steel tanks too expensive, I simply got a few sweet and clean whisky-barrels, standing them on end high enough from the floor to allow a 60-lb. can on small scales to take honey from the faucet near the lower head of the barrel. Of course, the upper head of the barrel was removed. I see no need of a float. I simply dump the honey from the extractor into the barrel. All cappings and bits of comb will take care of themselves, and remain right on top of the honey, where they should be.

GASOLINE VS. ELECTRICITY VS. "ELBOW GREASE."

What a difference there is among bee-keepers regarding the various ways of extracting honey! Mr. Townsend, I think, believes "elbow grease" the best way to turn the crank. Say! *ile* bet it's the boys who turn the crank. E. D. would rather shove the quill at so much per page. Now up jumps Mr. Shepard, p. 42, Jan. 15, and says his little ½-H. P. motor beats elbow grease "all hollow." Then up jumps old man Smith who says that, with his "goes like sixty" gasoline-engine and eight-frame automatic he can beat Shepard "all hollow" with his electric motor, while E. D. would be so far in the rear he would appear like a fly-speck.

Birmingham, Mich. A. W. SMITH.

Putting Crates of Sections in the Cellar Before Folding, to Prevent Breakage.

I was just looking over your latest A B C and X Y Z of Bee Culture, at "Comb Honey," page 104, where you speak of the T super not squaring the sections that are inclined to be diamond-shaped, as I very often find they are with a great many comb-honey producers in a small way. But if the sections are made properly I find no such trouble. Generally speaking, it is caused by pouring water, sometimes hot, in the V grooves, to prevent breaking. This plan is certainly a mistake, as the wood takes in too much water, and swells up the end grain and spoils an otherwise perfect section. I never use any water. I just put the box of sections I wish to fold in a cellar a day or two; or if it is a rainy day I place them in an open shed for a few hours, where the air is good and moist, and the job is done to perfection, so that there are no sections that are not square. If I had known the trick at first I am sure it would have saved me lots of trouble.

Arkona, Ont. I. LANGSTROTH.

Difficulty in Drowning Bees.

Suppose the pores in a bee's body become clogged, what happens?

Middleton, Ida. A. S. BIXBY.

[If the spiracles in the body of the bee become clogged with honey the bee suffocates. Even if the head of the bee should be perfectly dry, suffocation will take place after a time just the same, unless the honey is cleaned off. Of course, there is considerable oxygen inside the body of the bee in the complicated breathing system. You might be interested in knowing that, even though you drown bees, apparently—that is, keep them under water for hours until they seem to be perfectly lifeless—yet under favorable conditions they will revive and be all right again. On one occasion when we were arranging to photograph a queen we kept her under water for hours, then dried her carefully and arranged her just as we wanted her, on a white cardboard, with her legs, wings, etc., in natural position. Just as we were about to take the picture, however, her legs began twitching, and in a short time she crawled off the cardboard, apparently no worse for her experience.—ED.]

Writers should Tell their Main Sources of Honey and the Times of Bloom, for the Benefit of Those in Other Localities.

If writers for GLEANINGS would give the kind of flowers their surplus is gathered from, and the usual time the flow commences and ceases, it would be of great value to readers in other localities, for then they could at once see whether the methods described would be suitable for their own localities. Some very bad mistakes have been made by readers not first consulting a map to see what part of the State or country the writer lives in, so he can judge about the time of the honey-flow, the kind of flowers gathered from, etc. In our own State of Ohio there is the northern part with clover and some basswood; the central part with the clover alone, and the southern part with clover and a fall flow as well.

Mechanicsburg, Ohio. C. E. LEAVITT.

Good Locations in California Scarce.

I believe the editor's advice in regard to bee-keepers going to California to locate is well taken. I know of no place where a location could be secured unless some one else were bought out; and an outsider has no way of telling whether he is getting a good location or not, for it takes an expert to judge. Very few who have good locations wish to sell.

In some parts of the orange belt, blossoms do not seem to yield nectar; and in the alfalfa regions the hay is often cut before it blooms, so that the bees get no honey from it. I have traveled over Southern California a good deal, and I have a pretty fair idea in regard to the possibilities there. I have three apiaries in different places, and I have always gotten along pretty well; for if I miss a crop in one place I am likely to make it up in another. This year I had 9 tons of honey from 450 colonies.

Hemet, Cal. J. A. ST. JOHN.

A Modification of the Heddon Plan of Transferring; Placing the Old Hive Above the New One for 21 Days Instead of at One Side.

Having to make several transferrings I consulted my books on bees, and adopted the Heddon plan; but even with this I met many difficulties, and at last invented a new plan, or, rather, an improvement on the Heddon. I work on the Heddon plan until the queen has passed to the modern hive; and to be sure of this I place an entrance-guard on the hive. As soon as the queen is safely in her new home I change the Heddon plan to mine in this wise:

Instead of placing the old hive two feet away I place it *on* the new hive with a queen-excluder between them; and as the old hives in this country are smaller than the new, I put it inside of empty modern hive-bodies tiered up until they are at a height when I am able to cover securely with the modern hive-cover.

I leave it so until the 21 days, when, in the evening, I place a Porter bee-escape board underneath the old hive and queen-excluder, and next morning all the bees will have gone below, leaving behind them the drones, and old crooked combs that can be taken care of later.

The principal advantages to be obtained from my plan are as follows:

1. It avoids the double work at the end of the 21 days.

2. It avoids robbing and the bee-moth in the old hive which naturally is weak, owing to the separation of the bees.

3. There is no need to worry over a fight, as they are practically all in one hive.

4. It does not matter how many bees pass to the new hive with the queen or whether she be the first or last to go.

5. If there is nectar coming in, all you have to do is to place a super after the transferring, and it is sure to be attended to.

6. If the Heddon plan is used during wet weather, my plan avoids the chilling of the brood owing to lack of bees in the old hive.

Trujillo Alto, P. R., Oct. 24. V. A. TEXERA.

[Where you have plenty of empty hive-bodies, and no honey is being stored at the time, your plan of transferring is an improvement over the Heddon. But many times there is no surplus of extra brood-chambers; and in that case the bee-keeper would have to adopt the Heddon plan pure and simple. In any event, if there is a honey-flow on we would use the Heddon plan rather than your improvement. It is desirable, after all the brood has hatched out in the brood-nest, to have as little honey in the combs as possible. When this brood-nest is on a separate stand, and it has only bees that are hatching out from brood, there would be no additional honey stored in it.—ED.]

What Happens when Bees Boil Out over the Sides of a Hive that is being Manipulated in a House-apiary.

Some time ago I wrote you for information in regard to house-apiaries about which I had read in the A B C book. I received your reply, and thank you much for your kindness in answering so fully. I intend to build a small house-apiary next season, and there is one thing I should like to ask about. As I intend to arrange the hives they will stand back from the wall 4 in. and up from the floor 4 in. to allow for ample winter protection—the bee-passage, of course, being covered. Now, in some manipulations, as, for instance, destroying queen-cells, a strong colony will sometimes "boil" over the side of the hive, regaining the inside by way of the entrance after the cover is on. Now, the question is, if this occurred in the house-apiary would this quart (possibly) of bees leave the hive and the building by way of the inch openings you recommend, and regain the inside by way of the entrance, or, if left to themselves, cluster on the hive and perish?

TROUBLE WITH CAPPING-MELTERS.

On page 30, Jan. 15, you invite comment on capping-melters. Two years ago I purchased one, costing me with freight, duty, etc., added, about $15.00. I used it a part of one season, and it is now for sale cheap. I found most of the objection that others have noted, and in addition one serious objection which I have not seen mentioned by any one else, and that was, a great deal of the wax would be found in the form of loose globules, from the size of a pea down to almost invisible particles. This could be saved only by skimming and straining, and even then there would be a certain amount of loss, and that, as you are aware, of the very best kind of wax.

In regard to that question of W. M. Shields, p. 51, Jan. 15, I think that, although these colonies had a fair amount of bees when he took off the supers in September they must have been queenless since the swarming season, and, by two months later, dwindled away.

Wesley, Ont. GEORGE WOOD.

[You ask in regard to the bees clustering outside of the hive in the house-apiary during the various manipulations. This will do no harm provided the inside of the house-apiary is dark and you have openings covered by bee-escapes in one or two places. If the room is dark, the bees will always go toward the light, and, when once outside, they will go to their own entrances.

We believe your trouble with the granular wax was due to the fact that you evidently did not wrap up the can into which the honey and wax flowed, thus confining the heat and keeping the wax liquid till the work was finished.—ED.]

Report of the South Dakota State Convention.

The South Dakota State Bee-keepers' Association held its annual meeting at Sioux Falls, Jan. 27th. The attendance was not large, but great interest and enthusiasm were shown. An instructive and entertaining paper on "The Bee-hive and its Occupants" was read by Miss Rhoda Carey, of Ellis. Mr. W. P. Southworth gave us a very helpful talk on the handling and marketing of honey. President Ginsback told how to manage bees so as to get a good crop of honey.

Secretary Syverud talked on the subject of foul brood.

General discussion followed each topic, and great interest was shown by all. The questions and answers flew thick and fast.

The report of the secretary showed the association to be in a prosperous condition. It was decided to hold a field meet early in July.

The time of the next regular annual meeting was not decided upon.

Officers elected were—R. A. Morgan, of Vermillion, President; Mr. C. Pabst, of Dell Rapids, Vice-president; L. A. Syverud, of Canton, Secretary and Treasurer.

Sioux Falls, S. D. GEO. F. WEBSTER.

Swarming More Easily Prevented with the Long-Idea Hives.

In the article describing the Long-Idea hive, page 765, Dec. 1, 1910, Mr. Shiber pays quite a tribute to the relic of the past generation. He truthfully tells some of the virtues of this hive, even if his frames (L. size) were shaped wrong. He forgot to state one important fact, however, and so I will do it for him. The swarming in spring can be more easily controlled with the Long-Idea hive than with any kind of bees, regardless of their nationality; and Mr. Hand, of Ohio, has perfected the system for the Langstroth hive, which I have used in a much cruder way with the Long Idea, without a failure. Mr. Hand's system is, to my mind, one of the newest kinks in hive-manipulation to control swarming, and is worthy of a fair trial.

Del Rio, Texas, Dec. 16. G. KORNRUM.

Bumble-bees Not Subdued by Smoke.

I read with interest Frank C. Pellett's article on page 802, Dec. 15, 1910. It reminded me of an experience that I had several years ago. I had kept bees for several years, and had become comparatively immune to the effects of their stings. I was curious to know if this immunity extended to bumble-bees, and also wished to see what effect smoke would have upon them. I did not have as much confidence in the smoke as Mr. Pellett had, so I put on my veil and gloves before beginning operations. I got my smoker to going well, and then tackled a nice healthy colony of bumble-bees. I discovered in a very short time that I could not subdue them with smoke; and sting? Well, rather. For several days I carried reminders that I was not immune to to the effects of their stings.

McNabb, Ill. E. O. GUNN.

Our Homes

By A. I. ROOT

His leaf also shall not wither.—PSALM 1:3.

Some friends from the North, who have been reading GLEANINGS for almost forty years, were looking over our premises, and among other things our neighbor (Mr. Rood) called their attention to our six mulberry-trees that are now *once more* loaded with fruit, some of it just getting ripe.* It is now about six weeks since we had any rain, and yet the mulberry-trees didn't seem to know there *was* any drouth, for they were covered with a most luxuriant foliage as well as fruit, and I called the attention of our visitors to the fact that the row of trees stood close by the tiling that takes the water from our incubator cellar; and, in fact, at one place a box has been placed, forming a little spring where the chickens come from one large yard to drink. The spring in the cellar has never failed, so far, and I said to our guests, "You see, friends, these trees are like the one spoken of in that beautiful Psalm, 'And he shall be like a tree planted by the rivers of water that bringeth forth his fruit in his season."

Now, I do not know that Mrs. Root has ever *before* furnished a text for my Home papers; but she did this time, although she did not know it. The text she furnished was her added remark to what I had just said, "His leaf also shall not wither." Somebody then added, "And whatsoever he doeth shall prosper." Mr. Rood was standing near me, and I caught a bright twinkle in his eye as I followed with the remark, "Dear friends, that last is a *wonderful* Bible promise; and can it indeed be *all* true?" Since that time I have been pondering a good deal on that first Psalm, and, in fact, I have read it many times over and over.

Our good pastor, Rev. J. E. Henderson, has been giving us some startling and wonderful sermons of late. In one of them he spoke of *formal* prayers, repeating the same thing over and over, for instance, and he said something like this: "Suppose you were to go to your grocer or to the drygoods store and repeat the same lingo over and over every day; what would he think of you? The Bible again and again enjoins us to ask for the things we need, and says to us, 'Ask, and ye shall receive.'" Last Sunday eve his subject was about starting in the work for the new week, and he most earnestly enjoined *praying* over our plans, undertakings, and projects. His text was Mark 1:35: "And in the morning, rising up a great while before day, he went out and departed into a solitary place and there prayed." Then he added, "How many of *you*, friends, are in the habit of following the Master so far as to get up before day and pray about the work and tasks (often disagreeable ones) that lie before you?" Then he followed with an astonishing list of illustrious men and women whose labors have benefited the world, who were very much in the habit of rising early, and prefacing every undertaking with most earnest and heartfelt prayer.

His earnest sermon called to my mind an incident of my early Christian life. Those of our readers who have taken GLEANINGS for thirty or forty years will, perhaps, recall the story, and that, when I turned partly away from bees, and began studying the *Holy Scriptures*, I was something like the man whose "delight is in the law of the Lord, and in his law doth he meditate both day and night." Now please, friends, do not think I am boasting, for God knows I am only telling you this story just as I would try to help you about raising mulberries and chickens. You know how much I am still given to hobbies; and when I first began testing "the promises of God," is it any thing strange that I should become not only enthusiastic, but even what the world might consider reckless? In my enthusiasm I went into our county jail, read the Bible, and prayed with a poor soul who was on his way to the penitentiary; and when he was honestly converted, as I had faith to believe he was, I was permitted to take him out of jail and set him to work. I was a jeweler at that time; and when one of the clerks who slept in the store was sick or called away I asked my new-found friend to take his place and keep watch of the valuable goods. He assented, but rather soberly, I thought; but in the evening, after I had closed up and was getting ready to go home, he came up and stood by the showcase. Pretty soon he began drumming on the glass, and finally commenced something as follows:

"Mr. Root, do all these watches and things stay right here in this show-case over night?"

At that date safes were not so much in vogue as they are now, and I had little money to buy one, even if they were. After a little he commenced again:

"I suppose some of these watches are worth thirty or forty dollars, are they not?"

"Yes, Fred, more than that. You are not afraid of so much *responsibility*, are you?"

"Mr. Root, do you realize what you are doing? You have, in your wonderful kindness of heart, taken me out of the jail, and now you propose to put me, a hardened sin-

*These six mulberry-trees were little whips set out three years ago. Last April they were so loaded with fruit (large *luscious* fruit, let me tell you) that we and our neighbors could not use them all, and at one period they got dead ripe and fell on the ground until even the *chickens* had more than they could use; and this year there is a bigger crop than ever before, and they are commencing to ripen the last of February. It hardly seems a month ago that they were destitute of foliage; and I can hardly realize that it is possible they are not only now in *full leaf*, but full of fruit. I presume it is largely owing to our very mild January and February, at least so far.

ner and *thief*, in charge of all this valuable property. Just a few weeks ago I would have jumped at the chance to take every thing here and go off in the night where you could never find me."

Then he broke down and cried—cried as I have never before nor since seen a strong man cry; and, dear friends, *I* am crying now, so I can hardly see the letters on the typewriter, as memory brings back again that scene. After he had calmed down a little, I said:

"Fred, you are not afraid your old temptations will come back when you are here alone in the night time, are you?"

He replied through his tears, "No, Mr. Root, *no! God bless you, no.* I am only too glad of the chance to show you that I will give my last drop of blood to protect *you* or *yours;*" and he kept his promise until the day of his death.

Just a word right here. In our State of Ohio there are toward 2000 men and boys in our penitentiary, and just now the papers tell us many of them are going insane because some foolish (and, I dare say, selfish and greedy) legislation has cut off prison labor. How many are there among these men and boys who might be won over to Christ Jesus if some man or woman who "meditates both day and night" could go in loving kindness and present the matter to them as as I did to poor Fred?

Yes, people *were* astonished and surprised at the way my new project (as they were pleased to term it) was turning out, and, as a matter of course, *Satan* soon began to "sit up and take notice." It became noised abroad that a desperate fellow just out of jail had charge of my premises nights, and, furthermore, it was reported that I had said in prayer-meeting I was asking the Lord to help me pay my debts. I was just at this time putting up the first brick structure of what is now a mass of buildings on our grounds. The walls were up, but the roof was not yet on, and it was coming on winter. Although I had so far paid all bills as agreed, when everybody wanted their money *all at once*, I found myself in a very unpleasant predicament. I well remember one afternoon when I went up street and down to get a little loan from all who had been kind and ready before; but now all, seeming with almost one consent, turned against me. One good old farmer gave me a temporary loan when I told him the condition of things. Even Mrs. Root was worried, thinking maybe I had been too reckless. Yes, I was troubled too; but I remembered that part of the little hymn, "What a friend we have in Jesus!" which we sang so much in jail at just about that time; also "Take it to the Lord in prayer." Our property was already mortgaged to finish that new building, and my life was insured also for the benefit of a friend who had let us have money. We *did* "take it to the Lord in prayer," and, let me tell you, the *prayer* was no *half-hearted* repetition." I told God, just as Elijah did, what the trouble was, and what we wanted; and he not only *heard* but *answered*. I wish you would all read the whole verse from which I have taken my text. And, while you are about it, read that whole short chapter. Is it extravagant in what it says about the man "whose leaf also shall not wither"? Listen. Before the money was due that I must have, a man came from Quebec, Canada, to see my inventions for bee culture, etc., and he was interested too in getting boys out of jail, and setting them to work; and before I had told him, or before he *knew a thing* about my cramped finances, he sent me $500 *in gold*, and it reached me *the very day* that the money had to be raised. Was our good pastor extravagant in what he said about praying for *just what* we needed to do the work that lay before us? and about the man who makes it the practice of his daily life to meditate on God's holy law "both day and night"? does it not seem true that "whatsoever he doeth shall prosper"?

Poultry Department

By A. I. Root

MY "PROGRESSIVE" CHICKEN-RANCH DOWN IN THE FLORIDA SUNSHINE.

I have for some time past had visions of a row of yards, small at first, but gradually growing larger as the chicks grow, where the little chaps can be moved along, or "promoted," as fast as they get bigger, and for the first time in my life it (the daydream) is pretty well realized while I write. The row of yards is right along the street, and the first one where the chicks are taken when first out of the incubator is perhaps only two or three rods square; but the ground is sown with oats so as to have them just coming up when the chicks are first put in. We carry them to their yard in the basket brooder I have described, and during warm sunny weather, such as we have had almost all of January, their only covering is the feather dusters I have described, except a light piece of cloth thrown over the basket at night when I carry them to the incubator cellar while very young. This feather-duster brooder right by the street causes quite a little attention and remark. For instance, some ladies called one evening to look at my "wonderful improvements," etc., and finally one of them asked if it was true I *hatched eggs* placed under feather dusters, just by the heat of the sun.

"Why, the boys *declared* it was so; they said they saw the whole apparatus going every day as they passed along the road."

Come to think of it, I am not so sure this will not some time be done. All we want is some sort of storage battery that will accumulate heat during the day and give it out during the night. Well, the first shelter is the basket-brooder—a piece of enameled cloth being provided in case rain should come up, and to put over them nights when

they are, say, a week old and can be left out all night. Of course our yards are closely fenced with inch netting that goes well down into the ground to protect the very young chicks. The next yard to which they are moved when about three weeks old is larger, and has a more substantial brooder, or brooders with more room. Much ventilation is required here, and so all the small house brooders and houses have more or less inch netting in their construction. We now have five yards in our "progressive" series, the largest being about four rods square. The brooder houses keep getting larger until the last one is almost big enough for the attendant to stand up inside. We have a 70-egg Cyphers incubator, so each yard contains, say, from 40 to 60 chicks; and when a new hatch comes off, we just "promote" each family to the next house and next yard. As they are all shut in at night we just pick up the brooder or little house and carry it through the gate into the next yard. So far our work this winter has been remarkably successful. We have scarcely lost a chick; no vermin of any sort, big or little, since the possum we caught, mentioned in the Feb. 15th issue, 1910, and we have yet to find a single insect on grown fowl or chick. Very likely the "heroic" measures my brother took last summer, not only to rid but to keep away all vermin, has had much to do with it.

Besides my incubator-hatched chicks we had had more or less hens sitting all the time. In order to prevent jangles about ownership of the chicks we have not more than one hen with chicks in each of the large yards where the laying hens are. Now we keep in stock three sizes of poultry-netting—one-inch, two-inch, and three-inch mesh, all two feet wide. All outside fences are, for the lower two feet, one-inch mesh; all inside yards for small chicks are also inch mesh; while the inside yard for laying hens and all adult fowls is two-inch. The three inch is used only for the upper part of the inside fences and sometimes for the lower part also, where we wish to admit the good-sized chicks into the growing oats. Bear in mind what I have told you about the "green pastures" we keep all around the ranch by sowing oats and other green stuff in the ten-foot-wide lanes.

Well, while the mothers of the chicks can not get into these green lanes and tear things up, the chicks have access at all times*; and I know of no prettier sight than to see a brood of happy chickens pasturing on the oats in these green lanes, and I do not know of any thing that makes chicks grow as do oats about two inches high.

MY INDIAN-RUNNER-DUCK STORY.

Just as I started on my summer trip to Florida on the 20th of July last, a setting of duck's eggs was just hatching. I think we got about an even dozen from the 15 eggs; but before I got back (in 25 days) all were dead but four. Mrs. Root did every thing all right so far as we could discover, allowing them to run with the other poultry; but after I gave them a yard by themselves no more died. We had them expressed down here, and they proved to be two ducks and two drakes, and one of the ducks began to lay about the first of the year, when she was a little over five months old. The other commenced a little later, and both have given us an egg every night with more regularity than any Leghorn or any other breed of hens I ever owned. Well, the back side of our five acres is bounded by a running brook that empties into the bay, so we have a fine place for ducks; but I failed to induce them to go into the water until an accident happened. The books and journals tell us a two-foot fence will hold ducks. It seemed to hold ours until just about the time the first one began to lay. As they were getting old enough about that time to amuse themselves by chasing my buttercup hens, we fenced them off near the creek with the two-foot netting; but one morning the laying duck was out and at her old pastime. When we tried to drive her back she seemed to have gotten wind of the women's-suffrage movement (or was she minded to have a "honeymoon" all by herself?) for she sprang up into the air and not only scaled the two-foot fence, but went almost as high as the tops of the pine-trees. Isn't it funny that ducks and chickens, having all the finished mechanism for aviation, seldom or never use it, while *man*, after ages of vain endeavor, has only just "got off the ground"? Here I have been, leaving my valuable ducks all this time away "up in the air." Well, when she came down, ducklike she alighted in the water, the first time in her life to get into water deep enough to swim in. I was in a quandary. Her antics in the water surpassed any thing I have ever witnessed in the way of trained animals; and yet when a boy I was an enthusiast in witnessing the feats in the animal shows. Was she going to turn wild duck, and fly away and never come back? I glanced at her three companions, and they were evidently *wild* to follow her example. Thinking I had better get them all together as soon as possible I raised the netting and allowed the whole four to go out into the public stream, and there they caroused and cavorted all night and all next day with hardly a moment's stop so far as I could discover. They did not seem to get hungry, for they made the discovery that the yellow moss* floating on the stream was good for

*We also have chick feed and water penned off by two-inch netting, so the chicks can always get food and drink without being tramped on and bullied by the older fowls. Cosgrove, in the *Rural New-Yorker*, calls these places for chicks, when kept in yards for larger fowls, "cities of refuge." I am glad to be reminded that friend C. is keeping in touch with his Bible.

*This moss that floats on the water is a sort of vegetable growth or algæ that often forms on spring water where it is exposed to the heat and light of the warm sun. The water of this brook or drainage canal is probably, a large part of it, from the various artesian wells along its course, and this accounts for the abundance of moss the ducks seem so fond of.

food; and with the fish and aquatic animals they caught where the fresh and salt water commingled they seemed to be well supplied with food without any expensive *grain* ration. Edgar Briggs, in his book, has a chapter on keeping poultry in a way that you will have "nothing to do but gather the eggs;" hadn't I gotten it to a dot? There was just one little trouble: *Wesley* gathered the eggs, which were found these times in the bottom of the brook; and as he had to crawl through a fence made of netting and barbed wire, and then walk over the sharp stones of some kind of coral rock in the bed of the creek, "gathering the eggs" was no small "joak" after all. I am glad to tell you that we have the ducks at this date (Feb. 9) so trained that they lay their two eggs every day in a nice nest on dry land and they also understand they can't "go in swimming" until said eggs are in my hands, and that is usually before daylight every morning. There have been no more aviation experiments up to date. They evidently think *aquatics* preferable.

Right here I want to whisper a word to my good friends the Wright brothers. A year or two ago they made some experiments on a craft partly in water, and partly in air. Well, my ducks are experts in that trick. A few days ago a Leghorn rooster was so unlucky as to get over the fence on the edge of the water. As soon as the four "duckeys" saw his predicament they remembered they hadn't had any fun chasing chickens for a long while, and they, one and all, shot over the water as if they had been fired out of a cannon. Their wings and legs both flew like buzz-saws, while the water flew in rainbow sprays, and the rooster (frightened out of his wits) rushed to me for protection. Where the soft fresh water pours into the bay when the tide is down, there is quite a pretty little waterfall; and when we have visitors (and there are quite a few bee-friends coming from the great North almost every day) I am sure to find them all delighted with a view of the ducks, especially if they happen to be sporting and splashing about in the waterfall. And, by the way, I want to say the ideal place for ducks is beside *running* water. Lakes and ponds may do; but a stagnant muddy pool in clay soil is nothing to be compared with a running stream over a bottom of white sand, such as we have here in Florida.

Just one more thing: Duck eggs that are laid in the water, especially if they lie there for some time, are not *just* the thing for incubators or sitting hens—at least that has been my experience. The moss and the animal food they found in the water satisfied them for only a time, and it was their final hankering for the grains of nice yellow corn that enabled me to get them to come home just about sundown so I could let down the netting and fasten them in. At present we are setting every egg, and I am looking forward anxiously to the day when we shall have a lot of *ducklings* as well as ducks sporting in this beautiful clear running water, flowing over a bed of white sand thickly sprinkled with little shells that make it look for all the world like a sparkling rivulet with a pebbly bottom. And, talk about the beauty of swans! to my eyes my four ducks with their plump bodies and glossy plumage are handsomer than any swans; and the two eggs every morning, like "distance," "lend enchantment to the view." Do you wonder that I feel moved to say aloud when I go out in the morning, after my daily bath just before daylight, "praise God, from whom all blessings flow"?

To-day, Feb. 18, both ducks are still laying an egg each every morning, without a miss. I put the first three or four eggs under a hen, but as they were all but one dropped in the water I had only one fertile egg. This was started in the incubator, then put under a hen, and finally finished in an incubator. At just about 21 days, by putting the egg to my ear I could hear a faint tapping inside; at 22 days I distinctly heard the duck peep in answer to my taps on the egg with my finger-nail. At 27 days the egg was chipped, and on the 28th day, after dark, my duckling was out of the shell. Next morning, when the sun was well up, he was scampering around outdoors in the Florida sunshine. Of course, he was out only at intervals, for, like his owner, he at present needs frequent periods of rest and sleep. All the duck eggs are being put under hens, so far, and my last two tests of ten and twelve eggs respectively showed *every* egg fertile. This is quite a contrast to the troubles we have been having with so many unfertile Buttercup eggs.

Lest some should rush to the conclusion that this may be a fault of the Buttercup males, let me add that hens from other yards were almost determined, so it seemed, to get in with this gaudily attired Buttercup rooster with his lordly and majestic bearing —so much so that, about this time, I counted up one day 25 hens, mostly White Leghorns, following in his wake. Lucky (isn't it?) that I am not in the business of selling eggs? Well, I have now cut down his "harem" to less than a dozen females, and am watching for a better report on "fertile eggs."

THAT "PRIMING WIRE," ETC., PAGE 119, FEB. 15.

After what I said about getting the Sears automobile started was in print I received the following from the makers:

The wire which you find extended through the frame of your car and attached to the butterfly valve in the air intake of your carburetor is there to enable you to shut off your air when cranking the motor. This action will permit of a rich charge being drawn in your cylinders, which will be easily ignited by the spark-plug. Very few of our carburetors have a priming-device and *also* this butterfly valve in the air intake; but it does no harm to have both. They really are for the same purpose—that is, to permit of easy starting of the motor.

Chicago, Jan. 30, SEARS, ROEBUCK & Co.

You will notice this implies that this "starting wire" is to be pulled back and *held* back while cranking, whereas we, sup-

posing it to be to start the gasoline, let it spring back in place while cranking. I give place to this, for cranking automobiles has now become fatiguing task to many people.

REDBUGS, JIGGERS, ETC.

I get away with redbugs with five to ten drops of carbolic acid in a tumbler of water—more or less acid as you wish. One needn't send a dollar for the secret. But such bugs are not peculiar to Florida at all. Except six years at school in New England I have lived my whole life in Kentucky and Tennessee. Though I traveled in nearly all the States, I have never yet found a place where they could not be found. I am in the real-estate business and mortgage loan agent for the Union Central Life Ins. Co., of Cincinnati, Ohio, and do much inspecting of farm and timber lands; and at the right season for them, when I go to inspect woodlands I always carry with me a small bottle of the above, and apply it at once the first night after being out, and have no more serious trouble from them; whereas without it they will make life miserable for two to four days after being in the woods. The country people are seldom bothered with them. The bugs seem to like fresh blood just from town. In Florida, no doubt, they are worse on account of greater dampness making more decaying wood, though I have no doubt that in Ohio, if you try at proper places you will find more than you wish to come in contact with. The timber being so much scarcer there, and the rotten parts kept cleaned up for use so much closer, I guess is the reason you don't find them at all common. Country folks here call them "chiggers." I don't know how the dictionary spells it. I consider it a joke on a city fellow to lead him unwittingly around through places infested with them, and get him well covered by them.

Paducah, Ky., Sept. 6. W. M. JANES.

Friend J., I am glad to know that redbugs are not confined *particularly* to Florida ("misery loves company," you know), although I can not remember having been troubled by them anywhere else. Any thing will stop the itching that makes the feverish eruptions smart; and we have rather settled down on sal soda moistened just a little. Rub it briskly where you have been bitten, and the itching sensation will give place to a smarting from the strength of the alkali. When the smarting is gone, the itching will be over for the present. I have not yet found an entomologist who could tell me whether these insects penetrate the skin. I know they are often called chiggers or jiggers, but this is certainly a mistake, for the real jiggers are what I have described as the stick-tight flea, sometimes found in great numbers on the combs and wattles of common fowls; and in Florida during a dry time they get on people. These produce no swelling; but when they crawl down under the skin and get to sucking blood they produce a very unpleasant sensation. These rarely or never trouble when there are steady rains. They are large enough to be plainly visible; and when they are pulled out of the flesh with a pair of watchmaker's tweezers the trouble is all ended, and no eruption nor itching follows.

DRUGS FOR BABIES.

It is a cruel thing to give poor innocent chickens drugs and poisonous medicines, especially if we neither know what the *trouble* is nor what the *medicine* is; but it is a thousand times more shameful and cruel to give to *babies* these dangerous and baneful drugs. Read the following, which we clip from the *Union Signal:*

BABY-KILLERS.

It is good to see that the leading daily papers are beginning to speak plainly about harmful medicines. Back of the general awakening is the attention chemists are giving to this matter, and the fact that the government itself is moving in the right direction. Perhaps, after awhile, we will take as good care of the health and lives of babies as stock-raisers have long taken of calves and lambs.

Just now Dr. L. B. Kebler, of the Bureau of Chemistry, in the Agricultural Department at Washington, D. C., is saying, "Babies doped with soothing-syrups containing harmful drugs are particularly liable to infantile paralysis and kindred diseases." He has made public a list of thirteen soothing-syrups which he calls "baby-killers," and against which he warns the public.

Dr. Kebler has suggested that druggists enter into an agreement not to sell these harmful drugs except upon prescription from a physician. He also classes Jaynes' carminative balsam as a "killer."

Some of Dr. Kebler's "baby-killers" have been printed on these pages before, but they can not be held up to the public eye too frequently, so here they are:

Mrs. Winslow's soothing syrup (morphine sulphate).

Children's comfort (morphine sulphate).

Dr. Fahey's pepsin anodyne compound (morphine sulphate).

Dr. Fahrney's teething syrup (morphine and chloroform).

Dr. Fowler's strawberry and peppermint mixture (morphine).

Dr. Groves' anodyne for infants (morphine sulphate).

Hooper's anodyne, the infant's friend (morphine hydrochloride).

Jadway's elixir for infants (codeine).

Dr. James' soothing syrup cordial (heroin).

Koepp's baby's friend (morphine sulphate).

Dr. Miller's anodyne for babies (morphine sulphate and choral hydrate).

Dr. Moffett's teething powders (powdered opium).

Victor infant relief (chloroform and *cannabis indica*).

Now, if you have any of the above medicines in your home we hope you will destroy them at once before there is a *possibility* of their harming innocent children.

My subscription to GLEANINGS may be extended for another year. I feel sure that my boys and I shall find "Camping and Woodcraft" very entertaining as well as profitable. My continued subscription to GLEANINGS is for the great pleasure I find in "Our Homes" department, by grandfather Root. May he live yet many years to continue his good work.

Delamar, Idaho, Dec. 10. H. J. STUART.

I want GLEANINGS as long as I live. It's all right, and I don't know how it could be improved. I am much interested in the "Home" articles and A. I. Root. May he long live to give us cheering and helpful articles.

The illustrations are perfect, and I am much pleased with the moving-picture department, and, in fact, with every thing from the index to the last advertisement.

Abilene, Kan., Dec. 15. DR. FRANK PARKER.

I received GLEANINGS, which, for the last thirteen years, has been a welcome visitor, and has never failed a single time that I can remember.

I certainly would have remembered if my friend had failed to come. It is more and more interesting every year if not every month. I have "The A B C of Bee Culture" and some other bee literature. I should like to have more; but if any one bee paper will answer the purpose of all other bee papers, I think that GLEANINGS will. It certainly is a good paper from cover to cover, and even the cover is interesting. MISS SARAH A. AUSTIN.

Prowers, Colo., Dec. 13.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. ROOT, Assistant Editor
A. I. ROOT, Editor Home Department
E. R. ROOT, Editor
A. L. BOYDEN, Advertising Manager
J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX APRIL 1, 1911 NO. 7

Editorial

GENERAL DROUTH IN FLORIDA.

A GENERAL drouth prevails over the State; and what the effect of the honey crop will be remains to be seen. In Ohio, before we came here, every one was complaining of too much wet—rain, rain, snow, and sleet. If nature could equalize things a little we would all be happier.

THE State Entomologist of Ohio, Prof. N. E. Shaw, during the first year of bee-inspection work under the new law, found conditions so bad that it has been deemed advisable to ask the legislature for an appropriation for the year 1911, to the extent of $2000. Bee-keepers are urged to write a personal letter to their Senators and Representatives, asking for their support. This amount of money wisely expended will be an actual saving to the State in the long run.

QUEEN-BREEDER'S HOME DESTROYED.

WE are sorry to announce that the home of F. M. Morgan, Hamburg, La., was totally destroyed by fire with all its effects, Mr. Morgan being left with nothing except the clothes that he wore. In the house at the time it burned were a number of letters with inquiries in regard to queens, etc., that were unanswered, and Mr. Morgan asks all those who wrote him during the mouth of March up to March 12 to write him again, as he lost all records by the fire.

The firm of Morgan & Marshall will endeavor to continue filling queen orders just the same.

MUCH RAIN AND BAD WEATHER IN CALIFORNIA.

QUITE a number of reports showed bountiful rains in California, but we just have a card from M. H. Mendleson in which he states that there has been so much rain and bad weather that the bees are a month late in breeding, and there is no chance for them to do much. He says that many have lost from one-half to two-thirds of their bees from starvation, because they did not give them the attention they needed.

Mr. Mendleson stated that he could not reach his home apiary, on account of a bad river crossing, and that it will likely be a month and a half before he can do any hauling to or from the apiary.

SWEET CLOVER AS A PRODUCER OF MILK; TWO CUTTINGS IN ONE SEASON, AND A CROP OF SEED.

WE clip the following from the *Practical Farmer* of March 11:

> Last spring we had a small trial patch of sweet clover, about 80 feet square, planted close to the house. In early spring, before any thing else attained any size, it was ready for cutting, and I fed my stripper cow an armful of it every night and morning while milking. This was in addition to her dry feed. I kept cutting sweet clover for her until it went to seed—in all, about 7 weeks. All of our cattle liked it. So did our horses, but not so well. As soon as I stopped feeding the sweet clover the cow dropped back to her former yield of milk, although I gave her other green feed. I found that one could take two cuttings a foot tall or more, either for hay or green feeding, and still give it time to re-seed itself, or even gather seed from it. The last growth of sweet clover could be turned under for green manure with profit.

Yet sweet clover, according to the law in many States, is classed as a noxious weed. Our farm papers are sounding its praise so much now that the day will soon come when our farmers will join hands with the bee keepers in asking to have the ban of disgrace removed. In the mean time bee-keepers would do well to have such items as this copied in their local papers.

SHORT COURSE OF STUDY FOR APIARIAN INSTRUCTORS.

THE programs are out for the apiarian short course of study at Ontario Agricultural College, Guelph, Canada, May 1 to 6, 1911. The course is intended especially for students and ex students who have taken the regular lectures in apiculture, and wish somewhat more advanced work to put them in the way of becoming trained instructors. It is also open to bee-keepers who have gained their elementary knowledge in a more practical way.

The speakers and lecturers, all of whom are practical men, include Dr. E. F. Phillips, of the U. S. Department of Agriculture, and Morley Pettit, provincial apiarist in Ontario (a position similar to that of Dr. Phillips in the United States). Mr. Pettit is also the head of the Apicultural Department of the Ontario Agricultural College. Special attention will be given to the question of diseases of bees—Thursday, May 4, being given up to a foul-brood conference. The full program appears in the last issue on page 34 advertising department.

GLEANINGS wishes that every agricultural college could undertake work of this kind, as it is greatly needed, and the instruction thus gained is of the very best.

HOW BEES ARE WINTERING.

IT is pretty early to state with certainty just yet what the results of the past winter are over the country. The few reports that we have received have indicated that bees are going to come through in good condition. In many parts of the North, an almost unparalleled season of cold weather in December gave no chance at all for a flight; but still it is certain that such a cold spell is not so hard on the bees in December as it would be, say, in February.

In a good many other parts of the country where bees ordinarily have had flights every few weeks, at least, they were hardly able to leave the hives from a time late in the fall until the early part of March. This is a pretty hard strain on bees; but if the stores are what they should be, and the packing adequate, there is no serious loss. Weak colonies in the fall, especially those whose stores are not arranged to the best advantage, will probably succumb; but strong colonies with more than enough sealed stores of sugar syrup seem to be in very fine condition. Most of our colonies at this date (March 16) have considerable brood started, and young bees are in evidence, and this in spite of the very few chances for flight.

On account of the fact that the temperature, as a rule, has not fluctuated a great deal, the bees in the cellar are probably going to come through in pretty good condition, average conditions, etc., being favorable.

Last year in March there was a spell of hot dry weather that started brood-rearing in all colonies at a great rate. This was followed by cold weather later, so that much brood was killed and lost. This year the conditions are quite different. Brood-rearing is progressing normally; but so much cold weather in March will probably not be followed by prolonged cold spells later.

BEWARE OF SUBSCRIBING FOR STOCK IN FAKE CONCERNS.

THANKS to their good judgment, a majority of bee-keepers have escaped entanglement in several so-called opportunities that have been created in the way of "Honey-producing Associations," "Apiary Companies," and the like. While the chances for profit-making in keeping bees in an intelligent way have induced many individuals to enter into this pleasing work, the industry is fortunate in not having displayed great allurements to promotive geniuses. In late years all kinds of coöperative enterprises, from mail-order houses to rubber and pineapple plantations, have been foisted on the too gullible public, and in a very great majority of these organizations the draw-string on the promoter's money-sack has been tightly pulled just before the outstretched hand of the unfortunate investor was permitted to dip in.

Just recently one or two attempts have been made to dispose of stock in "honey" and bee-keepers' associations. Of the men back of these plans we know nothing; but it seems to us that we are taking quite a safe step in cautioning all readers of GLEANINGS at this time to beware. Of course, we may be wrong; but the likelihood that our friends will miss any opportunity to make much money quick by refusing to invest in such schemes is a very doubtful one indeed.

Do not misunderstand us, please, and do not misinterpret what we have said as having reference to any distributing or producing association that has been recognized by this or any other reputable publication or individual. We simply want to remind bee-keepers against temptation which may be presented to them in a most enticing way, but which, if embraced, will very likely bring personal loss, and greatly discredit an industry that has gained a most enviable reputation because of the high character of the men and women who have enjoyed its practice.

PARCELS POST; HOW IT WOULD HELP THE BEE-KEEPER AND THE FARMER.

THE following from *The Ohio Farmer* for March covers the ground so well that we are glad to place it before our readers:

I want the parcels post so that I can send things away from the farm to customers in town. I need a parcels post right now, to bring me some eggs for incubation, to my door, instead of having to drive seven miles over the roads that God forgot, to the express office. While we are on the question of eggs, don't you think it possible for the farmer to send eggs by the dozen daily, while they are fresh, to customers in the city, of course by parcels post, and perhaps fresh "garden sass," all by parcels post; or a nicely dressed chicken—by parcels post, or a few pounds of honey, still by parcels post—when we get it?

By soliciting orders by advertising in standard journals, and securing customers who want fresh stuff while it is fresh, it will be possible for us farmers to ship our produce by parcels post, in such quantity as we can produce, in select packages of corrugated paper, or some similar carrier, and cut out the cause of the "high cost of living" at both ends of the line; to the seller, by giving him all the profit; and to the buyer, by making it possible for him to buy for less money.

Aside from the question of the quality of the goods when they reach the table in town — and there is no question but that the quality would be vastly better than now—the question of economy must necessarily be considered first by every one. Who pays the freight now? I pay part of it, and the man who eats the goods pays the rest. . . .

I don't write for the man who has his country place and gets his eggs fresh every day from his own hens; but I do write for the poor man who slaves along with the rent collector as a day dream and the grocery bill for a nightmare. He is the fellow I am trying to aid. The parcels post means that I can deliver him one dozen eggs which I guarantee fresh, on Friday morning, and they will be a whole dozen. His wife won't have to throw out three or five as the case may be, or one where the veins are beginning to develop.

It means I can send him a dressed chicken for 15 to 40 cents less than he pays for it now, and it will be fit to eat, without giving his chidren ptomaine poisoning. It means that three times a week I can deliver to his door the whole list of his vegetable marketing; and that it will be fresh from the garden; that it will be sealed, and free from dirt, and the possible contamination of no one knows how many dirty hands in sorting and picking over in

the market stalls of his city. Of course I need the parcels post; but I don't need it half as badly as the man in the city.

What is the use for you and me, brother, to pay a man to drive past our doors every day with fifty pounds when he might just as well be hauling a couple of hundred with the same equipment he has now? ERNEST MERRILL.

If it would be possible to send eggs by parcels post, why would it not be possible to send comb and extracted honey in the same way? A good large sample would stimulate a demand for honey in larger quantity. Bee-keepers should get after their Congressmen. If the farmers and bee-keepers would keep everlastingly after the parcels post they would get it. Thousands of letters pouring in to Congressmen act like hot shot. If *you* leave the job of writing to the other fellow you will never get it.

FLORIDA NOTES NO. 2; DROUTH AND ITS EFFECT ON THE FLORIDA HONEY CROP; A WORD TO THOSE WHO EXPECT TO GO TO FLORIDA.

THE drouth throughout Florida and parts of the South at this writing, March 18, is still on. It is reported that it is the most severe that has occurred for over a dozen years past. While a drouth in Florida does not by any means do the damage that it does in many parts of the North, it may cut down the honey crop very materially. On the west coast, at least, heavy dews many nights (almost equal at times to a light shower) and a natural sub-irrigation do much to modify the severity of drouth; but still vegetation does not take on that beautiful bright green seen at other times, so it is said.

As many bee-keepers are thinking of coming here, a few facts as I have been able to glean them may not be out of place. While A. I. R. has given a truthful picture, the view-point of another is often helpful.

It is a land of sunshine and beautiful climate. In the lake region, where I live, a clear day during winter is the exception. I was struck with the clear sky in Florida at night, and the bright sun during the day. A cloudy day during winter is the exception; but some people would not like the damp atmosphere at night. Perhaps some others wouldn't be favorably impressed with the miles and miles of sand. Indeed, one tourist said it seemed to him that Florida was one "great sand heap," and it isn't much of a "heap" either, for it is all *level*. A hill in Florida is a joke. The scenery away from the beautiful lakes and bays is monotonous for that reason. Indeed, some parts of Florida, on account of the level country, the sand, the numerous lakes, and the pine-trees, remind one of Northern Michigan.

But there are immense possibilities to the man of brains and energy. One old-timer said to me, "Florida is a right smart place to live in; but," he added, with a twinkle, "no one should come here unless he has *money* or *muscle*. Money here will leak like water, unless you look out. Powerful funny how the suckers give their good money for land that tain't no account, and then when they find how they got bit go up north and give the whole of Florida a black eye." Much if not all that he said is true. On the other hand, many have come here, found health, and made money. If one is going to "invest" he should go into Florida and investigate. To buy "out of sight and unseen" of a real-estate man in some northern city, without seeing the land, how it is located, and whether it is productive, is the height of folly.

Florida has good and bad spots, and the bad spots may be close to a good one. The fact that a piece of land is next to an orange-grove doesn't necessarily signify that it will grow oranges. Don't let any one try to sell you "white muck" land. Where the sand is white it is about as useless as it can well be. When you go into the State, inquire carefully, and don't be in a hurry to invest until you look around. There are plenty of honest real-estate people in the State who will tell the truth.

Again, land may do well one year and fail the next. Said one man who had come here, "I made good money last year off my lettuce, but this year I lost on it. The drouth cut it off. I have made up my mind that one should be prepared to irrigate his land."

Many flowing wells are found in many parts of Florida, and near Bradentown flowing wells and windmills are seen everywhere.

The orange business is being overdone in many parts of the State. Good land will often grow garden truck as well as or better than oranges.

But what are the chances for the bee-keeper? Good, providing too many don't hug together in one locality. The bee business, unlike truck-gardening and orange-growing, should be scattered. The apiaries should not be closer than two miles of each other, and there should not be too many bees in a yard. When a northern bee-man goes to Florida he should learn to look out for robbing and starvation. Bees can fly every month in the year, and during the rainy season they are liable to run short of stores.

What about the people of Florida? I can best answer this by quoting one old fellow who said that "Every one you meet here is from somewhere else." During the winter, at least, almost every one you meet in the State seems to be from the North. Every State in the Union, especially those in the extreme north, is well represented here. Indeed, it looks now as if the most southern State in the country will have a population very largely of northern people. I don't say this because the New Englanders and the people from the region of the Great Lakes are any better than those from the Southland. Far from it! The latter may not have quite so much money; but their kindly cordiality can not be surpassed. The southern people are more open-hearted; and if they have money or property they are far less inclined to be snobbish with it.—E. R. ROOT.

Stray Straws

By DR. C. C. MILLER, Marengo, Ill.

WHEN THOSE Colorado chaps settle on the right kind of double-tier shipping-case for 24 sections, perhaps we could all adopt it.

A NEW CLOVER is reported in *L'Apiculteur*, 75. M. Martinet, the originator, has named it "apitrefle." It is a vigorous forage-plant, averaging 30 inches in height, and is well patronized by the bees.

G. W. THOMAS, p. 149, if you sow sweet clover on sod when the ground is wet and soft, and have it tramped in by cattle or horses, I think it will grow. I have much trouble to keep it out of the thick sod on my lawn.

A BALLED QUEEN I've often freed by throwing the ball in cold water. Now we are told, *Schweiz. Bztg.*, p. 46, to throw the ball into an empty cold tumbler. [We would be afraid to risk a valuable queen to the cold-empty-tumbler method.—ED.]

GLUCOSE has done a big business in honey, and now it is trying its hand at shoe leather. According to information laid before Congress by Dr. Wiley, leather (especially sole leather) is loaded with glucose to add to its weight. Then when you go out into the wet and snow, the glucose soaks out and the water soaks in.

INDIANA is forging to the front in bee-keeping. Not the least proof of it is the fact that in the beautiful report of the State Entomologist, George S. Demuth, Chief of the Division of Apiary Inspection, occupies 32 pages with "Bee-keeping in Indiana." [Indiana is setting a pace for other States. Other States would do well to follow her example.—ED.]

MARCH 10 there came a warm spell with thermometer above 60, and it seemed too bad to keep the bees in the cellar. But there was nothing for the bees outside, and it might come cold. Inside of a week it came. The mercury went down, down, with a fierce wind, till it was only 6 above zero. Then wasn't I glad the little fellows were snug in the cellar!

"LET A MAN resolve in his own mind that: 'In five years I will own 500 colonies,' let him print it in big letters on a board, and nail it up over his door, and the deed is the same as done," *Review*, page 54. Y-es, "in his own mind;" but better not nail it up where any one else can see it. I've noticed several times that the fellows who *were going* to do such big things were never heard of afterward.

H. C. AHLERS started the season March 1 at Kenner, La., with 179 colonies, 26 of them queenless; took 6000 lbs. honey and made increase. April 22 he shipped the bees to West Bend, Wis. Poor season; took 23,000 lbs. from clover. August, shipped bees to Illinois River bottoms; took 3500 lbs. Spanish needle, and let bees fill up on aster. Oct. 24, shipped bees back to Kenner to winter. Strenuous, but 32,500 pounds.—*Review*, p. 71.

ADRIAN GETAZ refers to a Straw. p. 544, Sept. 1, 1910, where a German writer says late breeding in fall means late breeding next spring, and ye editor says if conditions are favorable in spring bees breed, no matter about previous fall. Mr. Getaz says you are both right, in a way. When bees breed late in fall, conditions are *not* favorable in spring. "We meet that difficulty here in the South frequently, when bees breed late in fall and in open winters, using up their pollen, and brood-rearing in spring is delayed until pollen comes from the field."

"IN AMERICA comb honey is falling in price; extracted, rising. Already 30 cents is paid for extracted, while comb brings 25." —Dr. Hering, in January *Deutsche Bzucht.* Herr Doktor, while extracted is looking up a bit you are misinformed as to relative prices. Adding up all quotations in the last GLEANINGS, it will be seen that, instead of extracted being 20 per cent higher than comb, comb is 79 per cent higher than extracted. [But extracted is slowly creeping up on comb; while it will never be the same price, there will be less relative difference. —ED.]

EVER STOP to think why bees tear comb when robbing? I *think* it's this way: A single bee, when robbing, never tears a comb. No matter how many robbers, no comb will ever be torn so long as each bee can get at honey. But by and by there is a robber in every cell, and a lot of robbers looking on with no cells they can get into; and then these lookers-on, trying to get into the cells already occupied by their sisters, tear down the cell-walls. If you want honey robbed out without having the combs torn, leave an entrance for only one bee at a time, or else spread out enough honey for all. In either case there will be no lookers-on, hence no comb torn. [Your experience is the same as ours. Your theory and practice are sound.—ED.]

EDITOR HUTCHINSON, *Review*, p. 59, has "dreams of some one, some day, building up an *immense* business in selling honey in small quantities all over the country, sending it by express. Of course, the quantity can't be too *small*, as the transportation charges would be too great in proportion to the cost." That dream will never come true in that exact form. But it may come true when parcels post is here, and that's in hailing distance now. The demand of the people is becoming so insistent that it can not be ignored much longer. With parcels post the *small* quantity will be sent at just as low rate as the large. Speed the day! [Some of the stand-patters in the Senate and House are going home to stay. With these obstructionists out of the way, parcels post will have a better chance.—ED.]

Notes from Canada

By J. L. Byer, Mt. Joy, Ont.

According to Wesley Foster, four pounds of comb honey are used to one of extracted in Colorado. Here in Ontario I would put the proportion at about ten of extracted to one of comb, and we produce some good comb honey too.

That comb illustrated on p. 19, Jan. 1, is hardly a normal one. In other words, it is rare to find a comb with so little honey in the center under the top-bar that has so much honey along the end-bars. Even with feeding I rarely find a colony that would so arrange the stores, as they always store a greater amount under the top-bars.

During the past season the demand has been extra good for honey here in Ontario, at good prices; and while some writers over the line have been writing that honey at better prices would retail slowly, we have been realizing here right along that there is nothing in the contention when the honey is of good quality, and the public have gotten over all suspicions of adulteration.

Last summer a firm in Austria sent me two Carniolan queens. On their arrival the queens and all the bees were dead—in fact, were all dried up, showing that they had been starved for some time, all the candy being consumed. By the invoice which came by the same mail I found that they had been on the road for 19 days. The firm was notified, and they sent me one more more queen. When the cage arrived, all the bees but one were dead, and the queen was in the last stages of starvation. I tried hard to save the queen, but she died the next day. Is this a common experience? Was not 19 days an unusually long time for the bees to be in transit?

Bees wintering on the summer stands here in Ontario this season are being put to a severe test. They had no flight after the last week in October, and are not likely to get one before the middle or latter part of March. December was cold; but since then the weather has not been out of the ordinary up to date, Feb. 11. With us the clover has been covered with snow ever since last of November; but at no time have we had more than six inches on the level. This has been against the bees, as the hives have been exposed all winter instead of being covered with snow, as is generally the case. I understand that, in other parts of the Province, the fall of snow has been heavy. As a rule we have less snow in our locality than in most of the sections around us.

F. L. Pollock, who writes delightful stories for the *Youth's Companion* and other magazines, lives near my home in the summer time, and has a nice little apiary where he spends many happy hours. With his wife he is spending the winter in Tennessee; and under date of Feb. 9 he writes me, asking how the bees are wintering up here. Among other things he says that in Tennessee the thermometer dropped to zero in December, and that at date of writing the bees were working on the soft maples. It was news to me to learn that it gets so cold down there, and also to know that the maples bloom so early. I wonder if they are apt to get a hard "freeze" before settled warm weather comes around again. It looks as though they have as sudden changes in the South as we do here in the North, to read of zero weather in December and bees gathering honey early in February.

Last fall I called on a wholesale dealer in honey and other farm produce, in Toronto; and while in conversation with him he pointed to a large pile of corrugated-paper shipping-cases, and said, most emphatically, "That is the way to ship comb honey." On examination I found that they were the same as those used by Mr. Crane. I must say that I was surprised, as I did not know they had been introduced into Canada. This dealer said he had tested them thoroughly, and that at different times he had sent a few cases to the western Provinces of Manitoba, Saskatchewan, and Alberta, and had yet to year the first complaint of breakage. While I have had little experience in shipping comb honey, I have concluded that this dealer had reason to say that they are the shipping-case *par excellence*, so far as the transportation of comb honey is concerned.

Regarding that note of mine on the tariff changes on honey, page 125, March 15, I might say that I have given a wrong impression altogether in that sentence beginning with "Many Ontario producers feel that the markets they have been building up for years will now by reason of geographical conditions be snatched away from them." The inference is that I have reference to the West India honey, whereas I had the western market in view. I might say that the note in question was written at a time when I was, by the doctor's order, forbidden to do any writing, nor even to dictate any thing. That will explain the mix-up. Yes, Dr. Miller, it is all right to be neighborly (page 124); but with honey selling in a wholesale way at about two cents a pound less on the United States side than in Ontario, it is not to be wondered at that many bee-keepers here are objecting to the proposed changes. With honey selling at the same price in both countries, free trade in the article would be a blessing; but with the difference that I have pointed out, it certainly does not appeal to the Canadian producer as an attractive arrangement.

Bee-keeping in Southern California

BY MRS. H. G. ACKLIN, GLENDORA, CAL.

Let us beware when we commence extracting orange honey. If you were not present when G. J. Lynn read his paper, "Unripe Honey," watch for it in the *Cultivator*.

If we have a crop this year (which can never be fully determined until the flow is over) all of the big producers in this section have decided to hold their white extracted honey at 7 cts. per pound.

Indications are for a late season. Much of the time during January and February, and at this writing, March 8, the weather has been cool and cloudy, consequently brood-rearing has been delayed.

"Californians for California, and California for Californians!" This is the slogan I heard a bee-keeper use the other day. Honey-buyers had better look out. We *may* get so self-centered that Eastern money will not be accepted for our product.

The Van Thomas Co., Los Angeles, is making plans for a book of recipes in which honey is used exclusively for sweetening. This is a move in the right direction. If the mothers of our land could be brought to understand the truth in regard to using honey in place of sugar, its consumption would be doubled in a very short time.

Last fall there was a farmers' institute held at Colton, in the interests of bee-keeping. The people from Berkeley, who have charge of the farmers' institutes, conducted it, and local bee-keepers furnished papers and took part the same as at a regular bee-keepers' convention. This is as it should be; and if things keep coming our way, bee-keepers will come into their own in a few years.

ANNUAL MEETING OF THE LOS ANGELES CO. BEE-KEEPERS' CLUB.

Our county club met in the Chamber of Commerce, March 2, at 10:30 A.M., with the president, W. R. Wiggins, as chairman.

E. B. Shaffner was appointed secretary *pro tem.* in the absence of the regular secretary, D. J. Shultis. W. H. Allen, apiary inspector of Ventura Co., sounded a note of warning in regard to parties who contemplate shipping in bees which are near infected districts. A committee of five, most of its members having ranges in the northern part of the county, where the danger is greatest, was appointed. This committee is expected to assist our inspector, Mr. De Sellem, in keeping those bees out of our county.

We have an excellent county ordinance covering this whole matter, and the railroad officials are ready and willing to conform to the obligations laid on them. With so many people on the alert, it would seem impossible for suspected bees to get in, even by team.

Our time was limited, so no papers were read. E. B. Shaffner was elected president, and D. J. Shultis secretary and treasurer.

A bee-keeper said to me not long ago, "I read your writings, but do not agree with you in every thing." I replied that I was glad he considered my department worth reading, and did not expect everybody to agree with me in every thing. How much better is a frank statement like this than secret opposition, with nothing tangible enough about it to run down, but "alle samee" is in evidence in a sly way! Probably, if time had permitted, this same gentleman could have given me some pointers that would have been useful to me in future. There are as many methods of bee-keeping as there are bee-keepers; and the only way we can keep ourselves from getting into the most selfish kinds of ruts is to talk to and listen to the "other fellow," both through the bee papers and in conventions. My heart was made glad many times during the recent State convention when some one would shake my hand and say how much he enjoyed my department, and speak about the good he considered I was doing. My great desire is to help bee-keepers everywhere, and especially those in my own State.

In looking at that picture on page 628 of the Oct. 1st, 1910, issue, I am reminded very forcibly that the Wright Bros. ought to perfect their flying machines so that moving bees, supplies, and honey, to and from our mountain canyons, in that way, will be feasible. Just think what a boon a safe flying-machine would be to California bee-keepers! Last winter nearly 200 colonies of bees, including many fixtures, were moved from Corona to Glendora; and the trials and tribulations of that moving expedition were something awful. Part of the bees had to be unloaded before the last stiff grade into the canyon could be made, although there were four horses to each load. Just imagine, if you can, the vast difference there would have been in moving by aeroplane—no roundabout roads to follow, no grades to overcome, only straight sailing and landing at the right spot while it was still daylight. No danger of the airship getting stung, so plenty of time could have been taken to have unloaded the bees on their proper stands, instead of setting them down anywhere to be shifted later. But this is only one of the many instances in which a reliable flying-machine would come handy for California bee-keepers; so, won't you please, Mr. Editor, write the Wright Bros. a letter requesting them to "hurry up"?

Bee-keeping Among The Rockies

By WESLEY FOSTER, Boulder, Colo.

More snow has fallen on the mountain ranges of Colorado than for ten years past—over fifty inches since the last of February, and in the valleys about half as much. As there is time yet for considerably more, a good supply of water for irrigation is already assured.

Our colonies that gathered rosin-weed and other fall honey of poor quality are showing the results now by dying off (and mainly from dysentery). A few of the hives that were fed sugar syrup too late for the bees to reduce it have suffered wherever this syrup has soured.

HEAVY LOSS IN SOME PLACES.

Where there was a fall flow, or where feeding was done early enough, the bees have wintered in fair shape. Northern Colorado had only a slight fall flow, and very little breeding was done to furnish the hives with young bees. Where this was true the loss has been very heavy—in some cases from one-third to two-thirds of the colonies.

CORRUGATED PAPER IN SHIPPING-CASES.

There is one serious objection to corrugated paper. That is, that if thick alfalfa honey gets between the sections and the corrugated paper it sticks tighter than glue, and the paper is badly torn in getting the sections out. Thin honey will be absorbed; but thick alfalfa honey will work under the sections and stick to the paper so tightly that it is hard to scrape it off. This, however, would not persuade me to go back to the drip-sticks.

ADVERTISING HONEY.

Advertising honey through the popular magazines will accomplish something, but there is a kind of work some are doing now—that is, preparing short articles on bees and honey, and furnishing these occasionally to local papers—which is read more closely than any other kind. Any little "write up" of a home or local industry is read with interest. Let us cultivate the acquaintance of our local editors in this way. It might be a good idea to have some of our most entertaining writers prepare paragraphs along this line to be adapted to local conditions. Little items which were put in without the bee-keepers' solicitation have brought orders to them immediately. The following serves as a suggestion:

"Several of our local honey-growers, Mr. Collins, Foster, and Buhl, are shipping a car of fine white comb honey to the East. The crop this year was above the average in quality and quantity. Finer, more delicate combs of the delicious sweet have never been raised anywhere."

Why not give the news of the bees and honey season to the papers? A suggestion of this kind will at once create new demands for honey.

BEE INSPECTION IN WINTER.

The question of inspection for foul brood in winter has been brought up in Colorado. One man's bees were inspected while he was absent; and several hives being declared foul were ordered by the inspector to be taken up. The owner resented the winter inspection, which had been made without his knowledge; but the work did not disturb the clusters, as it was carried on primarily to find any colonies that would be a menace in the spring. This inspection to find colonies that are dead from foul brood or infected will lessen the work in May, June, and July. No intelligent inspector will go into an apiary and open the brood-nests on cold winter days; but finding dead and badly affected colonies before there is any chance for robbing in the spring is a feature that will go a long way toward preventing the ravages of the disease later.

TIME IN THE INSECT WORLD.

A short paragraph in *Our Dumb Animals* speaks of the short life of most insects, and suggests that for such the element of time is very different from our standard. Some insects live but a few days: do they suffer as much in a minute, when tortured, as we do in a week? The author mentioned above assumes that they probably live the moments more slowly than we. If this is so, a bee maimed during hive manipulations, and struggling for an hour, would be undergoing torture as severe as if a human being were suffering for weeks and months. A day with a bee is as full of import as a year with us. This brings up the question of feeling among insects and other lower organisms. We probably shall never be able to measure this adequately in comparison with ourselves; but we can easily see that all animate life has a conception of ease and comfort somewhat similar to our own.

More Honey Recipes.

We noted some time ago in GLEANINGS that you ask for honey recipes. Here is one we are using right along; and while it is nothing elaborate it is certainly wholesome for making oatmeal cookies:

Granulated sugar, 1½ cups; honey, ½ cup; 2 eggs and a cup of melted butter. You can put some lard with it if you wish. Mix the sugar, honey, and butter; then add eggs, and beat lightly. Dissolve ½ teaspoonful of baking-soda in 4 tablespoonfuls of hot water; one teaspoonful of cinnamon and ½ teaspoonful of cloves; one cup of finely cut raisins; roll in a little flour; add three cups of flour; 3 cups of rolled oats; mix all together and roll out on a board to medium thickness; cut in small cakes, and bake in a moderate oven. Keep in an air-tight box. We never need the box, as they don't last long around here.

Parma, Idaho. WENDTE BROTHERS.

Conversations with Doolittle

At Borodino

USING OLD COMB FOUNDATION.

"I am planning to get my sections ready for the coming season, as my time is fully occupied during the summer months. I had intended to put the foundation in the sections as folded and put in the supers, ready to go on the hives when the honey season opens, for when the busy season comes I can not attend to every thing without slighting something. Some think that the bees, to do the best work, must have the foundation almost new from the machine. But I have several hundred sections filled with foundation left from last year. Do you think it would be necessary to cut out this foundation and replace it with new?"

"If it were more convenient I would put foundation in sections and have it on the hives in 24 hours after it left the mill. But each apiarist would then be obliged to have a mill, which is something many do not care for. Not having a mill compels most of us to order of a supply house or of some one having a mill. Now, even if the one we order of has the foundation on hand, and sends it promptly, it is some time before we can have it to put in the sections, especially if we ordered in quantity and had it shipped by freight. In any event, foundation from the mill to the hive in 24 hours is practically out of the question. Some, though they realize the difficulty connected with this theory of using only fresh-from-the-mill foundation, maintain that the fresher it is the better. An old bee-keeper who has used hundreds of pounds of section foundation admits that, although he believes it makes a slight difference to have it fresh from the mill, he himself, as a matter of convenience, puts it in at any time during the winter and spring. The experiments I have made during the years which have passed since I began to use thin foundation in the sections have convinced me that foundation five or even ten years old is just as good as when it first came from the mill, if it has not been on the hives during the latter part of the season through a period of scarcity. If sections are left on the hives after the harvest, and propolis enough is gathered so that the unused foundation is varnished over, this propolis-painted foundation should be cut out of the sections, melted, and replaced by fresh."

"But the claim is made that foundation gets old and hard so the bees can not work it to good advantage."

"Foundation on cold wintry days does seem that way; but on a hot summer day in the upper room of the building where your furnished supers are stored away (some of which may have been there as long as five years) the foundation in the sections is soft and pliable, and handles as easily as if fresh from the mill. An attic on a warm day will be at about the same temperature as the inside of a cluster of bees during the working season, and the foundation will not appear at all as it does in winter. Any foundation, in a heat of from 95 to 100 degrees Fahr. has a yellow, oily appearance. You will not be able to detect any difference between the old and new under such a temperature. Fresh from the mill, foundation, if taken into a cold room, will assume a whitish, hard appearance. If on some very cool day in June, a frame of old foundation is lowered into the center of the brood-nest, left for five minutes, then compared with that fresh from the mill, it will be seen that the old and new have become alike. Leave the old for two hours, and if it is at a time the bees will work any foundation they will begin as quickly as if it had been fresh from the mill. When bees cluster on foundation during a honey-flow, the temperature within that cluster is brought up to from 92 to 98 degrees, rendering both old and new foundation alike, soft and pliable. Under these conditions no one can tell the new from the old, unless marked in some way.

"All the foundation used in both sections and brood-frames in my apiaries during the past twenty years has been placed in those sections and frames during December, January, February, and March, and both the supers of sections and hives of frames so filled are stored away ready for use when needed. This matter of old foundation not being as good as new is like many another theory advanced without due consideration. Once started, it keeps on its rounds, until multitudes think it must be a fact."

The Bee-veil.

BY KATE LOWE GRAHAM.

O bee! I can hear your loud humming;
I want to get close to you, dear;
But the sting in your tail keeps me fussing—
The tale of a sting is what I much fear.

The little gold bands on your back, dear,
Your eyes in such crowds on your head,
And those lively antennæ so black, dear,
Are so nice—but the sting's what I dread.

The baskets you wear on your thighs, dear,
Are big, and so goldenly packed;
And your wings are as fine as your eyes, dear,
And the honey's so perfectly sacked.

When you're sailing up close to the hive, dear,
And the landing's not easy to make,
It's fun to see just how you dive, dear—
Like an air-ship not sure of its brake.

Now the cactus and greasewood are blooming,
And the sun's steering northward again;
You are working all day till the gloaming—
Each one of you working like ten.

I've seen you dive down in the lilies;
I've seen you sail off on the wing;
But I am not going to be one of the sillies,
Walking around with a terrible sting.

That's why I sit on the fence, dear,
And watch you flock up from the place
Where pricklies and gold-balls are dense, dear,
With this funny bee-veil on my face.

Socorro, Mexico.

General Correspondence

THE PRODUCTION OF COMB HONEY IN THE SOUTH.

Putting it on a Solid Foundation; How to Keep up the Strength of Colonies in Localities Having Intermittent Honey-flows, and, at the Same Time, Eliminate all Unprofitable Queens; a Valuable Article.

BY J. J. WILDER.

In the South we have a nearly continuous honey-flow in early spring, and in most sections we have other honey-flows coming on afterward with perhaps a few days or weeks intervening; but in some sections the main honey-harvest comes on after the spring flow, during which the bees may store only a small amount of surplus. Now, to prepare the bees for the first honey flow is not an easy thing, especially in the production of *comb* honey. In the production of *extracted* honey the bees usually have plenty of empty combs to occupy in brood-rearing, and to store honey in during the early honey-flows, but not so in the production of *comb* honey, for usually we have a smaller amount of comb. This necessitates more manipulation in order to have the bees in the best possible condition for each approaching honey-flow. During winter and very early spring the bees eat away their stores from the center of their brood-nest, leaving conditions ideal for the spreading of brood as soon as the supply of pollen is ready, and, later, a little nectar. In a way, the bees prepare themselves for the first honey-flow; but what about the flows that are to come *later?* In the production of comb honey, a queen usually slows up on egg-laying, and the bees, following close in behind her, fill the comb with honey, and seal it. By the time the flow is well off, there may be only a small amount of brood in the central combs, and the honey sealed right up to the brood. There may be just enough nectar coming in to keep the bees living in a "hand-to-mouth" manner, leaving a condition any thing but ideal for the next approaching honey-flow. If such is the case they will not have enough bees to harvest it, for the vitality of the field force is at a low ebb at this time, and no young blood is coming on to take their place.

What are we to do to relieve such condition, and harvest crops of honey along through the season? Right here is where the honey-extractor comes in play in the production of comb honey. Indeed, it is indispensable. As soon as the first or spring honey-flow is over, the surplus comb honey should be removed and cased, and the bees prepared for the next approaching honey-flow by extracting the honey from the two outside combs, and spreading the others. The two outside combs that were extracted should be inserted in the middle of the brood-nest. This will lead the queen out and start brood-rearing.

If the time for the next honey-flow is drawing near, close watch should be kept on those combs inserted; and as soon as the queens occupy them well, extract the honey from two more combs, and again spread the brood-nest and insert the extracted combs in the center of the brood-nest as before. All colonies should be treated in this way.

Within a very few days of the expected honey-flow, all colonies that need it should be thus treated once more; and if there is considerable time intervening between the first and second honey-flows, the time between the second and third extracting should be lengthened out according to the length of time. Of course, the longer the time, the less extracting will be necessary, as the bees will consume the honey, and thus give the queens room, unless there is some nectar coming in.

This method of extracting and spreading the brood should be followed before each honey-flow until the last one, and then let the bees fill up for winter.

Now, this plan of extracting from the brood-chamber is not advisable where there is only one honey-flow coming in early spring; but this is not often the case in the South.

It might be said there would be danger of extracting too heavily, and a lot of bees be lost by starvation if such a method were adopted. Far from it. I have adopted this method, and have never had a failure nor had to feed my bees to prevent starvation.

When it comes to the question of wintering bees I had rather risk my chances on a colony that has been kept full of young bees the entire season than one that made a good start in the spring and lagged the rest of the season.

Now, of course a few colonies may fail under such severe treatment—colonies that have old and failing queens which can not again properly supply their hives with eggs. Right here is another very good feature of this plan. It gives the apiarist chance to test his queens at a time when it is most convenient for him to requeen, and to raise the best queens for this purpose. An old failing queen may spur up after a long winter's rest and populate her colony very well during early spring, yet lag the remainder of the season. The colony having such a queen would bring no return and might be a loss to the bee-keeper before another season. These failing queens can be detected as soon as empty combs are given them after their first storing in early spring. They will lag or will not lead out in egg-laying as will the young and prolific ones, and the apiarist can then replace them; and, my! how it does add life to that colony the remainder of the season!

This scheme of extracting and spreading brood between flows is the only one that will put the apiarist right down on a solid

foundation (if bee-keeping has one, and it surely has), where the locality favors it.

Cordele, Ga.

BOOK-KEEPING AND BEE-KEEPING.

How the Former May be the Means of Making the Latter a Success.

BY C. B. SNAVELY.

Book-keeping and bee-keeping may seem to be incongruous; still, it plays an important part in the well-regulated apiary. It is as essential as smokers and veils. You might possibly get along without them, but how handicapped you would be! So with book-keeping; you could possibly manage to get along without it; but how tangled up you would be with every thing! You would not know how much it was costing you to run your apiary, nor how many pounds of honey you were getting. You would know but very little of the actual inside workings of your own plant. If it is necessary, then, to keep account of some things in order to know about honey production and profit and loss, is it not also essential to keep an accurate record of every thing pertaining to the plant? The records of some things may be more necessary than others; but the record of every thing becomes very valuable to the careful bee-keeper. Book-keeping goes hand in hand with successful bee-keeping. In order to be successful you must know about things; and to do this you must keep account of every thing in a way that will give you the information you need.

If you are ultra careful you want to know how many pounds of honey you get per colony per year. This means some work, to be sure; but how satisfactory at a time when you want to select your breeding queens for the spring? All that you have to do is to look up the records, and that will tell the story. Will not all this be worth the trouble?

As to the financial part of the business, I presume that almost every one keeps some sort of account of the cost of feed and the amount received for honey; but would it not be better to keep an accurate record of every thing that costs money, and every thing that produces the same? In order to do this you must have a place to keep such an account, and then be sure that every thing is put down. Where there is no particular system for doing this, many things escape notice that may sometimes put the balance on the right side of the ledger. Keep a record of every thing sold, whether it be a pound of honey to a neighbor or a consignment sold to the store. Likewise, if you make purchases, large or small, see that it is placed on the account. Then some day when you want to know how things are running, all you have to do is to get out the book and figure a little, and then you will know. You will really *know*, not merely guess at it; for the figures will tell you accurately how the thing stands. If there is a loss you will be able to investigate and discover where the leak is, and then remedy it. In this way you will be able to overcome any poorly conducted part of your work and put it on a paying basis.

There are many more minor things of which a careful record should be kept, such as when the colony became queenless; when a queen was introduced or cells given; when it had brood; when it swarmed; and in the fall the quantity of stores it had when last examined. You will also find it very valuable at another season to know the age of the queens in their respective hives. It pays to keep a record of every thing, and thus counteract the errors of previous years.

Not alone is it businesslike thus to do a little book-keeping along with your bee-work, but it is a pleasure to look over the accounts from time to time. You can do this and take comfort in it if, every day, you will do a little book-keeping and have a stated time and place for doing it. Remember, a lazy man in the bee business is no worse than a dead one, only he takes up more room.

Lititz, Pa.

[Failures in business of any kind are often due to a lack of system and book-keeping. Most large business concerns, especially those engaged in manufacturing, have installed what is called a "cost system," whereby not only the exact cost of each article manufactured is known, but the profit or loss for each month of operation. Many people fail because they don't *know* whether they are making or losing money. They go ahead *blindly*, and then talk about "hard luck" when they get into financial difficulties. The bee-keeper needs to *know* where he stands, as much as any one else; and his business operations are not so complicated but that he *can* know.

Sometimes a farmer will be making money right along on his farm, but losing considerable in the dairy business without knowing it. In the same way a bee-keeper may be doing well selling honey, but losing when he sells bees. Only a good system of book-keeping will correct troubles of this kind.—ED.]

HOW TO PROVIDE AGAINST THE BREAKAGE OF SECTIONS IN FOLDING.

Is there Any Need or Excuse for Breaking 10 per cent of the Sections in Removing from the Super?

BY F. GREINER.

On p. 534, Aug 15, 1910, is described an unusual experience with one-piece sections, and their breaking in folding them. The writer, Mr. Maxwell, says: "Large quantities of sections never see service, because they are broken in folding." If this is true with him, then there is something wrong with the man who does the folding. He ought to fold a thousand without breaking

even *one* good one. I have folded 1000 in one hour many a time, without any machinery, and did not break one.

Sections fresh from the manufacturer fold without breakage. Old sections, when perfectly dry, give trouble. If placed in a cellar for one or two weeks previous to being folded, there is no trouble. A crate of dry sections may be wrapped up in a blanket wrung out of hot water, and all covered up with an oilcloth. Thus leaving for a day or two will prepare sections for the folding.

Further, Mr. M. says: "When the heat of the hive dries the wood, the corner shrinks and pops apart, making the section unsalable." Such a case, I venture to say, does not happen, at least it never has with me, in 35 years. The fact is, I have occasionally slipped a broken-out side of a faulty cross-grained section in its place after the section had been put into the wide frame, which I use in my comb-honey supers. The honey itself has always held such a section in shape perfectly, and even in such a case I would not want to resort to a metal corner. It would not be needed; besides, a metal corner would be very objectionable in a section for various reasons.

Again, Mr. M. says that a comb-honey super can not be unloaded without 10 per cent breakage. I do not know what kind of contrivance the super is Mr. M. refers to or uses, but with almost any super sent out by manufacturers, with the possible exception of the T super, there is no need of any breakage at all, and yet one may handle the filled sections rapidly.

Mr. M. continues: "After the cleaning of propolis, hundreds more are broken." I am at a loss to understand what Mr. M. means. I never had such an experience.

The following is equally dark: "Then when placing the sections in shipping-cases, some of them are not square, and in pressing them in they are squared up. If the corner holds, the honey is cracked; hence the necessity of no-drip crates, etc."

Now, all of this is wrong—altogether wrong. A section which is not square would not have been square if it had been fixed up with metal corners. If not square after being filled with honey by the bees, it would be foolhardiness to try to square it. Any such section must be put into the shipping-case as they are. They do not leak any more than perfectly square ones. There is usually a little play in the shipping-cases to allow for some inaccuracy or variableness, and there should be. The no-drip sticks and the corrugated paper are used to provide for incidental minor leaks only, and safer carriage. No comb should crack. A cracked comb will make muss enough to soil some of the sections, even with drip-sticks under them.

I have raised comb honey for 35 years. I have made up a great many thousand sections with my own hands; but all the broken sections which I ever had in these years would not fill even one bushel basket, and Mr. M. has several in one season. We use pine stumps for kindling; basswood sections are not nearly as good, and cost a great deal more. It will pay to use more care to prevent breakage. The only time we break sections is when we try to make them up when too dry or when the timber is at fault, either brashy or cross-grained.

I imagine that kiln-dried timber is not so well suited for sections or hives either. I saw an otherwise fine lot of newly made-up hives a short time ago made of timber almost ruined by thus being seasoned artificially. Possibly Mr. M. has had sections to deal with made from such timber.

Naples, N. Y.

[The article by Mr. Maxwell, in our Aug. 15th issue, p. 534, should have had a footnote correcting some of the mistatements; for the breakages in sections can not be any thing like that stated unless the sections are very poorly made, or gross carelessness is used in handling them. Your reply, however, covers the matter much better than any thing we could have said; and, besides, you have given a valuable suggestion about putting sections in a cellar before folding.

We do not think any manufacturer of bee-supplies is now using kiln-dried lumber. It was found years ago to be unsuitable.

The metal-corner scheme of holding sections is old. If we are correct it was made the subject of a patent some years ago; but the idea never was and never will be practicable. While the corners could be stamped out cheap enough, it would cost altogether too much to attach them to the corners of the sections. If one-piece sections would not hold together it would be cheaper to use nailed or dovetailed sections.—ED.]

ITALIANS VS. CARNIOLANS.

Conditions in which Carniolans are Superior; Better for Resisting Disease also.

BY J. T. DUNN.

In some parts of California, especially in the orange and sage belts, where the main flow comes during the swarming season, I have seen Italian colonies swarm three times, and the first swarm would swarm once. I have also seen them swarm with young queens, and with only four or five frames of brood. I never had a colony of Carniolans in the orange or sage belt, and can not say whether they would swarm any more than Italians; but after two seasons of experience with the Carniolans on the San Joaquin plains in the alfalfa and clover districts, where the flow begins about June 1, and lasts until Nov. 1, I would not want to try them. In a location where the main flow comes during the swarming season they would breed heavily, and for that reason I think excessive swarming would be the result. But in the alfalfa and clover districts, where we have very little swarming, we are compelled to make up our winter loss by dividing our strongest colonies in the spring,

which are always Carniolans. During our honey-flow the Italians are always crowding the brood-nest with honey, and we are compelled to extract them many times during our honey-flow to give the queens empty combs to breed in. This is not the case with the Carniolans, as many of the queens will lay in every comb in a ten-frame brood-nest, and many of the combs in the first super will be filled with brood until the flow becomes heavy. We then space all combs to eight in the supers, and use two supers on each hive, as it would be impossible to crowd all bees into a two-story ten-frame hive. With these mammoth colonies one should be surprised at the amount of honey colonies of medium strength will gather in what would be called a poor season. If we expect to clean up European foul brood we must first have colonies strong with bees; and to get strong colonies I know of no way but to use Carniolans. The last season proved to many of our valley bee-keepers that the Carniolans would withstand this disease when the Italians in the same apiary were infected and reinfected. The Carniolans have proven themselves superior to Italians in this section of California.

Fresno, Cal.

CO-OPERATION IN SELLING HONEY.

An Association of Bee-keepers Suggested for the Purpose of Disposing of Honey; How to Take Care of the Small Producer.

BY J. K. HEDSTROM.

The object that we as honey-producers wish to attain is a reasonable price for our honey—sufficient to give us a liberal return on the capital and labor invested. A normal price is more to be desired than a high price. We may as well face the situation squarely and not deceive ourselves.

Mrs. Consumer calls up the grocer, asks the price of honey, and finds that she can get nine pounds of extracted honey put up in cans for ninety cents (a far too reasonable price). She knows that her husband's wages have advanced very little, although every thing is so high; and as she wishes to live within her means she inquires in regard to the price of the syrups, and finds that they are one-fourth or one-third cheaper than honey. This causes her to reason something like this: "I know honey is the better, and we all like it; but it seems so dear I do not think we can afford it. I know, too, the cheaper syrups are made of glucose, and flavored; but they are so much cheaper, and, after all, they taste sweet, and that is what we want. I think I had better get the syrup."

Now, a few of the larger bee-keepers get together to sell honey on a coöperative plan, but somehow they do not seem to get the reasonable price that they expected. They talk the matter over, and find that there is honey on the shelf beside theirs at a lower price. A small bee-keeper had to sell his crop, as he needed the money; and as the commission man wanted to make a little something for his trouble, this small producer was forced to take less for his honey.

In selling honey, therefore, it seems that we have to deal fairly with Mrs. Consumer by asking a reasonable price. This could be accomplished by coöperation if the small producer could only be managed. Nothing could be better in theory, but every small producer can testify to the contrary from experience. If we place every bee-keeper of less than 200 colonies in the class of small producers, on the assumption that any one with 200 colonies or over has enough invested, both in capital and labor, to take a vital interest in the welfare of bee-keeping as a business, we may begin to draw conclusions. The small producer (and he is legion) has one bad failing—he does not depend entirely on bees for a living, consequently his only interest is to sell his honey quickly and get back to whatever occupation he left. It is impossible to organize this class, although it is entirely feasible to organize the larger producers, and this should be done on lines similar to those carried out in the fruit-growers' and dairymen's associations; that is, the organization should be conducted under the laws of that State by most of the larger producers, within a reasonable radius of some large shipping-point, such producers to hold a controlling interest of stock, always. The plan of the association would be to issue a certificate to the small producer for his honey, a previous arrangement having been made with some bank to cash these certificates at, say, two-thirds their value. For instance, some kind of chattel-mortgage arrangement could be made between the association and the bank as security. The certificate should state that the association had received a certain number of pounds of honey (kind and grade mentioned) of the small producer, and it should direct the bank to pay this producer on whatever basis the chattel-mortgage arrangement reads between the association and the bank. Then a separate agreement should be given the small producer by the association, to the effect that he is to receive the rest of his money plus or minus the advance or loss the association has made at the end of the year after all expenses of marketing have been deducted, it being understood that these expenses are to be computed collectively on the number of pounds marked by the association.

It should be understood that whoever subscribes for stock of the association is to receive, say, eight or ten per cent fixed dividend. Any bee-keepers desiring stock might give their honey (two-thirds value of, or whatever assessment the bank puts on it), in place of cash to pay for stock. With an alert, honest business man to manage, the association would very quickly set the price for honey, and would get all the market will stand. If the plan proved a success it would be copied all over the country, and gradually bring about a higher price for

honey; but a venture of this kind must be run on sound business principles.

Calabasas, Cal.

TROUBLE BETWEEN A BREEDER AND A BUYER OF BEES.

What Should Be Expected of Each?

BY J. C. M'CUBBIN.

Mr. Root:—The European foul brood (or black brood) had a hold on the bees in some parts of California last year, and I was among the unfortunate. Being anxious to secure two full colonies of good healthy stock for breeding purposes, and from circulars sent me by Mr. T. L. McMurray, of Ravenswood, W. Va., I believed that his "Superior All-over-yellow Italian Bees" were just what I needed, as he claimed his stock of bees consisted of only one strain—the "Golden All-over," and all bees were sent out with a positive guarantee to please.

On May 7th last I mailed him an order for two full colonies of bees with tested queens, enclosing $10.00, his price for the same. After waiting till June 5, and not hearing a word from Mr. McMurray, I wrote him, stating that an explanation of the prolonged silence was anxiously desired. Shortly afterward I received the following brief note:

Mr. J. C. McCubbin:—Your bees have been shipped.

Ravenswood, W. Va., June 7. T. L. McMURRAY.

Just at dark, on June 14, 38 days after mailing my order, two hives arrived. The bees in one had been dead several days, judging from the odor it emitted, and the outward appearance of both hives showed that Mr. McMurray had not exercised the usual care of queen-breeders in preparing this shipment.

Prof. Ralph Benton, of the University of California, being about two miles from my place at the time, I called upon him, and he went with me to my out-apiary, where he and Mr. L. Sinn, deputy foul-brood inspector, opened the hives and inspected the two colonies. In the hive which contained the live bees, instead of a "full colony" we found a very weak nucleus. This hive contained eight frames without a wire. The combs had been drawn out only ½ to ⅔ size from very narrow starters. Four of these half-combs had been broken down; but as there was not more than a cubic inch of honey in the whole hive, there was no particular damage from broken combs.

On opening the other hive we were met with a surprise, for none of us had ever seen such a mess. The ridiculous part of it was, it came from a queen-breeder sending out glowing advertisements.

From the offensive odor and the entire absence of honey we were unanimous in the opinion that this colony had been shipped out on the 3000-mile journey without stores, and had died shortly afterward. Frames and combs, same as the first hive. There was no doubt in the mind of either of us that this had been an old weak queen with a very few bees, and two frames of brood had been added on being shipped. The death of the brood in these two combs was what caused the offensive odor.

A number of moth cocoons and patches of web four inches across extended through the midrib, indicating that this hive contained plenty of moth when shipped.

Instead of being "Superior All-over-yellow Italian Bees," as advertised, not a bee showed over one-half yellow.

As satisfaction had been guaranteed, I wrote Mr. McMurray a full account of the matter, and in closing said:

"The queens and bees (had they all been alive) were not what I ordered, and can be of no use to me as breeding stock; and, arriving as late as they did, they were too late for that purpose any way. The express charges on the shipment were $18.13, which, added to what I paid you ($10.00) makes a total of $28.13. As the hybrid bees can be of no use to me, what relief can I expect from you?"

Up to this time not a word has been heard from Mr. McMurray.

Prof. Ralph Benton, of Berkeley, instructor in apiculture in the University of California, as well as Mr. Sinn, of Reedley, deputy foul-brood inspector, have authorized me to use their names as reference in making this report.

Reedley, Cal.

[On receipt of the above we wrote to Mr. McMurray, asking his side of the transaction. His reply follows.—ED.]

I hardly know what to say in regard to Mr. J. C. McCubbin's case. I want to please all my customers. I find it impossible, for some of them don't know what to expect. Take color, for instance. They expect queens to produce bees that are golden all over; but we haven't got to that yet. Now, in buying breeding queens, color has been one important point, and in breeding I have tried to improve. The first bees I sent out were to Medina to see what you thought of them. See a copy of your letter attached which I have on file.

Mr. McCubbin should have considered the express charges on bees shipped 3000 miles. That was his business, not mine. I don't claim my combs are wired, and to be strong enough to stand the rough handling of express companies. Read attached circular.

As for preparing bees for shipment, I think I understand that part. That is the first bad report on my preparing bees for shipment. Bees are shipped at owner's risk. I send the bill to customers signed up, so they can see, and may be save them a lawsuit and get beat in the end. I mean to do right with my customers; and if I am wrong will some one please correct me, and say what he thinks would be right between man and man. You will also find one of many letters I have on file. Read what this man thinks of my bees compared with those of another breeder he had bought a queen from; also, read the leaf torn from my circular, and see as a matter of business if I have made my points too strong.

Silverton, W. Va. T. L. McMURRAY.

[We presume there are no queen-breeders or shippers of bees who never receive a complaint. Sudden changes of weather often prevent prompt filling of orders; and requests for the return of money sent, or explanations, etc., pile up at such times until the breeder, who is meanwhile having all

he can do in the yard, finds it pretty difficult to keep up his correspondence, even though his intentions may be the very best. All this time the weather in the locality where the purchaser lives may be very fine, so that this purchaser gets desperate too.

In the instance above we do not know that Mr. McMurray should be blamed *entirely* for the dissatisfaction that arose. However, there are one or two suggestions that we should like to make that may serve to prevent, to some extent, similar trouble between other breeders and buyers of bees. As publishers we are often appealed to in cases like the above, and we have many times served as the go-between or adjuster. It is, of course, to the interest of the publishers as well as to the parties concerned that all differences be adjusted as fairly as possible, every thing being taken into consideration. We certainly do not like to refuse advertisements from reliable parties; but, at the same time, we do not like to continue the advertisements of dealers who may not be giving satisfaction. It is for this reason that we refer to the question again, with the hope that we may bring about a better understanding between our advertisers and their customers.

We wish to go on record as saying that unwired combs are not fit for shipping. They *may* go through all right, but there is very great danger of breakage. We regard the wiring of frames as a stitch in time, the negligence of which is penny wise and pound foolish, and the customer who orders bees on unwired combs loses more than any one else.

Other things being equal, the combs should contain no more honey than will be needed by the bees on the journey; for the heavier the combs, the more danger there is of breakage, and the higher the charges will be. In warm weather especially, when the wax is soft, there is great danger of the combs sinking or sagging out of the frames if they are heavy with honey. The point is this: The bees become excited, the temperature of the hive rises considerably, so that there is very apt to be trouble.

Any breeder is likely to err in judgment as to the amount of honey needed by the bees on the journey, for an unexpected delay in shipment may mean the consumption of all the stores, and consequent starvation. Rather more honey should be provided, therefore, than barely enough to last the bees if every thing should go all right; but, at the same time, if too much is allowed in the combs, there is danger of the breakage before mentioned.

Old brood-combs that contain a good many layers of cocoons are tougher and less apt to break in the extractor, and they are also less likely to break during shipment; and, if possible, such combs should be selected for bees that are to be shipped. Here again, customer and shipper may differ. The former wants lignt new combs, while the experienced shipper knows that the old combs are safe.

We do not think that bees should ever be shipped on partially drawn combs, especially those that are in unwired frames, for in addition to the fact that such combs are new and fragile, they are not firmly attached to the end-bars, and breakage is almost certain.—ED.]

MIGRATORY BEE-KEEPING.

Shipping Nuclei from California.

BY G. C. MATTHEWS.

It is quite a common thing for bee-keepers in Utah to ship nuclei from points in California in the spring; and, having engaged in an enterprise of this kind last summer, I think a description of my experience may be interesting. Usually, these ventures turn out profitably unless accidents, bad seasons, or bad management spoils the work.

We had 450 colonies of hybrid bees last year, some in good condition, but all rather short of stores for breeding purposes just before the orange bloom. I did not reach California until March 29; but we had a man there before I arrived. Because teams were hard to find, the bees were not all moved until the orange bloom was ready to open. That was error number one.

My partner, who had shipped several times, remained in Utah and left the making of the nuclei to my management; but because I was told to expect a six weeks' honey-flow I made plans for too many nuclei. As it turned out, the flow lasted three weeks, so we had to feed nearly 4000 lbs. of honey and syrup to get enough stores for shipment. Out of 1250 nuclei, over 100 queens failed to mate, and not sufficient brood was reared to make the nuclei strong upon arrival in Utah.

The nuclei were made on six combs in eight-frame and ten-frame single-story hives, the empty space being left for a clustering-place. This plan would work if the bees were young; if old, they need a clustering-place above the brood, because they worry so much that they generate enough heat to smother the brood.

From two to four frames of brood were put in each nucleus, and brood was afterward added or taken away to secure the proper strength. Then, just before shipment, my partner, who had gone to California, shifted the nuclei to get the flying bees in with the weakest one; and as a result some queens were killed.

We closed the hives at the entrance with lath, and put screens on top of the hives, leaving no clustering-place above the bees. But, first, cans for water were nailed to the sides of the hives and filled with excelsior. In these cans water was poured when the nuclei were placed on the car.

The season was a poor one for queen-rearing because of the short quick flow of honey, and by taking away queens poor cells were built by the bees. One should not

make nuclei until his bees have built natural swarm cells, unless he uses the grafting method.

The nuclei filled two cars; but in one car the entrances were not well closed, and the bottom-boards were not nailed with sufficiently long nails. As a consequence we lost many bees.

When we unloaded we found about 100 nuclei in this car smothered, presumably because they contained too many old bees and had not sufficient clustering-space. But, despite all these errors, one car of bees which was unloaded in good territory made some profit, while the other could have done nearly as well under conditions with an equally favorable honey-flow.

I am going to send another car of bees this spring from the same point from which I shipped last year; but I shall wait and tell more about it after judging my methods by results. While I know of shipments of last year which were less successful than my own, I also know of others that have been highly profitable, and believe all of them can be made so.

Morgan, Utah, Feb. 22.

HAND'S SYSTEM OF SWARM CONTROL.

How the Basic Principles of the System can be Used with Ordinary Hives with Fast Bottoms; it is as Good as or Better than Some of the Shake-swarm Systems.

BY J. E. CRANE.

I was somewhat disappointed after reading Mr. Hand's system of swarm control in the late numbers of GLEANINGS for 1910, and the editor's comments on that system, and the evident success of the system in the hands of an expert, to remember that my hives were all great clumsy chaff hives with fast bottom-boards, and that, so far as I was concerned, Hand switch-boards were out of the question. So I have been studying his system to see what good I could get from it without his switch-board.

First, and as a sort of cornerstone to the system, he tells us to get all colonies very strong early in the season — see page 719 of last year. This, certainly, is a good thing, and just as valuable to those who do not use a switch-board as to those who do. This scheme of strong colonies in the spring was recommended by Langstroth some fifty years ago, and by all intelligent bee-keepers ever since. To secure this he tells us that all colonies not strong enough to enter supers at the beginning of the harvest should be united with some other colony. Surely it does not require a switch-board to do this. I think there is a better way, however, than to unite weak colonies with others, as I shall try to show later.

Next he tells us, as another cornerstone to "swarm control," "to prevent strong colonies from contracting the swarming fever before the main honey-flow we give them a full upper story of empty combs above a queen-excluder." Good advice, certainly, with his system or any other; and, better, it doesn't require a switch-board to practice it. This was advised by the editor of GLEANINGS a few years ago, but I fear it has not been fully appreciated. I practiced it on some twenty colonies, but they were not all very strong the past season, and I used supers filled with frames of wire foundation instead of drawn combs, as we were short of combs. Only two out of the twenty offered to swarm so far as I remember; but, goodness me! didn't they pile the honey into the sections after the supers of drawn combs were removed and replaced by supers of sections, and all without a switch-board!

Next he tells us that when the harvest is in full swing, and the top story is about half full of uncapped honey (assuming that each colony is provided with a switch-board) we will begin operations for the control of swarming (I thought the extra super on top was to control swarming), by placing the top story, bees and all, down upon the vacant side of the switch-board, and exchange the central comb for a comb of brood and bees, including the queen.

Now, this looks like a very simple thing to do, especially removing a comb from the super and exchanging it for a comb of brood, "including the queen." In practice I have found this removing the queen is not always so easy a matter when a hive is crammed with bees as it is at the height of the season, especially if you have hybrid bees or old queens. As a rule I had rather shake the bees from two or three brood-chambers at the height of the season than find one queen in a crowded colony—at least *I* can do it quicker. Surely it would be far easier to shake the bees from the two colonies of the twenty mentioned above than to look up the queens of the whole twenty as required by the Hand system.

As a "further aid to swarm control" he tells us that he raises the back end of his covers during very hot weather, which is a very proper thing to do. But this does not require a switch-board to do it, and is just as helpful in preventing swarming in a hive without a switch-board as one with that useful adjunct. I have been in the habit of raising my covers for more than twenty-five years in hot weather.

There can be no question, I think, but that there would be a decided advantage in being able to return all hatching bees automatically to the new hive after removing the queen and the mature bees. This can be accomplished, however, by placing the brood-chamber near the entrance of the new swarm, and then once in seven or eight days shaking all that can be spared in front of the new hive. The population can also be reinforced by giving combs of hatching brood.

But we are told by Mr. Hand that there is a loss of honey by shaking, or if the bees are otherwise unduly excited, of from five to ten pounds per day for a day or two. I beg leave to differ with him on this point, pro-

viding the shaking has been properly practiced.

The A B C and X Y Z (a very good authority) tells us that between nine and ten days from the time when the egg was laid one may find the bees sealing up some of the larvæ. I have repeatedly found many larvæ sealed up in *eight* days from the time a colony was shaken on to empty combs, or twenty-four hours ahead of time. This does not look much like "sulking." But if you shake a full colony on to foundation they are very likely to sulk; or if you shake a colony having an old or otherwise worthless queen you my expect poor results.

It is certainly some work to transfer supers from one hive-body to another once a week with a switch-board, and it is certainly some work to look over a yard once in seven or eight days to find those colonies preparing to swarm, and control them, without a switch-board. But in looking them over we have only to operate on those *preparing* to swarm, and on the whole it seems to me we can go through a yard about as quickly as though we had switch-boards to every hive. Certainly the no-switch-board plan would make no more work during the season.

If we find a colony preparing to swarm, if strong and with a good queen we have only to remove the brood-combs. Give them others without brood, and shake all mature bees, queen and all, in front. These brood-combs can be given to those weaker colonies that the Hand system would unite with others, and soon they are sufficiently populous to store in supers. If I find a colony with an old or defective queen I have only to pick her out and destroy all queen-cells at the time, and also eight days later. In another week I give a virgin queen and the swarming is over.

Thus I find I can build up my colonies strong in the early spring before the harvest. I can give them a super of combs to keep them from contracting the swarming fever, and also lift the covers during the hottest weather. I can also checkmate any colony preparing to swarm by removing queens or brood; and all colonies that do not care to swarm can work through the harvest with all the hatching bees to help fill the sections, and all without the bother or expense of a switch-board.

By these methods last season our increase was only about thirty per cent—hardly as much as we would have liked. We certainly did not have as many supers to handle as we should have had with switch-boards, and, as I think it over now, no more work, if as much, as though we had used the latest and most scientific and approved method of "swarm control" advocated by Mr. Hand. I shall not, therefore, weep over my misfortune in not having hives adapted to the "Hand method of swarm control."

Middlebury, Vt.

[Much if not all of what our correspondent says is true. It might be well to make a comparative test, and report results. We will pay well for two or three articles, after such a test, detailing results. Referring to the tiering-up plan for swarm control, described by us some years ago, we may say we still believe in the plan for either the production of comb or extracted honey. It requires no change in hives, supers, or appliances, and it certainly does get the honey.—ED.]

FOUL-BROOD ACT FOR BRITISH COLUMBIA

BY F. DUNDAS TODD.

The Province of British Columbia, Canada, fell into line with other progressive regions when the legislature this spring passed a very stringent foul-brood act. The Department of Agriculture turned its attention for the first time in its history to apiculture a year ago, starting out with a systematic enquiry as to the status of the industry. A full report forms the introductory chapter of a "Guide to Bee-keeping in the Provinces," recently issued as Bulletin No. 30 by the Department.

A question in the circular sent out resulted in the locating of one case of foul brood in the eastern half of the Province, the diseased colonies having been brought in by a settler from Ontario. As a radical measure the infected hives were destroyed.

Though all other reports were favorable, the Department felt it was wisdom to prevent rather than to cure, so it introduced and got passed a very drastic measure, which is modeled on that of Ontario, but, in addition, gives power to quarantine at the point of entry for nine months all bees that arrive on combs or with honey stores: also to destroy all used bee-appliances brought into the Province if they are suspected of conveying the germs of disease.

It is probable two inspectors will be appointed, one for the dry region, the other for the coast.

Victoria, British Columbia.

What would be the Advantage of Non-swarming Bees?

I notice in the article by Harry Lathrop, page 99, Feb. 15, he speaks of the advantages of bees not swarming. As I am something of a novice in the bee business I can not see the point. My bees are all in eight-frame Langstroth hives. I had 30 last May. They increased to 70 strong colonies, and produced 2700 lbs. of comb honey. How could I have done better had they not swarmed?

Kingston, Mich., Feb. 25. J. W. ROSSMAN.

[We are not sure that a beginner can make increase in any better way than by allowing natural swarms, provided he has his queens clipped so that there will be no danger of losing such swarms. Your record of practically 40 lbs. of comb honey is good considering the increase that you made—from 30 to 70 colonies. In spite of all that has been written in regard to the prevention of swarming, this fact remains true, that no colony ever works better than a newly hived swarm.

On the other hand, leaving out the question of increase there is no question but that more honey can be produced if the bees can be kept contentedly at work without spending their time in preparing to swarm, etc. In out-apiaries especially, the question of swarming is a very grave one.—ED.]



HIGH BLUFFS SURROUND THE APIARY OF S D. HOUSE, CAMILLUS, N. Y.

AN IDEAL BEE-CELLAR.

The Advantage of a Permanent System of Ventilation that Provides a Constant Volume of Pure Air.

BY S. D. HOUSE.

[The tendency at the present time seems to be decidedly toward the production of extracted rather than comb honey among bee-keepers engaged in the business extensively. More and more is being written in regard to methods of management in extracted-honey yards; plans for extracting, straining, rendering, etc.; but in spite of the fact that it is more difficult to control swarming in comb-honey apiaries, comb honey as an article of commerce will never go out. When more and more go into extracted-honey production the price of comb honey will go up, and then the pendulum will swing the other way again, and more of the extensive men will come back into the ranks of the comb-honey producers. Of course, there are still a good many extensive comb-honey men who are learning all the time more and more of the short cuts. In this list Mr. S. D. House, of Camillus, N. Y., has been called the prince of comb-honey producers. He not only secures large crops, but he gets a very large proportion indeed of strictly fancy honey, his efforts having been mainly in the line of preventing the production of any thing except the "fancy" grade. His record at fairs is already well known.

When the editor last summer visited Mr. House and secured a large number of very fine photographs and the promise of a series of articles we felt we were to be congratulated on having provided for our readers an illustrated history of the best ideas that Mr. House could give. It is with pleasure, therefore, that we present this first article of the series.—ED.]

For some years, at all seasons, indoor and outdoor, at high temperature and at low temperature, I have given considerable attention to the consideration of ventilation and its effects upon bees. If we study the anatomy of the bee we find that the aerating system is very highly developed; as Cowan states, page 59 of "The Honey Bee," "The blood can be supplied with oxygen by numerous tracheæ diffused throughout the body; and also, being oxygenated at last in proximity to the dorsal vessel, enters it to be propelled to the brain, and from thence to every other part of the body." This shows that fresh air is necessary in order to keep the blood of the bee in a healthy condition.

There are so many evils arising from lack of pure air in cellars where bees are confined about three fourths of their natural life that I do not wonder at our being confronted with the problem of spring dwindling when bees with a low vitality soon succumb to various sudden changes in the weather during the early spring months. The only wonder is that so many bees withstand the treatment given them during their confinement in cellars under such varying conditions.

How many times have we heard a bee-keeper say that his bees wintered well, but they did not do well through the spring months—they were short of honey, or the honey was bad, the weather unfavorable, or what not, when, in reality, he was making guesses without stumbling upon the cause of at least part of the trouble, which, I believe, was too low a vitality of the bees! Their energy had been overtaxed to maintain life during confinement, and they were an easy prey to adverse conditions. How many of the human family confined under similar conditions the same length of time would have good health and energy to do a spring's work?

The question of how much ventilation to give is one that must be worked out for every cellar. There should be an abundance of fresh air going into the cellar every hour of every day, the amount being governed by the area of the cellar and the number of colonies confined therein. If the space is well filled, the volume of air should be greater than if but partly occupied.

Dampness in bee-cellars, with poor ventilation, makes one of the worst combinations. It causes the stores to become thin,



S. D. HOUSE IN HIS BEE-YARD, WITH CELLAR AND WORK-SHOP IN BACKGROUND.

and often nearly ferment. Thin stores consumed by the bees soon cause the intestines to become distressfully gorged; and, as a result, the whole organism is out of gear. Soon the bees commence to discharge their feces, usually outside of the hive first. When they have reached this stage I would advise a cleansing flight the first sunshiny day when the temperature is above 50 degrees in the shade. During the time the bees are out, the cellar should be cleaned thoroughly, and arrangements made for more ventilation. Even though the temperature goes down as low as 34, no harm will come if it is caused by cool fresh air; otherwise a low temperature in a damp unventilated cellar is very disastrous to bees.

Again, a cellar with too high a temperature, say above 52 degrees, will cause too much activity on the part of the bees, thereby using up their energy and vitality. They may not show this to a casual observer; but by putting side by side two colonies of equal numbers, one being wintered at a temperature between 38 and 40, the other at a temperature of 50 to 52, one will find that the one wintered at the low temperature will not dwindle nor die as soon as the one wintered at the higher temperature.

What I consider an ideal cellar for wintering bees is one 24×14×8 feet, built in a side hill if possible, with a dirt floor. The wall should be built of concrete, 15 inches thick, and the trench underneath should be at least one foot deep at one of the back corners, and graded so as to carry the water each way to the lowest point in the front corners. This trench, if filled with loose stones, will insure a dry cellar. In front of my cellar I have a room 8×24 feet which is heated by steam, and used as a workroom in winter and a storeroom for extracted honey in summer. Three sides of the cellar are under ground, and the front wall is protected by the workroom.

There are two systems of ventilation. Fresh air is admitted between two floor joists, and enters the workroom at the further end. This room is lathed and plastered, and an opening near each end leads into the cellar.

The other ventilator takes the air from the outside directly, and enters between two overhead joists, the draft being broken by means of boards nailed crosswise, the first one being nailed close to the bottom of the joist, and extending to within two inches of the top, and the next one close to the top with a two-inch opening at the bottom, and so on. These break the direct draft and give the air time to warm somewhat before it reaches the cellar.

Upon the front cellar wall, and extending down into the cellar, is built a brick chimney into which a stovepipe enters. I use a six-inch pipe which extends to within 18 inches of the cellar bottom. The chimney extends upward 24 feet, giving a good draft. It should be remembered that an outward ventilator will not take out any more air than the intake ventilator passes in.

These different ventilators are always open, and the air in the cellar is free from all odor, while the bees are very quiet. I have often spent fifteen minutes in the cellar with a lighted candle, and have not heard one bee leave the hive. Why? Because the bees are in a normal condition. It's the abnormal condition of the atmosphere in the cellar that makes bees active and uneasy. Spasmodic ventilation is very bad, as it causes greater activity, which demands more food, thus filling the intestinal canal and causing disaster.

There is a honey-house over all, 24×24 ft. with an attic above for storeroom. Between the cellar joists, ⅞-inch strips one foot apart are nailed to the floor of the room above, and to these strips lath and plaster are applied, thus giving a dead-air space between the cellar and room above. The temperature of the bee-room is quite uniform at 42.

I have known the thermometer to register near 78 degrees outdoors for a week, and not go above 44 in the cellar during the same time. Bees that have had proper ventilation during the winter will not dart out of the hive when the doors are opened in the spring, and, after being placed on their summer stands, do not rush out for a flight as if crazed by a scent of fresh air.

We enter this upper room on a grade, and also the lower room and cellar at grade. In Fig. 1 the door at the left enters the second floor; the door to the right (partly back of the operator) leads into the workroom, and on into the cellar beyond. Figs. 2 and 3 show the high bluffs surrounding the apiary, also the surface of the yard, which slopes toward the honey-house.

Camillus, N. Y.

BOTTOM VENTILATION TO PREVENT SWARMING.

BY E. E. COLIEN.

I'm a young bee-keeper, though past 65 years of age, and find much pleasure (and profit too) in the occupation. I commenced four years ago last June with two colonies. The first year, by natural increase, I doubled my stock. The second year I again doubled, and the third year I doubled again plus one, making 17 colonies. The fourth year, after losing several swarms that escaped to the woods, I cellared 34 colonies, six of which were late swarms that I fed up in September. The spring of 1910 found me with 32 colonies in good condition.

With the advent of settled warm weather, and the first appearance of white-clover nectar, I raised every hive at the four corners on ⅞-in. blocks, and left them so to the end of the honey-flow. Each hive was shaded from 9 until 3 o'clock.

A near neighbor, Mr. L. W. Eastling, who commenced bee-keeping about the time I did, thought to try the ventilation plan too; but, fearing bad results by going the full measure, he raised his hives at one end only, and only ½ in. by way of experiment. Now note results: My 32 colonies gave me only 5 swarms, rousing big ones, one of which produced 30 lbs. of surplus besides filling the brood-frames completely; and this in the shortest honey season on record here. My aggregate of surplus honey for this season of drouth, without a parallel, was a little over 1000 lbs. of fine white-clover and basswood honey, and all the hives well filled with winter stores. My friend Mr. Eastling, with just the same number of colonies, also cellar-wintered, and all good strong stocks in the spring, was forced to care for eleven swarms, and lost a number that flew to the woods. He estimated his surplus at 700 lbs.



E. E. COLIEN, MANAWA, WIS., WHO HAS BEEN TRYING BOTTOM VENTILATION TO REDUCE SWARMING.

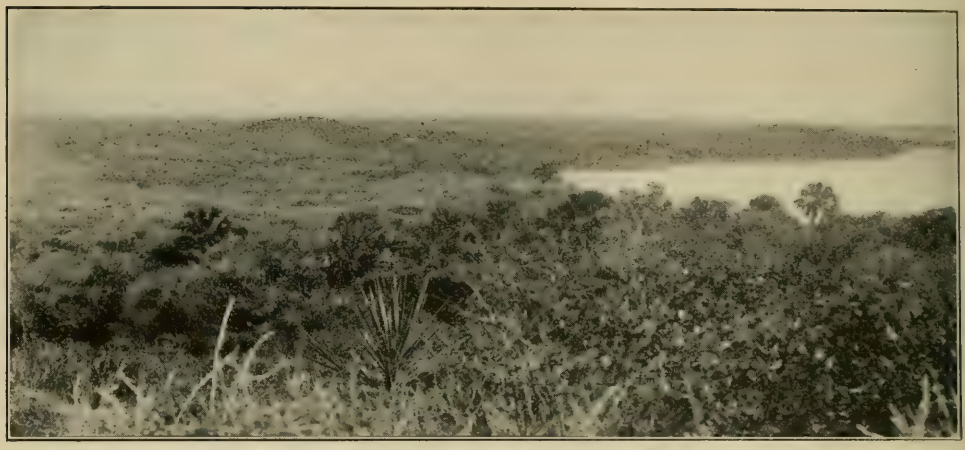


Fig. 25.—Saw and cabbage palmetto on the east coast. The view is from Turtle Mound, 42 feet high, looking south, and shows the Atlantic Ocean in the distance, and the Indian River north, on the right.

Now, do not the foregoing facts prove quite conclusively that ventilation does prevent swarming very materially, and in proportion to the amount of ventilation as well, and also increases the production of honey?

Again, please note that, while Mr. Eastling and I had, say, from 30 to 40 per cent of a fair crop of honey, and hives well stored for winter, our immediate neighbors had but little surplus honey, and some none at all; and their bees, many of them, had to be fed for winter.

Another new departure we tried was to put the new swarms in the place of the old hive, removing the parent colony to a new location. This method, too, proved effective in that not an after-swarm issued, although our hives were let down for fear of robbers, the colonies being much depleted.

Now, although I consider the result of our experiments in ventilation to restrict swarming and increase honey production very successful under the circumstances of season and location, I would advise others to go slow in experiments along these lines. I have given results that are very gratifying; but, as before observed, I am not prepared to give full and exact reasons therefor. It may be that we were fortunate to conduct our experiments in an exceptional season, and that the extreme drouth and steady high temperature prevailing were the prime factors in our successful venture; and it is quite possible that, had cool weather prevailed, and the season proved a wet instead of a dry one, the trial would have proven disastrous.

Therefore, for my own part, upon careful reflection, unless I receive more light on the subject regarding such possibilities from some veteran in the business I feel that I shall venture less another year, well knowing that a season like the one just past is not of frequent occurrence.

Considering Mr. Scholl's method, page 593, Sept. 15, 1910, it strikes me as an inter-

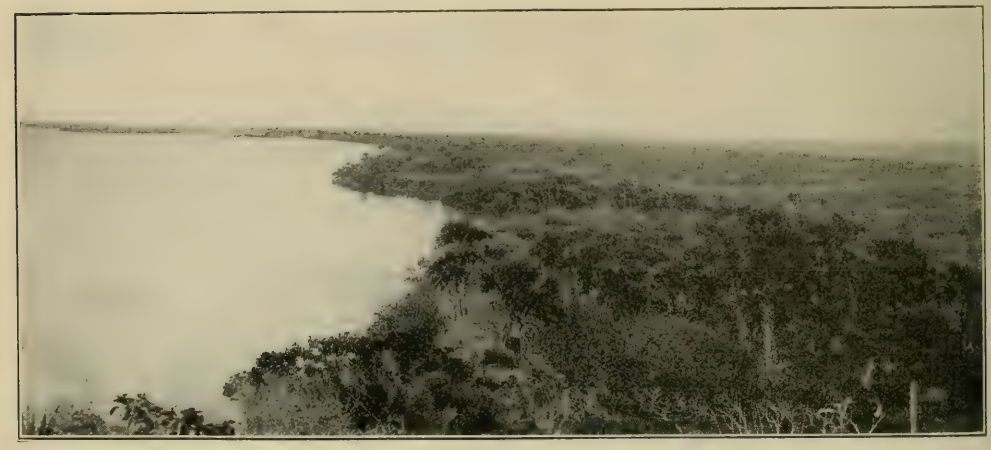


Fig. 26.—Saw and cabbage palmetto viewed from Turtle Mound but looking toward the north.

mediate plan of ventilation, safer and far easier of application than the four-block system. By his plan one could go the rounds of a yard in short order, giving moderate ventilation early in the season, and a second round as the season advances, increasing or decreasing the openings as the prevailing temperature might demand.

Then, too, this system offers another advantage over the four-block way, in that the entrance remains where it is, while by the other method the entrance is all around, obliging one to work quite frequently in the line of flight of the bees, which sometimes proves unpleasant.

THE MELTED-WAX PLAN FOR PUTTING FULL SHEETS OF FOUNDATION IN SECTIONS.

Now, for the benefit of those finding trouble with foundation-fastening and crooked combs, I wish to say that the Yoder method is the panacea for these tribulations. I have found this way of putting in foundation, full size, in the sections the most satisfying and easiest by far. The sealing holds the foundation securely in place, while supers are toted about before being finally placed upon the hive; and it appears to me to be the key to the production of the finest even-weight sections of honey.

SEPARATORS NOT USED.

I have done away with separators entirely; and by carefully placing (in fact, packing) the sections closely together in the supers I find no trouble at all in removing them, the bees having but little chance to stick in any glue. To this manner of putting in sections, and the full-sized foundation, I ascribe the beautiful cakes of honey my bees are turning out. By actual weight I found two supers to aggregate within ¼ lb. as many pounds as there were sections, the lightest one weighing 14 oz. Another lot of 25 sections weighed 26 lbs., and not a section below one pound.

Manawa, Wisconsin.

BEE-KEEPING IN FLORIDA.

The Surplus-honey Sources.

BY E. G. BALDWIN.

Continued from last issue.

9. Black mangrove (*Avicennia nitida*), a tree of the coast lands that grows only on soils overflowed daily with the salt sea-water. Fig. 6, foreground. It will not grow unless it has its daily foot-bath in brackish water. It grows on both east and west coasts, though the yields from it on the west coast have never equaled those on the east. There are two mangroves, red and black, that are very common, both growing side by side. The black is the only one valuable for honey. It flourishes best on the keys (and adjoining mainland) that skirt the coast from Tampa on the west to Ormond on the east coast; does not thrive north of the 29th parallel. The honey from mangrove is white, probably the whitest honey in the State. The body is rather thin, though better on the Keys than on the mainland. In flavor it is very sweet and mild, with just the barest suggestion of a salty nature that is not at all objectionable. It is usually pronounced first-class, and easily ranks with the four best honeys of the State—I mean orange, palmetto, tupelo,



Fig. 6.—Black mangrove on island off shore of Tarpon Springs in the Gulf of Mexico.



FOSTER'S OUTDOOR SLEEPING-ROOM OVER THE KITCHEN. SEE PAGE 219.

and mangrove. Up to the year of the big freeze in 1895 it was the greatest honey-yielder known to the apicultural world, barring none. It is also a very interesting plant for many other reasons.*

10. Sensitive pea (*Chamaecrista*), commonly called partridge pea, because its seeds are so relished by the quail. It is a tough weed of the senna family, growing all through the high pine lands of the northern half of the peninsula, in great abundance. In summer, here, for example, the woods are yellow for miles with it as far as the eye can see. It grows from two to three feet high, as Mr. J. J. Wilder, of Cordele, Georgia, has already pointed out in these columns. It has a very long bloom-period, from July to mid-September, and yields honey every year unless the summer rains are too heavy, as was the case the past summer. Then its quality and quantity are inferior. The honey has a very pretty hue, light amber and very clear; in body it is rather thin, and the flavor is strong to one accustomed to milder types; would probably sell better as a comb-honey product than as extracted honey (see later notice of this plant).

11. Cabbage palmetto (*sabal palmetto*); a tree growing from 20 to 30 feet high, with spreading top and drooping leaves, huge and fan-shaped (see the background of Fig. 6, and also the foreground of Figs. 25 and 26). The blades of the leaves are plaited in the bud, forming an imbricated covering over the trunk for many feet below the top, gradually falling away as the tree grows higher. Its blossoming time is from mid-July to the end of August. The blossoms are huge ostrich-like plumes, six to eight feet long, drooping from the same center as the leaves, densely covered with small greenish-white blossoms, very aromatic. They are subject to blight, however, from too much rain or too little, and so it is not counted on oftener than one year in three. It yielded profusely in 1907; again this year (1910). When it does yield, it is always heavily. Its habitat coincides pretty nearly with that of the saw palmetto. However, it reaches its most



OUTDOOR SLEEPING-ROOM ON SIDE PORCH. SEE PAGE 219.

*Readers of GLEANINGS who may be further interested in this rare plant will do well to consult Dr. Wilson, of the Commercial Museum, Philadelphia, who is a recognized authority on the subject.

picturesque height on the hummock lands of the coasts and Keys in the southern part of the State. It is cultivated very generally, however, all over Florida as an ornamental tree. The honey is almost water-white, clear and translucent. The body is not so heavy nor thick as that of saw palmetto, nor is the flavor considered so fine, though extremely mild. I sampled some pure cabbage-palmetto honey this year from the apiary of Mr. I. T. Shumard, Osprey, Fla., and can attest to its excellence; but the average palate would choose the saw palmetto. It requires good handling to prevent its fermenting, and often froths in the combs on uncapping. The frothing entirely disappears, however, on standing a few hours. In the vicinity of Hawks Park, Fla., this honey comes at about the same time as the black mangrove, so that neither can be harvested separately. But the blend is a fine combination, and won signal praise from the father of modern apiculture, L. L. Langstroth himself, as the following letter from him attests. Mr. W. S. Hart had sent some samples of the blend of cabbage-palmetto and black-mangrove honeys to Mr. Chas. F. Muth, of Cincinnati. Mr. Langstroth secured a smaller sample of this honey from Mr. Muth, and wrote him the following letter:



BLUEBERRIES FROM BUSHES GROWING IN GOOD SOIL.
SEE PAGE 223.

Friend Muth:—I have delayed giving you my opinion of that Florida palmetto honey till I got the verdict of others as to its merits. In color it is unexceptionable, and its flavor is very pleasant. I am not sure but the majority of consumers will consider it equal if not superior to white clover. Our Southern friends are to be congratulated on being able to supply our market with such a choice article.

Oxford, O., Nov. 16, 1882. L. L. LANGSTROTH.

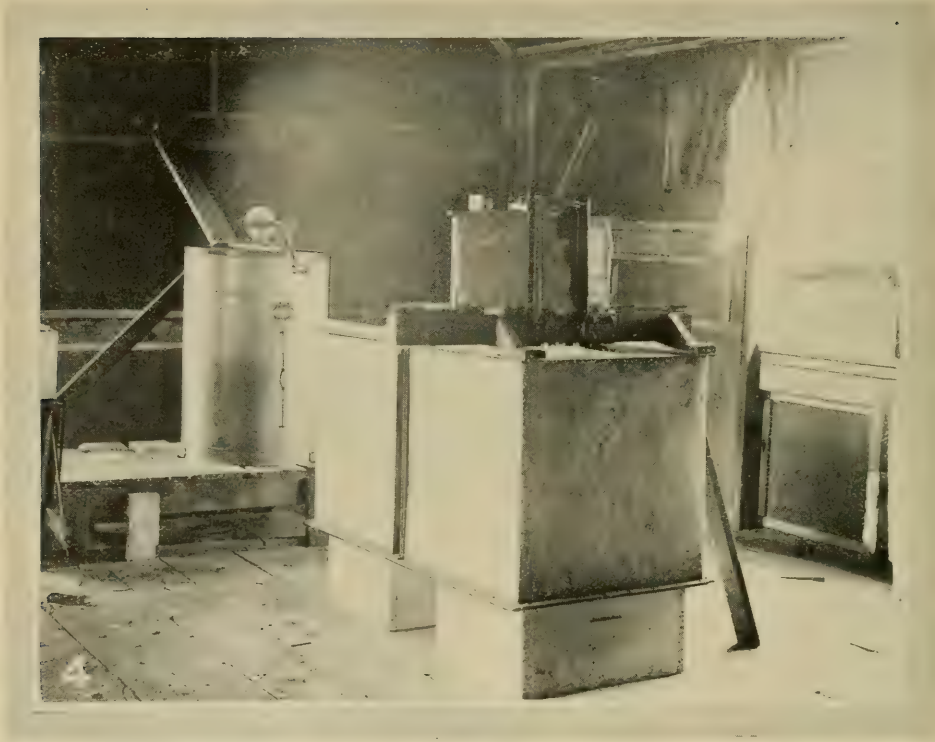
This combination of honeys constitutes the bulk of Mr. Hart's surplus.

12. Manchineel (*Manchineel hippomane manchinella*), a tree of the spurge family; is called also "poison wood," from a milky sap secreted from the bark. It is one of the largest and most common trees on the southeast coast; reaches its greatest beauty on the Keys there, though it is found on the mainland as far north as Palm Beach. In certain years it is a very heavy yielder of nectar. It blossoms always in connection with the two following sources:

13. Dogwood (*Cornus Florida*), a flowering tree found along the Keys and off the southeast coast, especially the former.

14. Pigeon cherry, also in same locality as two former. All three of these bloom about simultaneously, nor can their honeys be obtained separately. Mr. O. O. Poppleton is the only bee-man who attempts to reap a harvest from these three sources, and he does so by means of his traveling apiary. He pronounces the combined honey from them of good flavor, excellent color, and good body. His crop last year from the three was 28,000 lbs.

15. Fall flowers (including wild sunflowers, goldenrod, asters, and thoroughwort). Of these, none are much of a factor except, possibly, the wild sunflower, in the section lying east of Miakka River, between the palmetto section and the Everglades. There it is very abundant, and seems to be a good yielder. But the honey from all is much like that from the northern flowers of autumn—rather dark and strongly flavored.



E. D. TOWNSEND'S EXTRACTING-HOUSE, CHARLEVOIX CO., MICH., SHOWING FOUR-FRAME NON-REVERSIBLE EXTRACTOR, THE McINTYRE UNCAPPING-BOX, AND THE FERGUSON UNCAPPING-MACHINE.

None of them are extremely important in the surplus field. The wide range of honey-sources above named makes a *total* failure in any one year for the whole State practically impossible. For instance, the past year has been a very poor one here in De Land. It was a good one on the southwest coast and in the northwest. Taking the State as a whole, the yields are much more reliable than in the Northern States.

Notice that eleven out of the fifteen sources enumerated are *trees*, not plants. Can not the claim, therefore, be justly made that Florida is a land of tree honey? Can any other State say the same? Observe, too, that there are four strictly *first-class* honeys —orange, saw palmetto, tupelo, and black mangrove, to say nothing of the manchineel and cabbage palmetto, which would almost touch high-water mark for quality. Show me any other section that can boast so many choice honeys to its credit. These four honeys are all of great commercial importance, and are shipped out of the State by the ton; and yet the market quotations on honey often read "dark and southern." The middlemen have a large load of accountability for the "black" name they have given the Florida honeys—dumping them all in as "Southern," with no effort, apparently, to classify or differentiate; in fact, it appears that they may have done so purposely in order to secure the first-class article at the dark-honey price. But better things are in store. Daylight is dawning. The bee-men are learning how to sell to better advantage; are beginning to think for themselves; more and more the buyers of choice table honeys are reaching down into the peninsula for the excellent table honeys that are produced here, and better prices are ruling.

De Land, Fla.

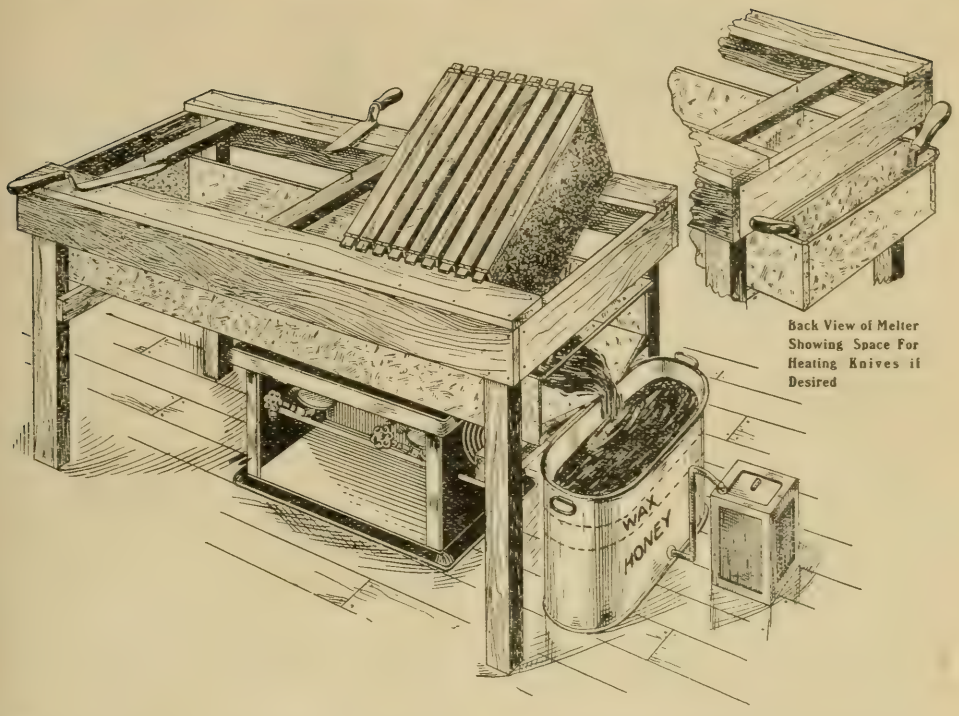
To be continued.

BEE-KEEPING FOR BEGINNERS, ILLUSTRATED.

The McIntyre Uncapping-box vs. a Large Capping-melter.

BY E. D. TOWNSEND.

The engraving in connection with this article shows one corner of our headquarter honey-house in Charlevoix Co. This building is 18×26 feet, but is built on the same plan as the one at the Springbrook yard, described in my last article. Unlike the smaller 12×16 extracting-houses, the inside arrangement is such that the uncapping-tank, extractor, etc., are away from the walls, so that the operator can get all around them, this arrangement being more convenient where there is room. We were for-



Back View of Melter Showing Space For Heating Knives if Desired

tunate in securing this structure already built and located just where we wanted to place our bees at this point. The wood-chopper was desirous of selling, because the timber had been cut back so far that he either had to sell or move. The partitions, windows, and old doors were removed, and our regular shop windows put in at each side, and then a wide panel door was located near one corner in the end, just to the left of the extractor as it stands in the picture.

After all the repairing was done, the inside walls were tar-papered as usual to keep out robber bees. We have never been able to find any other paper that the mice will not gnaw, thus making it necessary to do repairing each spring. The tar paper lasts for years, and the only time it requires repairing is when the building is taken down, and moved and set up at a new location. Then, of course, some of the paper is torn.

In the foreground of the picture is one of our McIntyre uncapping-boxes. This tank is one of the first ones purchased, and is 4 ft. long, 2 ft. wide, 2 ft. deep. We now buy them the same width and depth, but 6 ft. long, as the shorter ones do not have capacity enough to drain the cappings thoroughly before they have to be emptied. The tank is built of galvanized steel, and has a honey-gate at the opposite end near the bottom.

A slatted bottom holds the cappings two inches from the main bottom of the tank for drainage. This is built of ⅞-inch-square pieces running crosswise, ¼ inch apart, and nailed to two longitudinal pieces ⅞×2 inches, and ½ inch shorter than the length of the tank inside, so that the framework may be easily lifted out to wash, etc. We build these of white pine, as this is the best material.

At the top of the tank a framework is built of ⅞ pine, the long pieces at either side being 3 inches wide and a little longer than the length of the tank, so they will rest on the ends. Two cross-pieces of the same material, but a little shorter than the inside width of the tank, are nailed to these long pieces, quite near each end, in such a position that they will just fit up against the ends of the tank inside. The open space between these two long pieces is 18¼ inches, this space being just right for a Langstroth frame to hang as in a hive.

The Ferguson uncapping-machine is shown in position over the tank. This will be discussed in a future article, as space forbids it in this.

In order to secure good drainage of the cappings, they should be chopped fine occasionally, and spread out evenly over the bottom. This should be done more particularly at night when the day's extracting is over. Each morning, before beginning another day's work, the dry cappings left over from the day before are forked up to one end of the tank, so that the new wet cappings do not have to drain through those already nearly dry. When the tank is so full that good drainage is no longer possible, it is emptied. For the nearly dried cappings removed from the tank, a sugar-barrel is prepared by boring holes in the bot-

tom, and these cappings pitched into it, the barrel meanwhile being suspended over a washtub to catch any further drainage, of which there will be considerable. For handling cappings, nothing that we have ever tried equals a "D" handle six-tined fork.

There is one quite serious defect in the McIntyre uncapping-box. The honey that drains out of it after the first 48 hours from the time the cappings are sliced from the combs comes so very slowly that it is stale and unfit for table use. This, with what we take from the cappings that go into the capping-melter later, amounts to 2½ per cent of the crop extracted, and this amount has to be sold at about two-thirds price (this applies to the better grade of white honey; with low grades, there is not so much difference).

After all the honey is drained out we transfer them at our leisure, after the season's work is over, to a large capping-melter made along the lines shown on page 555, Sept. 1, 1910, and also shown in the accompanying drawing. After the wax congeals, the honey is drained and canned, and it then generally goes for the baker trade. We have never found a melter that has handled this work as well as this one; and, although we have never tried it for handling cappings direct from the knife, we expect to next summer. At that time, if it works as well, and I see no reason why it won't, we will discard the McIntyre uncapping-box entirely. The melters that we have tried before have been little affairs, not adapted for our extensive runs, and we had about decided there was nothing quite as good as the McIntyre box until we tried this new melter.

FOUR-FRAME NON-REVERSIBLE EXTRACTOR.

The extractor shown in the engraving before referred to is of the new four-frame nonreversible type. Its features of merit are portability (the weight being only 80 lbs.) and durability. It is built on the same principle as the old Novice that was noted for its long life; but, having twice as many baskets, the capacity is, of course, greater than the two-frame Novice, and there is no reason why it should not last fully as long. A disadvantage is that the combs have to be lifted out by hand and reversed, and this takes some more time, but not so much as one would think at first thought; and the extra time is almost offset by the ease and rapidity with which the reel may be turned. The baskets being near the center, the crank starts more easily and turns with less effort, so that time is gained, as it does not take as long to free the combs of honey as with the four-frame automatic.

There is another serious disadvantage that this extractor has—the centrifugal force drives the combs into the wire so hard that combs that have not been used for brood-rearing are often broken when removed from the baskets for reversing.

While we shall probably continue to buy the four-frame automatic extractors for general use, this little portable machine will fill a long-felt want for outyard work where not too much extracting is to be done.

Remus, Mich.

[We note what our correspondent says in regard to the last honey that drains from the cappings being stale and unfit for table use, and we wish to mention what we call "drip honey" that drains from the cut pieces of comb honey that we prepare for the individual-service trade. This honey drains away very slowly indeed; and, being exposed all the while to filtered air, free from dust, it becomes very thick and almost waxy. It is true that the new "aroma" has been lost; but among actual consumers we have found that there are few who know any thing about aroma, and they all pronounce this drip honey the very finest that they have ever tasted; and if we had ten times as much of it, it would probably be eagerly taken and more yet asked for.

Honey next the cappings is always supposed to be the very best. If special pains were taken to strain it so that it would be clear, we believe the same price could be secured as for the rest of the honey, and possibly a little better price, if such were asked.

We presume that the reason why the combs are more mutilated in the small extractors is that the baskets, being so close to the center, offer little resistance, and high speed is easily attained. The centrifugal force is greater when the baskets are located further from the center; but with this latter construction it is not usually possible to whirl them at so great a speed, hence the centrifugal force in most cases is not quite as great. Theoretically, then, a machine with a reel of small diameter turned at something less than the maximum speed should have plenty of centrifugal force.—Ed.]

NON-SWARMERS ALREADY POSSIBLE.

BY I. F. MUNDAY.

In Gleanings for November 15, page 736, Mr. Raleigh Thompson says, "he (man) will never produce a non-swarming race." I desire to assure him that 95 per cent of my colonies have not swarmed, nor have been disposed to do so, for quite twelve years. The hives have been occupied by bees constantly. Of course, no queen has lived for 20 years; but the queens have remained in the hives till they died, and others of the same kind have either been reared in them or have been introduced. Many of the combs are of a greater age than 12 years, yet no swarms have issued from these hives either in good, bad, or indifferent seasons; nor do I think they are likely to do so while managed judiciously with the object of obtaining honey for extracting. The little increase I require I obtain by means of nuclei transferred to full-sized hives and strengthened from sealed brood taken from two or three strong colonies. I keep from 80 to 100 hives in my apiary.

My hives stand on the same spot year after year, exposed to all weathers. I seldom interfere with them except to take their combs of honey to extract and put back again. My hives are of ordinary size, and have on them one or two honey-chambers or supers, full depth. From the 10th of November to December 20 I extracted 89 60-lb. tins of honey from 75 hives, this honey being produced within those dates. I tell you this to let you know that my bees are good. I think I can reasonably consider them non-swarmers.

Woodville, N. S. Wales, Aus.

OUTDOOR SLEEPING-PORCHES.

BY WESLEY FOSTER.

Colorado's climate is mild enough so that sleeping out of doors is pleasant nearly the whole year. The writer has used the outdoor sleeping-room shown in Fig. 1 (p. 214), every night except two up to this date, Jan. 5. This sleeping-porch, which is 8 feet by 14, is built over the kitchen at the rear of the house. The sides are sealed up about 3½ feet, and wire cloth encloses the space between this and the eaves of the roof. On the west there are two window-sashes fitted in to shut out the west wind; but the north and east sides are open except for the screen. On the east side, too, a screen door opens out upon the roof.

We have a very large porch running around three sides of the house. On the east side, it is made into another outdoor sleeping-apartment which opens into the downstairs bedroom. This porch has canvas curtains hung by means of rings sliding on ordinary gas-pipe — an arrangement fixed with material we had on hand, as the curtains were made from an old tent that the wind had torn badly. This downstairs sleeping-apartment is shown in Fig. 2. The east side of the house is hidden from the street by several pine and apple trees.

Outdoor sleeping-rooms are becoming so popular that houses sell much more readily if there is one or more of them, and it is common to see "want ads" in the dailies asking for accommodations with outdoor-sleeping facilities. It is a move toward saner and healthier living.

Boulder, Col.

[Occasionally some one objects because we give space once in a while to matters that do not pertain to bee culture; but we have always replied that GLEANINGS was devoted not only to the interests of bee culture but to the interests of the home as well. We feel that this question of sleeping outdoors is certainly a matter that should be of interest, not only to bee-keepers, but to all who value good health.

At our house we have been sleeping out of doors for about three years, winter and summer, and there are very few nights in the year when we do not enjoy the pure outdoor air. We began, first, on account of my tendency to have catarrh and hay fever; but the results have been so highly satisfactory that we shall probably never sleep inside again, for any length of time at least. Colds are almost unknown; and when they are contracted they usually last not over twenty-four hours.

There is no object in sleeping out of doors if an ordinary room has one or more windows wide open, for the air is just as good. Oh! is it? Let me tell you this, and, if you do not believe it, ask some one who has tried it. There is no comparison at all between the air in an ordinary bedroom with three windows wide open and the air out of doors. There are very few rooms that have windows on opposite sides, and that is why the air is entirely different. No one who has ever slept *out of doors* ever says afterward that an inside room with windows open is just the same.

When it costs so little to try the plan, why will so many spend their money for patent medicines and cure-alls that are worse than useless? Our correspondent is right when he says that houses that are being built often have accommodations for outdoor sleeping-rooms; and we firmly believe that the time is soon coming when almost every new home will have at least one (and more often two or three) outdoor sleeping-apartments which will not be cumbered with dust-laden carpets, rugs, nor curtains.— H. H. R.]

KEEPING DOWN INCREASE.

Should this be Done by Hiving the Swarm Back on the Old Stand after Destroying all the Cells?

BY W. S. DAVIS.

I have 61 colonies, and have not had a swarm this season. I use eight-frame hives with Hoffman frames, and have them built up 2 and 2½ stories. The best hives are full, and hang out quite heavy. The honey-flow has been light, but some of them had a full-sized hive-body above the brood-chamber, nicely sealed up, so it would hardly seem to be altogether a shortage of food. The bees are in a yard among shrubbery, and some are in shade and some not. I have noticed little if any difference in this respect.

In 1908 this yard cast 70 swarms, or more than one for each hive. This was a fine honey year with me, and I made little or no effort to prevent swarming. Instead, as soon as a swarm issued and I had it safe I went through the parent hive, cut out all the queen-cells, and saw that no young queens were out.

It is surprising how soon they will hatch. Inside of an hour after the swarm had left, and while I was working with them, I have had as many as five in one hive.

After giving the parent colony an hour or two to find out their condition I put the swarm back. Where a man can be with

his yard all the time, this seems to me an ideal way to prevent increase, and at the same time get the full benefit of the increased energy from natural swarming. Every hive treated this way produced much more honey than where placed in separate hives, and the two counted as one. Colonies treated as I have outlined made no more trouble about after-swarms.

I am away from home quite a bit, and could not treat all this way; and the man I employed was unable to do it. He simply hived the swarms, and then I just doubled them up afterward. I treated about 30 this way, and did not lose 500 bees by fighting. This certainly was good luck, for, next year, when I tried to unite two weak colonies it resulted in the total annihilation of the weaker.

With the exception of a few ten-frame hives I use the eight-frame. They seem to meet my needs much better; and, while my hives all take Hoffman frames, the entrances are not all alike. I am unable to notice that the size of the entrance has much to do with swarming. I have not tried top ventilation or raising the hive off the bottom. I think both need close watching to prevent trouble.

Jerseyville, Ill.

[It is a question whether hiving back on the old stand, after destroying the cells, will give as good results as hiving in a separate hive beside the parent hive, then removing the parent hive altogether, after shaking its bees at the end of three weeks in front of the swarm. Of course this would call for the elimination of one of the queens, whichever might be the inferior. As a general thing we do not believe it is good practice to hive a swarm back on the old stand *on the same set of combs and brood.* If any of our readers disagree we hope they will give the reason for the faith that is in them. —ED.]

REPORT OF CALIFORNIA STATE CONVENTION.

BY MRS. H. G. ACKLIN.

The twenty-first annual convention of the California State Bee-keepers' Association was held in the Chamber of Commerce, Los Angeles, on the evening of Feb. 27, 1911, and held over to March 1st inclusive. President B. G. Burdick, of Redlands, opened the session, and was present at all the meetings during the entire time.

The attendance was a record-breaker, and enthusiasm never waned. An excellent program had been prepared by the executive board, and the president kept things going at such a lively pace that there was barely time to discuss more than the important questions. If every one on the program had been present with his paper, another half-day would have been needed.

Much committee work is always necessary at such conventions, and it seems almost a hardship that many of the members are obliged to miss papers they would especially like to hear, just because of this extra work. Several sections in the constitution and by-laws were amended, which meant considerable work for that committee.

Our State society expects to occupy the same position in California that the National does in the United States. Provisions have been made for all other societies interested in bee culture in the State to affiliate with the State association on the same basis that the State associations go into the National. When that is accomplished our bee-keepers will be nearer a unit than ever before, and better able to demand protective legislation.

The report of the committee on honey adulteration was a revelation. The committee were unable to find spurious honey in this market, and were also unable even to conjecture what becomes of all the glucose that is shipped in, billed as syrup—sometimes as corn syrup. Who is going to be able to ferret out this nefarious business of adulterating honey? This same committee was continued, and we all sincerely hope they will succeed in running down the miscreants.

As usual at such times there was considerable discussion of bee diseases. The sections infected with European foul brood to the north of us are causing much uneasiness in our midst—especially so, as the claim is now made that those germs are carried by the atmosphere. The disease is coming along at the rate of twenty miles each year.

Great interest was taken in the subject of organization and coöperation. One can easily see that this is the one great object bee-keepers are working for. To have an organization similar to that of the orange-growers means untold benefits to the bee industry. But I will not discuss this subject now, as I went over it pretty thoroughly in the last issue. Mr. J. B. Neff's paper on this subject was excellent. A committee was named to look this matter up.

Many other subjects of vital interest to bee-keepers were discussed; and, all together, the session proved instructive and profitable. A committee of four took charge of the question-box.

Those on the program for papers were: L. L. Andrews, Corona, "Establishing an Apiary where there are no Conveniences."

Delos Wood, Santa Barbara, "Keeping Bees in Pioneer Days."

Albert Dodge, Pasadena, "Requeening an Apiary."

John G. Corey, Santa Paula, "Shade in the Apiary."

C. A. Wurth, Washington, "Queens."

J. W. Kalfus, San Jose, "Building up Bees for the Honey-flow."

S. L. Griggsby, "Non-swarming."

Louis Sinn, Reedley, "European Foul Brood."

C. C. Schubert, Santa Monica, "Deputy Inspectors."

Z. Quinsey, Ramona, "Way I Find Things in San Diego Co."

Fred A. Parker, Lompoc, "Apiculture in Santa Barbara Co."

J. W. George, Imperial, "How I Make a Crop of Extracted Honey."

H. F. Mellen, Acton, "Comb Honey."

Prof. Ralph Benton, State Normal, "European and American Foul Brood."

W. R. Wiggins, Los Angeles, "Fluctuation of Market."

A. Seligman, Los Angeles, "A Retail Honey Trade."

J. B. Neff, State University, "Coöperative Marketing."

W. H. Allen, Santa Paula, "How a Man of Small Means may go into the Bee Business."

T. O. Andrews, Corona, "A Ramble Extending Over Fifty Years."

C. B. Messenger, *California Cultivator*, "Selected."

M. H. Mendleson, Ventura, "Suggestions on Different Topics."

C. P. Chadwick, "My Experience."

E. D. Bullock, Redlands, "Flora of California."

J. M. Elliot, First Nat. Bank, "Honey as Bank Security."

J. W. Fenee, Newhall, "Importance of a Home Paper."

The President's address was timely and to the point, embodying many suggestions which, if carried out, will be of great benefit to the association.

The old officers and executive board were all reëlected, and the time and place of next meeting will be decided by the board.

Glendora, Cal.

WINTERING A SURPLUS OF QUEENS IN ONE COLONY.

The Plan a Success.

BY G. W. JOICE.

I have often thought what a blessing it would be if bee-keepers could successfully winter several laying queens in the same colony for use the following season. This thought has led me to try, and in a way I have been successful.

In the autumn of 1908 I had ten extra laying queens which I wished to carry over for the following season. I knew that a trial was worth while. I didn't think that I could winter them in any manner at all. I selected two colonies of pure Italians (leather-colored), and tried the introduction of my pets (queens). I took the queen from each of the two colonies, as I would if I were going to supersede her, and began my attempt of introducing 12 laying queens to two queenless colonies. The queen from No. 1 was introduced with five others to No. 2; i. e., *the queens were all strangers to the bees to which they were introduced.* The queen from No. 2, with five others, was introduced to No. 1.

No. 1 accepted five queens, and in the spring of 1909 four were present, none the worse for their (and my) experience. No. 2 did better, crowned my success (?) by *accepting six* and *wintering the same* to *perfection.* All queens wintered thus have become queens of successful colonies—in fact, some of my best. These were all 1908 stock. I have never tried the wintering of older queens by this method until this winter. I have eight old queens in one colony in the cellar, four old queens and three young ones in another colony, and some young ones (all have been fertilized) in another. The winter of 1909 I *wintered eighteen queens in three colonies.* The queens are all in one cluster, without any division-boards, just as though they were ordinary workers.

Montpelier, O.

[We should be pleased to hear from any others who may have succeeded in wintering surplus queens without giving each queen a separate nucleus. With most bee-keepers the plan has proved a failure. See reply to A. B. Marchant, page 227.—Ed.]

CARBOLIC ACID IN SPRAYING SOLUTIONS WOULD HAVE NO EFFECT.

BY B. C. AUTEN.

Anent the discussion as to the use of carbolic acid in spraying solution to keep the bees out of the poisoned blooms, as the rule is universal not to spray when the tree is in bloom, there shouldn't be any poisoned bloom. I think I get all the spray-machine and insecticide catalogs, or most of them; and the official publications and all (that I get) are positive in saying that trees should not be sprayed when in bloom. I am afraid you raise a smoke many times bigger than the fire. A man who doesn't care for the bees, and sprays during bloom, would not put carbolic acid in his spray anyhow. The other man can mend his manner of spraying.

As to the efficiency of the carbolic acid, however, I am positive that it would be of too little effect to pay for going to any trouble. I have bees and I do spraying. I keep my bees watered constantly by special appliances, and they utilize my devices. Nevertheless, though I keep a film of crude carbolic acid over my water-storage tank, the bees throng into it, cling to the sides, and alight on every floating stick or bit of scum, fall or are blown into the water, and are drowned in most distressing numbers. There is no stream or pond in the neighborhood, or they would probably drink somewhere else; but, my tank being the largest sheet of water in evidence, those bees which have not learned my watering-places, when they see the water in the tank they go for it, not considering whether there may be other water elsewhere. I do not think the acid would be any better a deterrent in the flowers where nectar is.

Moreover, no odor, when exposed to the air in as dilute a condition as the acid would be in a spray, will persist for more than a few hours at most. When a bee is right

thirsty or hungry, when it sees what it wants it goes after it where it sees it.

As to this matter of the fugitive character of the odor of any dilute material exposed to the air, I am well posted, having experimented with supposed rabbit-repellents for several winters, and tried nearly every bad smell in the chemistry, using them in mixture probably a hundred times as strong as could be done in the spray, and the smell of a thick wash of crude carbolic acid, whale-oil soap, and iodoform will persist for but a few days. Even gas tar added will not help much.

Carthage, Mo.

BEE-KEEPING AS A HOBBY.

Why Hives are Examined.

BY F. DUNDAS TODD.

Chapter Six.

At certain times of the year it is important that the bee-keeper know exactly the conditions that obtain inside the hive. For instance, in the spring, in the fall, and often just after the end of fruit-blossom, before the honey-flow starts, he ought to know without any doubt whether or not there is sufficient honey stores on hand. It not infrequently happens that a colony will make deeper inroads upon the winter stores than was anticipated, so that the bees are not in condition to take steps toward raising, not merely a big family, but a prolific one, such as is essential early in June.

When one keeps a careful record of individual hives he comes across features for which it is often hard to find an explanation. The condition of the honey stores in spring is certainly one of them. For instance, there may be standing side by side two hives that in September were apparently alike in numbers and amount of stores, yet at the end of March one will be in prime condition while the other may be on the verge of starvation, and even worse. At the close of fruit-blossom a similar condition may arise. One colony may have hustled enough during the period of bloom to have a surplus of food on hand, while its neighbor may have turned the nectar into more bees about as fast as it was brought in.

Again, it is essential to the existence of the colony that a queen be present at all times, or at least suitable conditions for providing a new one. But the mother of the hive is liable to die at any time from accident or disease, just as are other bees. When free flight becomes established at the end of winter it not infrequently happens that a colony has no mother, and is, therefore, doomed to extinction in a few weeks. Or she may survive the winter, but break down as soon as the heavy egg-laying period develops, when, of course, the bees will endeavor to raise a successor from the larvæ on hand. When such a condition arises before any drones are flying, the young queen will not be fertilized, therefore she will be unable to populate the hive with worker bees, and, consequently, the colony will cease to exist in a little more than a month.

It is essential for the bee-keeper to know when such untoward conditions arise, so that he may better the working conditions, supplying food where such is scant, and utilizing queenless bees to the best advantage. Outside indications will often give him an inkling of the inside conditions; but exact information is obtainable only by an examination of the inside of the hive.

Leaving general terms alone, let us take a concrete case. Where I am located, the honey-flow is over by the middle of July (for two seasons there has not been any), and the bees then do their best with pickings from thistles and fall dandelions. In September they are fed the winter stores, and I jot down in my note-book the condition of each colony. When free flight comes in March, my attention is attracted to two colonies which we will designate A and B. The latter, on September 3, is noted as being very strong, and as having brood in two frames. Before the end of the month it is fed all the syrup it will take up; and since the queen is in her first season I naturally anticipate favorable conditions in March. But when other hives are busy, only a few bees are seen to issue from this one, so a quick examination is made, only to find that the total population consists of a queen and perhaps 200 workers. Not over a hundred dead bees are found inside the hive, so it is evident the population had run down rapidly in November and December, for on October 20, when the hive was packed for the winter, it is noted as being strong. Unless this queen is assisted by adding more bees to the hive the colony will soon be out of existence.

A was one of the best colonies in the yard. From a weakling in May an imported queen had made it a powerful hive in June; in fact, it was one of the few that gave a surplus, about 20 pounds of dark-colored honey, which was distributed to less fortunate colonies. On September 3 it was strong, had no brood in the frames, but the queen was present. The stores were almost at the vanishing-point, so it was fed all the bees could take up. On October 20 it was packed for the winter, condition strong. Later, dead bees were thrown out by hundreds, while even more were found on the bottom-board. This condition continued for several weeks, then stopped entirely.

In March its bees seemed rather disinclined to fly, and very little pollen was carried in; so the suspicion developed that it must be queenless. Then all at once it got very, very busy—so much so that robbing was suspected, therefore the entrance was contracted to about half an inch, then a little heap of flour was piled up in front so that every bee on leaving had to plow through it. In a few minutes I could see white-marked bees entering three other hives. A quick examination of A showed no eggs, no

larvæ, no fresh pollen (all suspicious signs), and no queen, but plenty of sealed stores and lots of bees. Next day a more careful hunt was made for the queen, but in vain.

The conditions now stood, one hive with a queen and very few bees; another with bees and no queen. The proper thing to do was to combine the forces, which was done.

This simple example is given merely to show the beginner why it is necessary to open a hive. The average novice likes to go through a colony just for the fun of it; later on he will have a definite aim which will be concerned with the food supply, the queen, or her progeny. Broadly speaking, the dates when the brood-chamber should be examind are: In the spring, a week or ten days after pollen is being carried in freely, the purpose being to learn if there are sufficient stores, and if a queen is present with enough bees to keep the colony alive; at the end of fruit-bloom, for practically the same reasons; at the beginning of the honey-flow, to look for queen-cells, and at intervals of a week for the same purpose; in September, to learn whether or not there is enough honey on hand to carry the colony over the winter. Special conditions may arise that will necessitate some one hive being overhauled more frequently; but let it be understood that the less one meddles with a hive in normal conditions before the beginning of May the better, because while it is weak the inmates have a tendency to ball the queen—that is, form a cluster around her when the frames are disturbed. So far my experience is that a queen so treated is apt to disappear in a few weeks at most.

Victoria, British Columbia,

SOMETHING MORE ABOUT BLUEBERRIES; BLUEBERRY HONEY, ETC.

BY A. E. WILLCUTT.

I was much interested in what A. I. Root had to say in regard to the blueberry, page 807, Dec. 15, 1910. Now, I have lived right among the wild-blueberry (?) fields all my life, and let me say right here that the blueberry bushes are trying to crowd *us* off from some of our best land—land that will, with proper tilling and fertilizer, produce as good corn as can be grown in any of the New England States; in fact, we have many acres of "high and dry" land well *covered* with blueberry-bushes, that might be made to produce good crops of most kinds, and right on such land is where we find our *best* blueberries. See illustration on page 215. Such bunches as this one are nothing uncommon. I took the picture of this bunch so it shows the berries about natural size.

During July and August of the past summer Mrs. W. and I picked and marketed *2000* qts. of these berries, and I would have picked more if I hadn't been taken sick. It does not seem to me as though the blueberry *must* have sour soil or mucky swamps to live in. They do, of course, live and grow in wet sour soil in some places. I will send you some small bushes some time, if you care to try to grow them.

Don't you think those berries in the picture look well? If they have produced better ones in "captivity" I should like a few just now to eat. I have on my farm 30 acres more or less thickly covered with blueberry-bushes, and we have picked as many as 2500 qts. in a season. I have put stable manure around a few bushes, but could see little improvement.

The blueberry is a pretty good honey-plant, coming just after fruit-bloom. In fact, bees commence on the blueberry before the fruit-bloom is gone.

Swift River, Mass.

SWEET-CLOVER FOR HONEY-FORAGE AND FOR A SOIL-RENOVATOR.

BY HOMER E. BARTLETT.

So much has been said of sweet clover that perhaps another article is useless; nevertheless, beginners may not have read former articles who may read this and be profited thereby.

The yellow variety grows abundantly in this State, and in the streets of the town in which I live, and also along the roads in the country. I have seen it growing in the fields, but not long at a time, as it can not thrive where plow or mowing-machine is used, for, being a biennial, it must reseed the ground every second year. It can not do this when the land is plowed or mowed regularly.

As a honey-producing plant, the bee-keeper of South-Central Kansas can not well afford to be without it, as it is absolutely sure, according to my observation, and comes at just the right time—the vital time when the brood-nest is full of young—the time when fruit-bloom has gone and the first bloom of alfalfa has not yet come. I have even had my bees fill a super before there was a sign of bloom on alfalfa.

As a forage plant I have had considerable experience too. In the summer of 1909 I mowed all I could find along the streets and highways, and stacked it, thrashing it the next February. Although I had plenty of alfalfa for my horses, they readily ate the straw all up clean.

That same year I did not have occasion to turn my cow on pasture until the first of June. There were large patches of sweet clover in the pasture in full bloom; but in a couple of weeks my cow had it all eaten up, and there was plenty of grass there too.

In the last days of February, 1910, I sowed a small piece of ground to oats and sweet clover (white variety), and I got a famous crop of oats. I harvested them with a scythe so I would not cut the sweet clover too short, and later found I also had a splendid stand of clover. In November my alfalfa pasture frosted so badly that I had to take my stock off from it and put them on dry feed.

I fed my cows alfalfa hay until the first of December, when I began mowing the sweet clover and feeding it to my cows. The result was most gratifying, for the cows not only ate it readily, but it increased the flow of milk considerably.

As a benefit to soil I would only repeat what a professor in the college at the Kansas Experiment Station said in a leading Kansas paper. "As a soil inoculator, renovator, and builder, I know of no other plant or fertilizer that compares with sweet clover."

Whitewater, Kan.

DRAWBACKS TO BEE-KEEPING IN NEW MEXICO.

The Future of Alfalfa very Uncertain.

BY O. B. METCALFE.

As a result of the publication of some of my articles in GLEANINGS, letters of inquiry have come to me asking about New Mexico as a bee-keeper's paradise. It requires some trouble to reply, so I am going to give here a few facts which will answer some of these inquiries in advance. I do not mean by this, however, that I am not willing to answer further questions. If, after reading this, there is still some point on which an interested party thinks I might enlighten him, I shall gladly do so by letter.

As to yield per colony in the Mesilla Valley, a yard of good colonies a few years ago produced an average of about 50 lbs. of comb honey or about double that of extracted when the river did not go dry too early; but for the past few years the amount of honey yielded has not been as large, as the range is becoming overstocked. The above average is probably about equal to that of any other valley of New Mexico where enough alfalfa is raised to make bee-keeping as a business possible.

As to quality, our honey grades light amber to dark. We never get any water-white honey equal to that of Colorado, Utah, or the white sage of California; but it is of a fine flavor, except the fall honey coming from a plant similar to the goldenrod, which grows wild here and blooms late in the fall. The flavor of most of our honey is fine; but that is a point of little merit to the bee-keeper, as it is color that sells honey in these days, especially when it must be shipped out, as we have to do. I think at least 90 per cent of the honey produced in New Mexico is shipped, as we have almost no local market. Another drawback to our honey is that it candies quickly, so it can not be bottled very well.

As to price, our best comb sometimes brings as much as $3 00; but that is for the first few cases only, and the main crop goes at $2.50 and $2.60. Extracted brings about 5 cts. in five-gallon cans, two to the case, and the cases of cans cost about 95 cts. laid down as local freight.

We have a high freight rate on bee-supplies, and the cost of living is much higher here than in the East.

Our principal nectar-producing plants are, first, alfalfa, which is sure to bloom for at least one cutting; and, second, mesquite, which is quite uncertain, as it may get frozen, or its bloom may be destroyed by high winds, entailing at the same time loss of a large per cent of workers which are also blown away. Just before the mesquite flow, the willow is a good honey-plant here if one's yard is situated near the river. Late in the fall it often yields nectar, especially if there is not a severe drouth.

Where an attempt is made to run for comb honey, the swarming, perhaps, bothers more here than in any other State, as the flow is so slow and so intermittent. In fact, it is not a good locality to run for comb honey at all, as there is such a large expense in getting a lot of sections and mounting them when the river may go dry, and the alfalfa fail to bloom enough to fill more than a few of them.

As to the future prospect for the bee-keeping industry here, nothing could be more uncertain, as we depend absolutely on the alfalfa for a successful yield, and there is already much alfalfa being plowed up to be replaced by such crops as onions, cantaloupes, lettuce, celery, etc. All of the more progressive farmers are saying that they must certainly find some other crop to grow before the water assessments begin coming in from the big dam.

This had something to do with the fact that I made a long trip last fall through the highlands of Mexico, looking for a new location to which to move our outfit. I did not, however, find a suitable location, and intend to stick it out here to the bitter end, so far as being crowded out is concerned. The same conditions would probably exist in all irrigated sections of New Mexico.

Lest some of my bee-keeping brothers who are trying to sell out here should brand me as a knocker I must sum up the best features of the place. First of all, we have mild winters, and do not have to put the bees in the cellar. Then every few days during the winter, sometimes every day, the bees can have a flight, so a comparatively weak colony will winter here, making the problem of increase easy because the honey-flow is long.

I have a scheme for helping myself and my brother bee-keepers. Any one intending to buy or to move here may, if he likes, write to me, tell me of the prospective location, and I will send him a list of the bee-keepers who would be his neighbors. From them he can learn regarding the average yield, whether or not American foul brood is running riot in that particular spot, etc. If he is thinking of shipping in a lot of bees, he is apt to crowd some one, especially if the location is worth having. If he is a fair-minded man he will be glad to know just how much he would crowd, and how his neighbors would feel toward him. If he

wishes to sneak in and pretend afterward that it was through ignorance on his part, he must do so under pretense of not having read this article. Further, I wish to say that any one who is thinking seriously of going into the bee business in this valley will be a welcome guest at my home in old Mesilla; and if I can be away at all I will show him the country and introduce him to the bee-keepers who are to be his fellow-scramblers for the nectar secreted on this bee-range, which is so bounded by the limits of irrigation.

Mesilla Park, N. M.

ADVERTISING HONEY.

BY WALTER S. POUDER.

This very interesting subject is now being discussed by many leading honey-producers throughout the country, the object being to learn whether an advertising campaign can be conducted successfully and in a way that will increase not only the demand for honey but the price. The subject is before the National association as well as before many State organizations; and when we speak of advertising we usually refer to printer's ink as applied to space in magazines and newspapers; yet there are many other ways of advertising one's business. We see a single magazine page for one issue, for which as much as $5000 has been paid, and the advertiser continues to use the space regularly; for if he drops out for even one issue, those who look for the attractive engravings and artistic printing are sure to think that the firm has gone into the hands of a receiver, or that it is out of business. Those with experience in advertising have learned that, in order to get results, they must continue the space, no matter how small it may be. I have often wondered if the goods sold through extravagant advertising are not produced and sold at an immense profit—I even wonder if the shipping-box and the printed matter do not cost more than the goods. Just imagine advertising honey, and shipping everywhere at a margin of two cents or less per pound! The editor of the *Review* suggests that some one might put up a few paper honey-jars in a strong carton and advertise a dollar package of extracted honey. The idea is a brilliant one, but not practical until we have the benefit of the parcels-post system; for the different express rates to different points would make the project prohibitive. It is hard to understand why we are denied the benefits of the parcels post, especially when we consider how we are discriminated against. By way of illustration I would cite the following example: I can mail eleven pounds to almost any foreign country at a low rate; but if I wish to mail a package to Irvington, four miles distant, I must limit the weight to four pounds, and pay one cent per ounce. Surely the time can not be far distant when a thing so much in demand will be withheld.

Our downtown department stores spend thousands of dollars in newspaper advertising, and it is not unusual to observe the women turn to the advertising pages to see what bargains L. S. Ayres or Wassons will offer to-morrow for ninety-eight cents. The throngs in the stores are an indication that advertising brings results; but still other methods aside from the newspapers are used. We find the salesmen well trained, polite, tidy in their apparel, and they hand the package and change to the patron with a courteous "Thank you," or "I hope you will be pleased." That is good advertising, and worthy of imitation, even if one had nothing but an extracting-room and an occasional patron! Did you ever make a purchase where the clerk tossed your package to you, and then dropped your change on the counter, making it necessary to remove your glove in order to pick up the money?—Bad advertising.

I firmly believe that the best advertising a honey-dealer can do is to adhere to the finest quality of goods when wanted for table purposes. I consider it the best advertising in all the world; but it may be a slow business-builder. Another important feature is to have uniform quality—that is, not one batch of white-clover honey and the next day alfalfa or sweet clover. If one does this his purchasers will become suspicious; for the general public is unfamiliar with the different kinds of honey. Indianapolis is considered one of the best honey-consuming towns in the entire country; and yet conditions could be much improved if our retail stores were supplied with a better quality of honey. I am always interested in seeing the various samples that I find in our stores, and I am glad to say that many of them are excellent, and speak well for the bottlers. On the other hand, I often find honey that never should have been sold for table purposes—some that is seriously in need of being strained; some that is inferior in quality, and some that has probably been overheated in liquefying. I also find very inferior honey bearing the National label, with the bottler's name. I have no doubt that it is pure; but he who buys it will want no more honey on his table.—Bad advertising and its effect is felt by all concerned. What can organizations do in such cases?

The man who attempts the bottling business on a small scale has a hard row to hoe if he makes prices in competition with the man who buys his honey and glassware in car lots. He pays more for his honey, more for his empty bottles, and is then likely to find a lot of them broken, thus making it necessary to use a cheaper grade of honey in order to compete.—Bad advertising. Fortunately the bee-keeper who bottles his honey does not feel compelled to meet the competitive prices, but can realize a price above the standard because he has the bees, and this is a fine advertisement for his business. People are pleased to get their honey from the man who owns the bees; they want their butter from the man who has the

cows, and their eggs from the man who keeps chickens. People are glad to pay for these privileges. Let us imagine an apiary near Indianapolis, on a traction line or near a boulevard where many people pass. If the hives are nicely painted, the lawn well kept, and there are some pretty flowers, this alone would be about the best possible advertisement. The owner could readily realize 25 cents for every pound of honey produced, comb or extracted, and he would not have to deliver it, for people would come to his home and ask for the goods. I mention this as an advertising proposition after having visited many apiaries, some of which were beautiful, while others, I regret to say, were in wretched condition.

I know of several men who have been very successful in selling honey from house to house, and they work with two advertising propositions—one being quality, the other getting prospective purchasers to taste the goods. One of these agents, whom I had supplied with his honey, called at my own home, and, after explaining his errand, was told that we got our honey at Pouder's for 15 cents while his price was 20. He insisted that the lady taste it, however, and then said, "Now, can you get honey like that at Pouder's?"—Good advertising.

Indianapolis, Ind.

COLORADO BEE-KEEPERS TAKE, NOTICE.

Here is the bill before the Colorado legislature to place the inspection of bees under the State Entomologist, and also to provide for a division of apiary investigation at the Agricultural College. All Colorado bee-keepers are urged to lose no time in telling their legislators to get busy on this bill and put it through before the legislature adjourns.

This bill in the house is House Bill No. 532, by Mr. Skinner; in the Senate it is Senate Bill No. 430, by Mr. Casaday.

A BILL

for an act to establish a division of apiary inspection and investigation under the State Entomologist; to provide for investigations in bee culture and the inspection of bees for contagious diseases; to provide for the prevention and spread of bee diseases, and penalties for failure to obey the provisions of this act; to make an appropriation for carrying out this act and to repeal the law on bee diseases approved April 6, 1891.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF COLORADO:

SEC. 1. The State Entomologist is hereby authorized to conduct a division of apiary investigation and of inspection of bee diseases directly or through a deputy who is experienced in apiculture; the investigation to cover the introduction of nectar-producing plants, the agencies influencing the secretion of nectar in plants, and such other subjects as may advance bee culture in Colorado. The inspection shall extend to all parts of the State where bees are kept, for the prevention, eradication, or control of bee diseases.

SEC. 2. Every bee-keeper or other person who shall be aware of the existence of foul brood or any other infectious or contagious disease of bees, either in his own apiary or elsewhere in the State, shall immediately notify the State Entomologist, or his deputy in charge of apiculture, of the existence of such disease.

SEC. 3. The State Entomologist, or his deputy in charge of apiculture, shall, when notified in writing by the owners of an apiary, or by any bee-keeper, examine all reported apiaries; and, if any contagious disease is present, all others in the same locality not reported, and ascertain whether or not any diseases known as American foul bood, European foul brood, or any other disease which is infectious or contagious in its nature, and injurious to honey-bees in their egg, larval, pupal, or adult stages, exists in such apiaries; and if satisfied of the existence of any such disease he shall give the owner or care-taker of the diseased apiaries full written and printed instructions how to treat such cases as in his judgment seem best, and state a time in which his instructions shall be carried out.

SEC. 4. The State Entomologist, or his deputy in charge of apiculture, shall visit all diseased apiaries a second time, after ten days, and, if need be, burn all colonies of bees that he may find not cured of such disease, and all honey, combs, and appliances which would spread disease, without recompense to the owner, lessee, or agent thereof.

SEC. 5. If the owner or care-taker of any apiary, honey, or appliances where disease exists shall sell, barter, give away, or move or cause to be moved away without a written permit from the State Entomologist or his deputy in charge of apiculture, any diseased bees (be they queens or workers), colonies, honey, or appliances, or expose other bees to the danger of such disease, said owner or care-taker shall, on conviction thereof, be fined not less than fifty dollars nor more than one hundred dollars, or imprisoned not less than one month nor more than two months, or both.

SEC. 6. It shall be unlawful to move bees from localities where disease is known to exist, without a permit from the State Entomologist or his deputy in charge of apiculture. For violation of this act, said owner or care-taker shall, on conviction thereof, be fined not less than fifty dollars nor more than one hundred dollars.

SEC. 7. Common carriers shall not accept bees for shipment without a permit from the State Entomologist or his deputy in charge of apiculture. For violation of this act said common carrier shall, on conviction thereof, be fined not less than fifty dollars nor more than one hundred dollars.

SEC. 8. For the enforcement of the provisions of this act, the State Entomologist, his deputy, or his duly authorized assistants, shall have access, ingress, and egress to all apiaries or places where bees are kept; and any person or persons who shall resist, impede, or hinder in any way the inspection of apiaries under the provisions of this act shall, on conviction thereof, be fined not less than fifty dollars nor more than one hundred dollars, or imprisoned not less than one month nor more than two months, or both.

SEC. 9. After inspecting infected hives or fixtures, or handling diseased bees, the inspector or his assistant shall, before leaving the premises or proceeding to any other apiary, thoroughly disinfect any portion of his person and clothing, and any tools or appliances used by him, which have come in contact with infected material, and shall see that any assistant or assistants with him have likewise thoroughly disinfected their persons and clothing, and any tools and implements used by them.

SEC. 10. The sum of $2500 per annum is hereby appropriated to be expended for this work under the direction of the State Entomologist to pay the salary of the deputy in charge of apiculture, the necessary expense in traveling, printing blanks and circulars, and in otherwise carrying out the provisions of this act.

The State Auditor is hereby authorized to draw his warrants upon the State Treasurer for the sum herein appropriated upon the presentation of proper vouchers, and the Treasurer shall pay the same out of any funds in the State treasury not otherwise appropriated.

SEC. 11. All acts or parts of acts in conflict with this act are hereby repealed.

SEC. 12. In the opinion of the General Assembly an emergency exists, and this act shall take effect from and after its passage.

Some time ago I sent to you for a sample of your white and yellow sweet-clover seed. After receiving the samples I sent them to Washington, D. C. The yellow hulled tested 99.71 per cent of pure seed. The unhulled white tested 99.11 per cent of pure seed. I think that is fine. I am inclosing you the sample that you sent me, and want you to send me 80 lbs. of the same lot, or some equally good.

Brooksville, Ky., March 13. H. A. JETT.

Heads of Grain

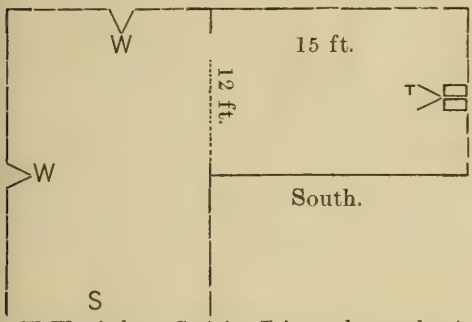
from Different Fields

Mary had a swarm of bees;
And they, to save their lives,
Went everywhere that Mary went,
For Mary had the hives.

Ventilating a Bee-cellar; Sub-earth and Ceiling Ventilation.

Will you please tell me a good plan for ventilating this cellar to secure good wintering? The cellar is under a dwelling, and is dry; stone walls; the temperature stays at about 40; but when it has been 12 below zero I have noticed it at 38. I expect to put a board partition at the dotted line, with a door leading to the other part, which is used for vegetables. I intend to use the smaller room, 12 by 15, for bees. If sub-earth tile ventilator is used, will it be necessary to have ventilation at the top also? Should it winter 200 colonies?

High Falls, N. Y., Feb. 20. F. STOERER.



W, W, windows; S, stairs; T, inner door and outer trap-door.

[You do not state how many bees you propose to put in your cellar. With only a few colonies no special ventilation would be needed; but you might have to put in artificial heat—not a kerosene-stove, but a small coal-stove connected to a chimney to bring the temperature above 40 Fahrenheit. If you propose putting from 75 to 100 colonies in this cellar, the natural animal heat of the bees would raise the temperature without artificial means; but so many bees would make special ventilation necessary. We would advise a sub-earth ventilator of not less than a six-inch glazed sewer-pipe cemented at the joints, and not less than 100 ft. long. We would then have an opening near the ceiling into a live chimney, to create a forced draft. By a "live" chimney we mean one to which a stove or furnace is connected. Opening the door into the other cellar and leaving it open would help ventilate, especially if it were ventilated.—ED.]

Raising Queens above Perforated Zinc; Plurality of Queens for One Colony.

I have been reading Doolittle's book on queen-rearing, also Alexander's writings, and was feeling mighty good over them, especially on two things. One of them is where Doolittle claims one can requeen or supersede all old or worthless queens by raising a queen above the excluder, and allowing her to go below with the old queen. Then, to my surprise and sorrow, I saw your answer in GLEANINGS, Feb. 15, and from that answer I perceive you do not indorse it.

The other one is where Alexander claims the plurality of queens in one hive, going so far as to have fourteen in one hive, all working together in harmony. Your answer to this is, to try not more than one queen to a hive. Now, why do such men as Doolittle and Alexander give to the public such statements as this if their plans will not work? It is misleading, and I do not understand how you can recommend such books or writings. I am of the same opinion you are, for I do not believe that either one of the two will work, as it seems to me it is against nature; and by your answering these two questions it has saved me considerable trouble, and, I think, some valuable queens. Why! if I could winter two queens in one hive, and keep them in the same hive up till ten or fifteen days before the honey-flow, I could increase my honey-crop fifty per cent, for this is exactly our trouble in this section. The honey comes on us before the bees can build up, and the two-queen system would enable us to rear plenty of brood in time.

If you can suggest any plan whereby this two-queen system might be made to work, I should appreciate it. I should like to see what Frank Alexander has to say about it.

Sumatra, Fla. A. B. MARCHANT.

[Both Mr. Doolittle and Mr. Alexander accomplished what they claimed; but neither of them knew at the time that their peculiar localities as well as the particular season of the year made their peculiar methods possible. In later years Mr. Doolittle added an appendix to his book, explaining that raising cells above perforated zinc was more feasible during a honey-flow, or when some nectar was coming in, than after it. Mr. Alexander did not live to continue his experiments. After his death, reports showed that others who attempted to follow his directions were not able to maintain a plurality of queens *after* the honey-flow. Mr. A., after his *white-honey* flow, and shortly following it, had another strong flow from buckwheat and goldenrod. This almost *continuous* flow for two or three times as long as the flow in most localities made a method of procedure possible with Alexander that was not feasible with the average bee-keeper with a *short* flow. If we get out another edition of the Alexander book we will put in a footnote explaining the conditions for a plurality of queens. However, notice what Mr. Joice has to say, page 221.

Right here a current periodical has a special province—namely, to correct and revise methods advocated in text-books that reflect the best practices at the *time* they were published. For that reason we sometimes correct in these columns certain practices that, in our judgment, will not work out in all cases as well as their authors believed they would.—ED.]

A Rational Plan to Cure European Foul Brood in the Spring, and Yet Secure a Crop of Honey.

The last of May I found two-thirds to three-fourths of my bees in five yards (250 colonies in all) badly infected, and this is how I proceeded: I took some healthy brood from the few not diseased, giving from one to two frames to each diseased colony after removing all the brood from it and replacing with this healthy brood. I also gave one to two empty combs. The rest of the space in the hives I filled up with empty frames and put on the supers. In nearly every case this was a cure—only a few developing disease later. In addition to all this I secured a fair crop of honey.

The diseased brood I stacked up on some very weak diseased colonies, three and four tiers high. Later on this was removed, and all foul cleaned out. Some of these colonies died out entirely by winter, and some of them recovered.

I am waiting anxiously for the coming of spring to see if the disease reappears. If I find it again this spring I shall proceed as above. The idea is, to get the diseased brood all away from the bees and give them a new start. This might help some other fellow this spring.

New Milford, Pa., Feb. 22. F. W. DEAN.

[This plan embodies the principles of the McEvoy and the Alexander treatments. We see no reason why it should not work. We would not advise it for *American* foul brood.—ED.]

One More who Insists that Beet Sugar is as Good as Cane.

Noting Mr. Wesley Foster's comments in GLEANINGS for March 1st regarding the relative merits of beet and cane sugar, I wish to take issue with him on the subject. Unless both my text-book and my instructor in chemistry were in error, cane and beet sugar are identical in composition, except for from one to two per cent impurities—that is, they are each 98 per cent saccharine; and how Mr. Foster can get different tastes out of them is more than I can understand. Furthermore, there is no earthly reason why one should granulate sooner than

the other. I believe Mr. Foster must have gotten hold of some very fine sugar, and, because it dissolved on his tongue quicker than the other, he considered it sweeter. But the size of the grains is determined by the way the sugar is granulated in the factory, as one of the foremen in the Longmont sugar-factory has just explained to me, and the chemical composition has nothing to do with it.

To come now to the more practical side of the question, Mr. M. A. Gill, who fed some 10,000 lbs. of beet sugar last fall, showed me syrup in some of his hives to-day that had not granulated, and he did not use hot water in making the syrup.

As to the ideas of housewives, it is very unlikely that they can detect a difference between two substances that the best chemists declare to be identical; and I deem it very possible that prejudice may cut considerable figure in the matter. In reality, much sugar sold as cane sugar is doubtless manufactured from beets, and housewives never know it. I hardly believe a government chemist could detect the error in beet sugar labeled cane.

Longmont, Col., March 7. G. C. MATTHEWS.

[As long as so many instances have been known of beet sugar having been fed to bees extensively, with no bad results, we must conclude that, for the bee-keeper at least, it is all right. The subject has been discussed pro and con for a number of years. Perhaps for the present, at least, it had better rest. —ED.

Kings as well as Queens; Bees Drunk on Cider.

Would you Yankees like to know how we manage bees down here in Rockingham Co., N. C.? Here is how some of us try to do it:

To begin with, according to some of our oldest authorities our bees are better protected than yours, having a king as well as a queen, while the only drones with which we have to contend are those bees that have been so foolish as to have stung something. To prevent swarming, a string is tied around a hive half way from the bottom. I have been told this is a sure preventive; but after seeing one thus treated cast three swarms in as many days I am not so sure about it. In case of the death of a bee-keeper it is necessary that the bees be informed at once, else they speedily follow the fate of their master.

You may wonder that, following such methods as these, we should have any trouble, and yet we do. Last season was a great one for fruit, and much cider was made; consequently many bees were killed at the presses. Those that escaped stored no honey, and winter found colonies weak in bees and short of food. Very few colonies that were not fed survived, and I have no doubt that at least 75 per cent of all colonies that were in this county last October are dead. I am told that the reason for this is that the bees were drunk all summer on cider. However this may be, a good fruit year usually means a poor honey crop with us. Whether the bees prefer drinking cider to gathering honey, or whether there is no honey to gather, I don't know.

Reidsville, N. C., March 7. HUGH JOHNSON.

Flour Method of Queen Introduction.

Mr. R. F. Holtermann, in his Canadian Notes for Dec. 1, discredits my claim to introducing queens by the flour method. I think I am entitled to that honor. The mistake belongs to R. F. H. According to his Canadian Notes, Mr. MacDonald's claim is as a "bee-quieter." I had long used flour in this capacity before I thought of using it for queen introduction. I had tried Dr. Miller's water method, also the honey method; but neither was to my taste as a clean, handy, reliable method; and in seeking for such I hit upon the flour method; and after an extended use of the same I gave it to the bee-keeping world in 1909.

Hagersville, Ont., Dec. 19. JOSEPH GRAY.

Wasps do Enter Hives with Bees.

About that wasp-nest, p. 16, Jan. 1, in about the same way I found one in a section of honey. Three cells were built in one beeway section, the second section back from the front, and the third from the right side of a super having fence separators. This was over a medium-strong colony in an eight-frame hive. Here is my side of an argument, although I haven't my proof, for I broke those mud cells out of the section, so I have neither section nor photo. But take my word for it against Mr. A. S. Parson's argument, page 70, Feb. 1. I know those cells were built while bees were working in the same super, and some in an extracting-super of half-depth frames above the one in which they were built; and I know those wasps used the same entrance as the bees, there being no other entrance or crack large enough to admit an ant.

Merrill, Ia., Feb. 11. G. L. ZIMMERMAN.

Sour Smell Comes from Aster Honey.

The sour smell that J. B. Chrisler, Louisville, Ky., speaks of, page 150, March 1, is caused by the honey gathered from aster. The odor is not unpleasant, but is very noticeable when the bees are bringing much of it in, and can be distinguished at a considerable distance from the hives. Last fall, on coming home from my place of business at night I could smell it at a distance of 600 ft. from the apiary. In fact, the amount of "smell" is such a good criterion as to the amount of honey coming in that one can tell the quantity he is getting from these indications alone. My 30 hives were never opened from July 15 till late in October, when I found that I had secured within 50 lbs. of the amount of honey I had expected to find, judging by the smell alone.

Harrodsburg, Ky., March 7. W. H. REED.

Carbolized Cloths All Right in Special Cases.

I used carbolized cloths several times in England, and found that the plan has its advantages in special cases. When the weather is cool it helps to keep down robbing, and if the bees seem extra cross, as it causes less disturbance than smoke. But great care must be taken or the honey will be tainted. In one case especially I remember taking off sections for a friend late in the evening. The bees were so vicious that smoke had but little effect. They even stung me through my clothes. They would dart at and sting any moving thing. But I conquered them with the carbolic cloth. I used it according to the British Bee-keeper's Guide Book, page 101, 18th edition.

Leamington, Ont. J. J. PENDRAY.

Alley Stock Non-swarmers.

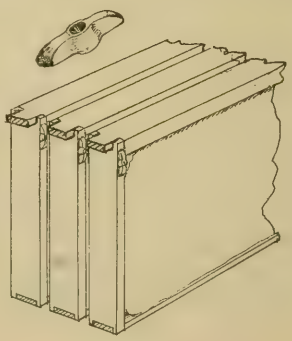
I have just read J. E. Hand's letter on page 148. We got one of our first Italian queens of our old friend Henry Alley in the summer of 1874. Her bees were not quite non-swarming, but I got two queens of him seven years ago that certainly did produce non swarming bees; and queens reared from them, and mated with drones of your red-clover strain that we got of you ten years ago last fall, very seldom swarm, and are the best bees we ever had; while some we have of another strain that have a little Carniolan blood in them are much inclined to swarm. So instinct does not seem to be always the same. ILA MICHENER.

Low Banks, Ont., Can., March 10.

The Word "Pure" No Longer Necessary on Honey Labels.

I believe that, if we would leave off the word "pure" from labels, it would help as much as any thing to quiet the suspicion that honey is adulterated. A purchaser seeing "Pure Honey" on a label will naturally think there is an impnre honey upon the market, and possibly some of it has got into the package behind the label.

Flint, Mich. BARRETT PIERSON.



A stamped metal button, recommended by R. N. Brücknall, Dunedin, N. Z., as a frame-spacer.

Our Homes

By A. I. Root

Now, they do it to obtain a corruptible crown; but we an incorruptible.—I. Cor. 9:25.

Be thou faithful unto death, and I will give thee a crown of life.—Rev. 2:10.

Mr. Thomas P. Hallock, advertising manager for the A. I. Root Co., has just mailed me the following, which he clipped from a recent copy of the Cleveland *Plain Dealer:*

BREWER CROWNS WIFE.

ADOLPHUS BUSCH PRESENTS HER WITH A $200,000 DIADEM AT GOLDEN-WEDDING CELEBRATION.

Pasadena, Cal., March 7.—What is said to be the most elaborate golden-wedding anniversary ever celebrated anywhere in the world took place here to-day, with Mr. and Mrs. Adolphus Busch as the central figures.

The most beautiful and costly of the presents was the diadem presented to Mrs. Busch by her husband. It is a crown of gold, studded with diamonds and pearls, and valued at $200,000. It was made in Frankfort, Germany. At the wedding feast to-night at the Busch mansion, Mrs. Busch was crowned and given a seat beside her husband on a miniature throne.

The presents received by the couple are valued at $500,000.

Friend Hallock evidently thought I might use the above as a text or suggestion for one of my lay sermons; and by way of suggestion he adds just below the above extract the following:

For the brewer's wife, a crown of diamonds; for Jesus Christ, a crown of thorns; and what of the wives of the drunkards who have so generously poured their pennies, dimes, and dollars into this wife-crowning heathen's purse? Will *they* wear golden crowns? T. P. HALLOCK.

So far as I know, the writer of the above is not a member of any church (*as yet*), but he has given the world a sermon in the above few words that possesses a power and pathos seldom reached by the greatest divines of our or any other land. *Crowns* are supposed to be a reward, or an acknowledgment of some praiseworthy act done the people or the world. Even if that jeweled crown *did* cost toward a quarter of a million dollars, what had this woman done that she should receive it? Again, crowns are generally bestowed by the savings or contributions of those who have cause to remember with grateful hearts the kindly acts of the loved one. What has this woman done to *benefit* mankind? As has been suggested, the money that paid for it was probably wrung, no one knows how unwillingly, from poor hard-working women and children; and then to think of the awful—the terrible contrast between *this* crown and the crown of *thorns* worn by the dear Savior when he suffered, bled, and died, that we might live. I confess that this astounding contrast brought to me a more vivid and real conception of the crown of thorns than I ever had before.

In connection with this let me submit an extract from the front cover of the *American Issue* for Feb. 4:

KNOWN BY THEIR FRUITS.

Gather together into one view all the people you have ever known or seen or can think of who love the church better than the saloon; and all the people you have ever known or seen or can think of who love the saloon better than the church! If it could be done, no living human being upon this earth, who is capable of connecting two ideas, would ever need to read one single printed page of argument, either upon the "Fruits of the Liquor Traffic" or the "Evidences of Christianity."—*REV. CHARLES F. AKED, Member Board of Trustees, New York Anti-saloon League.*

Does it not begin to look, dear friends, as if the time had come, not only for our own nation but the whole wide world, to break the bands asunder that bind us to the liquor traffic? Is it not high time we had another "emancipation proclamation" that shall for ever set us free from the awful tyranny of Adolphus Busch or any other millionaire brewer? I am told that, at the St. Louis exposition, he gave away his beer to the thirsty crowds that came, not only by the thousands but perhaps by the millions, to view his gigantic brewery. Did he furnish all this beer out of the kindness of his heart, and his love for thirsty humanity? I tell you, nay; he did it out of love for the "dirty" dollars; and who knows how many an unsophisticated country youth got his first taste of beer at this very beer-palace? It was planned and managed on purpose to "create an appetite," and it *did* the business. He expected the press of our land would mention that "golden crown" with its glittering priceless jewels; but, if I mistake not, more than one editor will be prompted by the Holy Spirit to publish it with some such footnote as our good friend Hallock has already mapped out. God speed the day when we shall be working and planning for that "incorruptible crown" that "fadeth not away," but goes with us through death and beyond the grave—a crown not made with gold and gems, but "a crown of righteousness which the Lord the righteous Judge shall give."

MORE ABOUT GROWING RICE.

After the item on rice, p. 804, was printed, I received the Battle Creek, Mich., *Good Health* for December, and was at once interested in the title of an article by Frank L. Perrin, entitled

A NEW AMERICAN INDUSTRY.

This article is headed "Rice Production in Arkansas." Of course, it refers to the ordinary rice in our markets; but so far as I can determine the *upland* rice of Florida is practically the same thing: From this article I make the following extracts. I tried to find out how many square rods gave the three bushels in neighbor Raub's garden; but it was in little patches here and there, so it was hard to tell; but I think it might easily make from 40 to 60 bushels per acre.

The successes achieved in the sections mentioned have demonstrated the possibility of almost undreamed-of development and opportunity. When land, with almost a minimum of labor, and a moderate annual expense for irrigation, can be made to yield a net profit ranging from $50 to $80 per acre,

the fear of the bread-line grows considerably less distinct.

These recorded profits have been made in the Arkansas rice-belt every season for the past four or five years.

Undeveloped rice lands are within easy reach of any one with a very modest capital. The first outlay is not great. One can start in a small way and let his accruing profits develop and increase his holdings.

Rice is as staple an article of food as wheat or corn. It is less liable to failure, under proper conditions, than either of those cereals. The market is world-wide. It need not be sought. Rough rice from the thrasher sells at 90 cts. to $1.00 a bushel.

Sixty per cent of the population of the world live on rice alone. The progressive American farmer is not likely to overlook a bet where all the chances are in his favor.

Poultry Department

By A. I. ROOT

MY INDIAN-RUNNER-DUCK STORY.

"A duck before two ducks, a duck behind two ducks, a duck between two ducks, how many ducks were there?"

In my childhood days the above was a problem or conundrum that we children were fond of repeating over and over. Well, before I can get right down to my "duck story" I shall have to digress a little. When my flock of chickens got up toward 300 they seemed to think they needed a little more room than my two acres afforded, especially when the severe drouth began to make green food scarce, and so I purchased three acres more, right adjoining the creek I have before mentioned. Well, in putting a fence of netting along the stream to keep the chickens in and to keep "varmints" out we had quite a difficult job, owing to the dense undergrowth of bushes, etc.; and in one spot there was a sort of cave, or cavern, opening just a little above the water level. Somebody told me this used to be an alligator-cave, and on inspection I found the top overhead worn smooth and hollowed out as if the great reptiles had worn a sort of groove by rubbing their scaly backs against the soft rock as they crawled in and out, say for hundreds or perhaps a thousand years past. Such or similar records have always had an especial charm for me, for they give one a little insight into the probable age of this earth we live on. When exploring the caves in Arizona, as well as Mammoth and other caves, I have watched the deposits of bat guano, and figured, as well as I could, how long the bats had probably been roosting on the ceiling overhead, and raising the floor with the accumulation of the droppings for ages; and when I took visitors around over the place, I always showed them where alligators had in past ages "scratched their backs" on the roof of my cave. I always gave this information as a sort of joke; and little did I dream that, when my neighbor Rood sold me the three acres for $150, he threw in a real *live* alligator. But I am anticipating, for I find I shall have to digress once more before I get to my duck story.

When building the fence I noticed at the further corner, down by the creek, quite a stream of water coming from off across the lots; and by putting in some tiles we carried this stream clear across the three acres, above the creek, so as to get something like a fourth of an acre under sub-irrigation without putting down an artesian well, which would cost, in this locality, toward what the whole three acres cost. You see this stream is principally made up from the waste water from the wells of my two neighbors, Mr. Rood and Dr. Braymer. Well, when our tiles were laid to a point just above the "alligator-cave," as there was still quite a nice stream of water left after my sub-irrigated strip, I turned it down just over the cave without even thinking I was going to have a beautiful little waterfall, with almost no expense. There was a very small stream already coming out of the cave, and I had made a little dam to hold the water for my young ducks when they should be hatched; but I was greatly puzzled to find this dam torn down or flatted down every few days. I told Wesley there must be an intermittent spring up in the cave, that occasionally let a flood of water down, and *that* washed away our dam; but I was puzzled to know *why* we never happened to be on hand to see this spring at "flood time." Well, the first brood of ducks were hatched; and when they were about a week old they were taken with the mother "biddie" down to a little yard made around the mouth of the cave, taking along the older duck I have mentioned, as a sort of "chaperon" to the five smaller ducks. All went well for a day or two; but one afternoon, in a short space of time, the bigger duck and one of the little ones was missing. Every thing was scanned with great care clear around their enclosure, but not a thing was found to explain their disappearance. On the afternoon of the next day Wesley came rushing up to the house to tell us a great alligator had put his head out of the cave, and to get the shotgun in case he came out again. Sure enough, he soon came out again, and was going for the ducks; but the mother hen bristled up, and proposed to show battle in spite of the great yawning jaws that could easily take *her* at a mouthful. If this is not an illustration of "flying in the face of danger," I don't know what is. Just at the critical moment, when a second or two would decide the unequal contest, Wesley got his shotgun in play, and gave the brute a broadside right under his right arm. It is well known that an alligator hide is proof against shot and even bullets unless you strike them in the eye, or under the arm or some other tender spot. We don't know how much he was hurt, but he wheeled around awful sudden and put back into his den. I went for neighbor Raub, whom, you may remember, is a trapper, and he and Wesley worked like beavers all the afternoon; but, although they chased him into a corner of the cave, night came on before they got him; so they plugged up the hole securely, as they

thought; but next morning we found he had gotten out during the night through a hole about as large as a good-sized stovepipe. Wesley thinks he was about six feet long. Several days have passed; and as the remaining four ducks are unmolested, we hope he has gone to other "hunting-grounds." I felt the loss of the one oldest duck the most, for he and I had been devoted friends ever since I tapped on the shell and he responded, a week before he had even broken the shell. We have now a couple of dozen of younger ones, but none of them just take the place of "my first born."

It is now nine or ten weeks since we have had rain — the longest drouth for several years in this region; and as the lettuce we have been getting from neighbor Rood is gone, our chickens are suffering for lack of green food. It is no use sowing oats in the lanes I have mentioned, for they don't come up, at least to amount to any thing, without moisture. Well, down where we laid those irrigating-tiles, perhaps a foot or 18 inches below the surface, oats and other things grow just beautifully. We sowed some sandy vetch with the oats, and I think I never saw any plant grow faster. We have used no fertilizer on this ground, not even poultry manure; but under the influence of just the artesian water alone, every thing seems to grow with wonderful luxuriance. The tiles were laid as nearly on a level as we could lay them, and have the water run; and, in fact, the water was running through them while they were being laid; and, as a consequence, the ground is pretty well soaked for several feet each side of the tiles, and vegetation of all kinds is flourishing most luxuriantly.

The largest and finest of my two ducks is still furnishing a large nice egg every day, and she has now come pretty nearly an egg every day *for 75 days*. The other of the two ducks has done almost as well except that she missed three days about two weeks ago, and has not laid for two or three days past. I am putting all the duck eggs under sitting hens, and expect to have quite a flock of Indian Runners out in the big creek by the time we go back north, say toward May 1. Besides the moss I have mentioned, there is a kind of snail or shellfish in the stream in great plenty; and I notice the ducks go for these with great avidity as soon as they are let out in the morning. I don't know what ducks and duck eggs will bring in this market. When I enquired they said they had never had any duck eggs offered, and all the green ducks they had ever sold were sent in on ice, by express, from Georgia. What do you think of that? I suppose the reason is that nobody has as yet got around to the task of developing the possibilities of this southern clime. There are two different parties near here who have the Indian Runner ducks, and I am told they are doing quite well with them. One of them is advertising eggs at $1.50 a setting.

Health Notes

By A. I. Root

NUTS, BERRIES, ETC., IN "ABANDONED" NEW ENGLAND.

My dear Mr. Root:—You ought to have been here in chestnut time. We have none right on my own farm; but by walking a mile I could find an abundance. My six-year-old boy and I went nutting three or four times, and gathered over a bushel of fine large sweet chestnuts, and more than that of hazelnuts, the latter in the hulls. Hazelnuts we can gather within a few steps of our front door; and we have a dozen or more different kinds of wild blackberries, dewberries, red and black raspberries, blueberries, strawberries, salmonberries, spikenardberries, wintergreenberries, cranberries, huckleberries, and elderberries. About a third of a mile from the house we can gather all the cranberries two or three families could use, and as fine as I ever saw. Elderberries are very plentiful, and large basketfuls may be gathered within a few minutes at any time in season, and we use many of them. Did you ever eat an elderberry pie made with about one-eighth or one-tenth finely cut Maiden Blush or Porter apple mixed with the berries? If not, you have something to look forward to. Elderberries are so quickly and easily gathered, and (with the proper proportion of apple) make such delicious pies, that we use them liberally in season, and can many with the apple for use the rest of the year. The idea is worthy of being more widely known.

I have always eaten my baked potatoes "skins and all;" but usually, at hotels and restaurants, the patrons discard the crusts — to my taste by far the better part. A few years ago I read that the more valuable mineral elements were lost when the skins were not eaten, and since that time we have eaten the skins, even of boiled potatoes. Probably they are not so pretty; but, "pretty is that pretty does," and we like them. Polished rice, as sold almost universally in this country, has the better part removed, just as white flour has. The Asiatics know better than to polish theirs, and we ought to. You will find the higher-priced unbroken rice that you can buy of Montgomery Ward & Co. of better quality than that usually sold for highest quality, and far better than the broken rice. I will enclose directions for cooking rice.

HOW TO BOIL RICE.

Wash one cup of rice thoroughly. Bring to the boiling-point three cups of water. Add a scant teaspoonful of salt, and, when the water is boiling briskly, add the rice gradually. Don't stir while boiling. In about 15 minutes the rice will have absorbed the water, become soft, and puffed to three times its original size. Place cooked rice on the back of the stove or in the oven to dry out. Serve hot, every grain separate, with soups or gravies.

An excellent cook told me a short time ago that she had never known how to cook rice properly until she saw this, but had thought she did.

I would deem the use of bran too harsh a treatment for constipation except in desperate cases. Phosphate of soda is a mild laxative, and will not only relieve but cure constipation. I have known good physicians to advise its use in teaspoonful doses three times a day, until cured, and have known several severe cases entirely *cured*. It is not as effectual in relieving stomach acidity as the bicarbonate of soda, but as a laxative it is of the best. It does not dissolve readily in cold water, so I have used it in cocoa, and it improves the flavor greatly. I always use salt and baking-soda in my cocoa when not using phosphate of soda, as they improve the flavor and also make it darker in color.

You mention Philo's advice to use an old cock with thirty or forty pullets in order to beget pullets. I have understood that the stronger and least taxed in strength *sexually* would be inclined to beget the opposite sex. Thus it would seem that a strong cock with *few* hens or pullets would be apt to beget what he needed — more hens, while an overtaxed cock with many hens would not. And many hens with a cock weak sexually, or overtaxed, would beget plenty of cocks, as that would be what they were needing. I trust you will follow up the matter

of experiments in getting a large percentage of pullets by crossing, for it is a matter of very great importance, and a boon to the egg-producer, to avoid raising young cocks.

Have you noticed the Government report on average yields of corn per acre in the different States for 1910? Again *this* State heads the list with a yield of 53.2 bushels — more than ten bushels above the yield of any State in any previous year. Ohio and Iowa stand 12th and 13th, with 36.4 and 36.3 bushels respectively. The farm value for Connecticut and Iowa on Nov. 1st averaged 75 and 39 cents respectively. Thus an average acre of Connecticut corn this year was worth at farm $39.90, and an Iowa acre $14.16. And the Iowa acre will sell for from five to ten times what the Connecticut acre will — I mean the land.

My own yield I am half ashamed of — only sixty bushels; but we had, and still have, the worst drouth ever known in this part of the State. Nearly all farmers have been hauling water for their stock, and even for house use, since July and August, and it is now frozen tight with wells, springs, brooks, and ponds empty. A yield of only seven bushels above my State's average is surely not one to be proud of; but I could have done better, I believe, if I could have had help to cultivate it once or twice more. It was cultivated only twice with a 14-tooth harrow, once in a row, and hand-hoed once. It should have been cultivated about haying time; but all my neighbors were too busy to spare me the time, and I have no work team of my own. I sold the crop in the field for just $50.00 per acre, standing in shock, unhusked. It cost me less than $10.00 per acre, allowing myself liberally for my own labor. I used no manure nor fertilizer. Quite a difference in profits—in Iowa the land worth twenty times the yearly profit, and here the profit three or four times the value of land.

You speak of a gasoline *dog*. I wish to go on record as prophesying the early appearance of a gasoline *cultivator*, or call it an "auto" cultivator. One ought to be made that would sell for less than the price of a good work team, and it would be used but a few weeks yearly, and at a season when there is plenty of work for the farm teams.

I enclose herewith an advertisement clipped from one of the January magazines, offering chufas for planting:

"GROWS FROM SEED FOUR MONTHS FROM PLANTING.

"A few ground almonds (chufa) growing in your garden this year will give you a great deal of pleasure. Plant in the spring, and you will get a crop in about four months. The nut is of fine flavor, resembling the cocoanut or almond; meat is snow-white; shell thin, and great producer. One nut planted will produce from 100 to 200 nuts. Will grow in any soil or location."

I have looked over my 1910 seed catalogs, and find only two that offered them — Vaughn's and Ford Seed Co., of Ravenna, Ohio. Neither firm makes any mention of their use for human food, but say they are good for pigs and poultry. I expect to give them a trial, but think it strange they have never made any more headway, as I have seen them cataloged more or less for many years. I hope you have found something that will prove of great value.

Vaughn's catalog directs to soak chufa seed before planting if it is dry. Nuts generally will not germinate after having been dried; but sometimes they may be made to do so by soaking well.

Packerville, Conn., Dec. 24. E. P. ROBINSON.

Temperance

The following, received with a letter from the superintendent of the Michigan Anti-saloon League, is right to the point. By the way, Michigan now has forty dry counties.

LIQUOR-DRINKING DECREASING AS SHOWN BY REVENUE COMMISSIONER'S REPORT.

The beer and whisky interests are trying hard to squeeze some comfort out of the preliminary report of the Commissioner of Internal Revenue for the fiscal year ending June 30, 1910. Because this report shows an increased *withdrawal from bond* of 12,007,611 gallons of distilled spirits and an increase in the amount of revenue paid for beer over 1909, there is a great effort made to grow hilarious and to declare the former decrease was due to hard times and not to the spread of prohibitory laws or the widening of "dry" territory. The liquor journals are making much of these figures, and so are those daily papers which lend or sell themselves to the liquor interests.

Let us look at the figures of the internal-revenue commissioner, analyze them, and compare them with the figures of other years. Of course, the figures of the commissioner are compared with those of 1909.

In 1909 the *withdrawals* of whisky from bond aggregated 116,650,165 gallons. In 1910 the *withdrawals* were 128,675,776 gallons. According to the commissioner's figures revenue was paid on 59,485,117 barrels of beer in 1910, against 56,303,497 barrels in 1909—an increase of 3,181,620 barrels, or 98,630,220 gallons.

You say that looks bad. You say you thought there would be a decrease. If you are weak-kneed, you say it does not pay to fight the traffic. But if you will investigate you will find this alleged increase is no increase at all, and that instead of being discouraged there are reasons to be encouraged.

Let us make some comparisons. Here are the figures for the years 1907, 1908, 1909, and 1910, these figures covering *withdrawals* of distilled spirits from bond and beer on which revenue tax was paid:

1907....	2,019,691,111 gals.	1909....	1,935,544,113 gals.
1908....	2,006,233,408 "	1910....	2,045,181,943 "

Do these figures prove that the people of this country are drinking more liquor? Not at all.

BEAR IN MIND THAT WITHDRAWALS FROM BOND AND PAYMENT OF REVENUE TAX DOES NOT MEAN THAT ALL THESE INTOXICANTS HAVE BEEN SOLD AND CONSUMED. Because of a desire to make a good showing in the report of the internal-revenue commissioner, dealers loaded up heavily, and millions of gallons of spirits withdrawn from bond, and of beer on which the tax has been paid, has not been consumed. THERE IS A DIFFERENCE BETWEEN WITHDRAWALS FOR CONSUMPTION AND ACTUAL CONSUMPTION.

ANOTHER THING. A LARGE AMOUNT OF WHISKY AND BEER INCLUDED IN THE REPORT WAS SHIPPED ABROAD. Producers are pushing their export trade, and all exports are a part of the aggregate as shown by the report.

President Gilmore, of the Model-license League, predicted there would be an increase in withdrawals, or consumption, as he calls it, this year over last. He is not a good prophet. The consumption, using his term, per capita, is less than last year, and shows a big slump compared with recent years. Here are the figures:

1907	23.54	gallons	per capita
1908	23.02	"	"
1909	21.86	"	"
1910	21.4	"	"

If the per capita for 1910 was as great as for 1907, the figures of the internal-revenue commissioner would have been increased by 180,000,000 gallons. The per capita consumption slumps as the population increases. Is there any thing in these figures to discourage temperance people? Is there any thing in them to encourage the liquor interests?

But this is not all. The average yearly increase in beer and whisky for eight years preceding 1908 was over 96,000,000 gallons. Even though the aggregate for 1910 equals that of 1907, there remains the loss of that average yearly increase for three years, which is 288,000,000 gallons, which, added to the actual decrease of 1908-1909, makes a total loss for the three years of approximately 375,000,000 gallons.

So what have the liquor men to brag about for the past three years? They have fallen short hundreds of millions of gallons in consumption, while there has been a steady decrease in the use of intoxicants per capita. Even the influx of 1,500,000 foreigners a year with their almost universal drink habit fails to bring the per capita use up to what it was a few years ago, or even to what it was last year.

On the whole it is encouraging to the opponent of the saloon to know the per capita decrease continues, and that there is a shortage for the past three years of $375,000,000 gallons over the consumption in the years prior to 1908.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. Root, Assistant Editor
A. I. Root, Editor Home Department
E. R. Root, Editor
A. L. Boyden, Advertising Manager
J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX APRIL 15, 1911 NO. 8

Editorial

THE SOURCE OF THE SOUR ODOR NOTICED IN THE FALL.

In response to our request we have received quite a large number of explanations of the sour odor from fall-gathered nectar, only part of which we will be able to use. The greater number believe that the aster is usually the source, although goldenrod sometimes accounts for it.

THE NEXT NATIONAL CONVENTION AT MINNEAPOLIS.

From N. E. France, General Manager of the National Bee-keepers' Association, we learn that the Executive Board by vote decided on Aug. 30-31 for the next annual meeting of the National Bee-keepers' Association, said meeting to take place in the Court-house at Minneapolis, Minn. This is just before the Minnesota State Fair, so that those who wish to attend both can do so. Board and lodging can be secured at 75 cts. to $3.00 per day.

BEE-DISEASE LAW IN KANSAS.

Largely through the efforts of Dr. G. Bohrer, of Lyons, Kansas, that old veteran who has hit the nail on the head so many times at conventions, Kansas at last has a foul-brood law modeled after the one drawn up by Dr. E. F. Phillips, although some changes have been made in some of the details. For instance, in the matter of penalties, both fine and imprisonment were provided for, because of the fact that a fine could not always be collected, some parties not being responsible. Only one thousand dollars for two years was asked for, as Dr. Bohrer feared that a larger amount would only mean the defeat of the measure.

Mr. J. D. Fair, of Sterling, Kansas, Representative from Rice Co., the home of Dr. Bohrer, deserves credit also for his interest in the matter, and for carefully considering the whole proposition in a businesslike way. For one knowing nothing about bees at all, he certainly grasped the situation in a manner that was surprising. He looked up the statistics regarding the number of colonies in the State, the amount and value of honey and wax produced, and succeeded in having the measure carried through both branches of the legislature. It passed the House by a large majority, and the Senate unanimously. Would that the majority of our legislators were as devoted to the interests of the people!

Our readers who know Dr. Bohrer will be pained to learn that his eyesight is failing very fast. He will not be able to read these lines, but we trust that they may be read to him so that he may know that his efforts have been appreciated.

BEE-KEEPING IN AUSTRALIA.

Australian bee-keepers are to be congratulated on the very fine treatise on fruit fertilization as given in the January number of *The Journal of the Department of Agriculture of Victoria.* Bees are given full credit for the valuable service that they perform, and an interesting explanation is advanced of the general subject of pollination and fertilization, in which the results of many practical experiments are brought out.

Under the sub-heading, "Relation of Insects to the Work of Cross-pollination," the following occurs:

> There can be no doubt that insects play a most important part in the life of plants and flowers. Moths and wasps, bees, and many other insects, all assist in carrying the pollen from flower to flower; but of all insects for this purpose, the bee is assuredly the most useful. The first object a bee has in visiting a blossom is to collect or feed on the flower honey, or nectar, which is always *lower* in the flower than the pistils or stamens. In passing through the flower the pollen grains attach themselves to the numerous hairs on the body of the bee; and as the insect flies from flower to flower it is easy to conceive that some pollen grains will be transferred as the bee brushes against the stigma. The same result occurs when the bee is gathering the pollen, and thus every flower that the bee visits must be pollinated from other blooms. The usefulness and the importance of this work of the bee can hardly be overestimated; and successful orchard practice will never result until the work of the bee is recognized practically by the establishment of bee colonies in every orchard district.

An article entitled "Bees and Fruit Fertilization," by F. R. Beuhne, who is well known to our readers, was published in *The Journal* for November, 1909, and it is recommended that this be read in conjunction with the present discussion.

Some very beautiful engravings are presented, showing bees actually at work on

fruit-blossoms; and these, by the way, are a little ahead of any thing else we have ever seen in the shape of a photograph of bees at work. The Australians are well to the front in the art of photography and engraving.

Mr. Beuhne, in this January issue of *The Journal*, has a very interesting article on "The Production of Comb Houey," which also proves that the bee-keepers of Australia (and Mr. Beuhne especially) are not behind the rest of the world.

FLORIDA NOTES NO. 3; HONEY POSSIBILITIES; THE GOOD AND POOR LANDS; THE MOSQUITOES; THE EDITOR RETURNED.

I DID not get back to Medina till the 5th of April—twenty days later than I had announced. The fact is, I found so much of interest and value that I concluded I could not afford to rush through so much important bee territory as I found in Florida. I shall not have time nor space to go into details at this time; but I will say this much, that Florida is destined to become one of the most important States in the Union in the production of honey. The seasons are longer, and the honey-flows, in some sections at least, are heavier. For example, in Northwest Florida, or, perhaps I should say, in the region of the Appalachicola River, there has been produced as high as 1900 barrels of honey of between 500 and 600 lbs. each in one year. The territory is not overstocked, strange to relate, and it probably never will be, for the simple reason that conditions in that part of the country are so very different that it would take the average bee-keeper years to learn the locality. The ordinary bee-keeper from the North butting into this country, I don't guess but *know*, would make a failure for the first two or three years. The matter of securing plenty of bees for the honey harvest baffles even the old-timers in the locality at times. And, again, there are very few places along the river where bee-yards can be placed; and some of them located there are put up on stilts six or eight feet above the ground, to provide against high water at certain seasons of the year.

On the west coast, and south of Tampa Bay, considerable pure orange honey is produced. The statement has often been made by bee-keepers in Florida that there is no such thing as pure orange honey. Persons making such statements are probably not familiar with this territory. In the region where there are immense orange-groves, and where no other source is in bloom at the time, considerable pure orange honey is produced.

The drouth that was affecting the whole of Florida up to about the 20th of March was relieved by copious rains all over the State—rains that lasted off and on for a week. While this was a little late for some sections, it came early enough to help out the bee-keepers in the tupelo regions of Northwest Florida.

By the way, that section of Florida, especially in the region about Tallahassee, has better soil than most of that I have seen on the west and east coasts of the peninsula. While there are fine hammock lands all over Florida, their areas are comparatively limited. Indeed, it would be my guess (that may be far from right) that 90 per cent of the land in Florida is inferior, if not almost worthless, and only about 10 per cent is really productive. It would naturally follow, then, that there are thousands of people who are buying land (paying big prices for it) that is good for nothing but pine-trees and scrub palmetto. But that does not signify that there is not plenty of good land for sale at fair prices. As I said before, any man who will invest on the representation of a real-estate agent in northern cities *without going to look at the property* is taking a risk. In this connection do not get the impression that there are not honest men selling land in Florida.

Florida has a bright future before her; and during the next ten years one will see a tremendous development, especially in cities on either the east or west coast, or along the inland lakes. Northern men with their millions are pouring into the State by the thousands. Of all the lonesome towns, it seems to me it is those that are located along the regions remote from any water.

It seems strange to me that the northwestern portion of Florida—that portion in and around Tallahassee—has not been more exploited. There are plenty of promoters to boom the east and west coasts, but we see almost none in the northwest part of the State.

The worst things I see about Florida are the mosquitoes, sandflies, and fleas. While their depredations can be mitigated to a great extent by screens and mosquito-canopies over the beds at night, they manage at some seasons to make a tourist mighty uncomfortable. Old residents don't seem to mind them much. Whether it is because they become immune to the bites, or because the "varmints" seek only "fresh stock," I can't say.—E. R. ROOT.

CONTROL OF SWARMING BY TIERING UP; PRODUCING COMB AND EXTRACTED ON THE SAME HIVE.

IN Mr. J. E. Crane's article on page 207, last issue, he refers to a plan to control swarming in the production of either comb or extracted honey that we used quite successfully some ten or fifteen years ago, and which we at the time gave in these columns. As we have many new subscribers who possibly would like to know what it is, and some old ones who may have forgotten it, it may be well for us to give the plan at this time, particularly as the discussion of it was scattered over a good many journals.

There was nothing particularly new about it, but, rather, a modification of the plan used by the Dadants and others. The lat-

ter, for many years back, as some of our older readers know, had and are still operating hundreds of colonies with less than two per cent of swarms. But some will say that these people run for *extracted* honey, and that they want a plan that can be used for *comb* honey. Well, that is where the "modification" came in, and which we are about to explain.

In the first place, the plan involves no change of hives, supers, or other fixtures. It is workable with *any* hive or super, and therein lies one of its advantages.

The Dadants have always used large ten-frame Quinby hives, the brood-frames of which are 18½×11½, and the extracting-frames the same length, but shallower. The basic principle of the Dadant system of swarm control, as we understand it, seems to rest largely in a Jumbo-sized hive—a hive having the equivalent capacity of a twelve-frame Langstroth. The Dadants have contended that the ordinary single-story eight-frame Langstroth brood-nest is too small for the average good queen; that bees swarm because of a lack of room; that a large brood-nest and a large brood-frame give the queen unlimited capacity for egg-laying. Of course, bigness of brood-nest is not the only factor in the control of swarming. The Dadants, when the swarming season is on, see that the bees have plenty of extracting-combs.

Now, it seemed to us that a *two-story* eight-frame brood-nest operated on the Dadant plan ought to eliminate swarming because it is even larger than the Dadant hive, and it did, as our back volumes will testify. We had not a few good queens that would occupy 12 and even 14 frames. All colonies containing such queens were given extracting-supers long before they were crowded for room. Other queens would use ten and twelve frames, though the average used no more than ten frames; and what rousing colonies we had! Some of them were three and four stories high, and a few of them were veritable "sky-scrapers." These were run for extracted.

But how about the two-story eight-frame brood-nests for *comb* honey? These were manipulated a little differently. The two hive-bodies were used up till the honey flow, when the upper story was removed, and the best cards of brood were put into the lower hive. The rest of the brood was given to nuclei or to two story colonies that were not up to good working strength. A half depth extracting-super was put on temporarily; and when the bees were nicely started in this it was removed and a comb-honey super put on instead.

The idea of using the extracting-super *first* was to get the bees into the *habit* of going above. To put a *comb-honey* super on at the start, when there is a large force of bees, sometimes induces them to sulk and loaf. This condition is the beginning of swarming; and if a colony once gets into a state of discontent or of swarming it is hard to get it into a good *working* mood again.

Sometimes we put on the strongest of the two-story colonies (after being reduced to one) a half-depth extracting-super and a comb-honey super, both at one time. To give only one super, either comb or extracting, is liable to crowd the brood-nest too much.

Thus we worked some colonies for extracting, some for comb only, and some for both comb and extracted. When the season began to taper off we would leave on only half-depth extracting-supers, thus avoiding unfinished sections.

The secret of swarm control as here outlined is in having a large brood-nest up to the time of the beginning of the honey-harvest. In other words, there should be so much room that the colony will have no thought of swarming. Subsequent conditions should be such as to encourage *work*, WORK, WORK, not loaf, loaf, loaf, till swarming preparations are made. A colony that begins to feel cramped just at the beginning of the harvest is liable to get into the swarming notion. This brood-nest may be in the form of sectional or half-depth brood-chambers, eight or ten frame brood-chambers, providing more than one are used for good queens. After the supers are given, care must be used to see that the bees are not cramped.

If at any stage of the proceedings cells are started, giving room or an upper story may or may not do any good. When swarming preparations have actually been begun we have scattered the brood in two or more brood-chambers, and placed frames filled with full sheets of foundation between each of the frames of brood. A colony thus treated may have so much foundation to draw out that it will not produce much honey. It is a question whether it would not be better to shake it in the first place on to empty combs and run it in the regulation way for comb honey.

The plan of producing both comb and extracted honey on the same colony, or both in the same super, is described under the head of "Comb Honey" in the A B C and X Y Z of Bee Culture. See the Barber and the Townsend plans.

It may be asked why we haven't said much about this of late. The reader will find that they have been described in the A B C for years, and the description of them is still there.

Then why should we consider any other plans? Because the one we have described requires a good season and good queens. For medium colonies run for the production of comb honey some of the shook-swarm plans may be better. Or, possibly, some one of the schemes for shifting the flight of the working force may be more practicable, especially if the season is a short one.

The season, the locality, and the *man* should determine *what* plan to use. We would refer the reader to our work, the A B C and X Y Z of Bee Culture, under the heads of "Comb Honey," "Hives," and "Swarming," for a discussion of these plans.

FOUL-BROOD LAWS RECENTLY PASSED.

IN several States there has been unusual activity looking toward the passage of foul-brood laws. New Jersey, Vermont, and Kansas have very recently secured the passage of foul-brood laws modeled after those now in force in Ohio and Indiana—the best laws, in our judgment, that were ever enacted.

A foul-brood bill for Pennsylvania has passed both houses; and from the latest information we have received we have reason to believe that the Governor will sign it.

Michigan, we are advised, will get a bill amending the present foul-brood law so that it will be more effective, through both houses; and the bee-keepers are requested to write to the Governor of that State asking him to approve the bill when it comes before him.

Illinois has not been idle. Her bee-keepers have been putting forth strenuous efforts; but every year they have met opposition from one or two bee-keepers who have tried to make it appear that the supply manufacturers of the country were back of the effort to get a foul-brood bill solely to further their own rather than the interests of bee-keepers. Such a statement is utterly false, of course. While they would be interested in having foul-brood legislation passed because it would help the bee-keeping fraternity at large, it is not because it would increase the sales of foundation or of bee-hives, because the proposed law does not require the burning of diseased colonies, if we are correct, but, rather, recommends t eatment advised by the Bureau of Entomology, Washington, D. C.

A foul-brood bill for Massachusetts has been recommended to the House by the Ways and Means committee, and it is said it is likely to pass; but bee-keepers of that State should get busy and write to their legislators.

Tulare County, California, has passed an ordinance for keeping diseased bees out of the county. For particulars see page 255, this issue.

So the good work is going on. Fortunately, there is almost no foul brood of either kind in Florida and Georgia.

UNCLE SAM'S INCREASE OF $5000 FOR APICULTURE.

THE appropriation bill for the United States Department of Agriculture for the year beginning July 1, 1911, carries an allotment for investigations in bee culture of $15,000. This is an increase of $5000 over the amount for the present year. The amendment providing for the increase was offered on the floor of the Senate by Senator Francis E. Warren, of Wyoming, acting chairman of the Senate Committee on Agriculture and Forestry shortly before the adjournment of Congress, and was accepted by the Senate and by the House of Representatives in conference.

The additional amount for bee culture was found to be necessary chiefly on account of the demand for more work on bee diseases. The present wide occurrence of the two brood diseases, and the rapidity of their spread, makes it urgently necessary that every thing be done by the government for bee-keeping that can be done. The Department of Agriculture, through its specialists, have been at work on the disease problem several years, and a number of valuable publications have been issued. By means of samples sent in, the men engaged in this work have been able to learn more definitely than was ever known before where the two diseases exist. Publications on bee diseases have been sent out to the bee-keepers in the diseased territory as far as the small office force would permit. In a notice issued by the Department last fall it was stated that American foul brood occurs in 282 counties in 37 States, and that European foul brood occurs in 160 counties in 24 States. It was also stated that the annual loss to the bee-keepers of this country is at least $1,000,000 annually. Of course, the distribution of the diseases is not yet fully known, but enough is known to make this the most important question before the bee-keepers at present.

With this increase Dr. Phillips and the other men in the Bureau of Entomology should be able to accomplish more than has been possible heretofore. The work done in the past few years has been conservative, and no tendency has been manifested to rush into print with the results of a little work, as is too often done in government offices. The men engaged in the work are trained for scientific investigations, and consequently the work will be of permanent value. It is to be hoped that, with the present increase, still more of the same kind of work can be turned out.

The increase in the appropriation for the apicultural work is largely due to the exertions of Mr. W. A. Selser, of Philadelphia, who happens to have a good friend in congress. He learned that a recommendation for a slight increase had not been favorably acted upon by the Committee on Agriculture in the House of Representatives. Mr. Selser was able to present the facts to several Senators and Representatives in such a way that they agreed to do what they could for the bee-keepers' work. It is natural that the members of the two houses of Congress should not fully appreciate the need for work of this kind, and somebody must take the trouble to urge legislation of this character. The same thing is true of getting State foul-brood laws passed. If bee-keepers want the work in Washington increased it will be absolutely necessary that the matter be brought to the attention of Congress, as Mr. Selser did in this case. This is one important way in which the National Bee-keepers' Association could be of benefit to bee-keepers. The bee-keepers of the country are indebted especially to Senators Warren and Penrose and Representatives McCreary and Scott for the present increase.

Stray Straws

By Dr. C. C. Miller, Marengo, Ill.

Putting sections in cellar before making, to prevent breaking, doesn't work here—needs too moist a cellar and too much time.

J. E. Crane, you say, page 208, remove queen, destroy cells at the time, and also eight days later; in another week give virgin, and swarming is over. Now, wouldn't it work to give a laying queen instead of that virgin, or else give the virgin a week sooner?

S. D. House, you seem to value fresh air in cellar. Shake! You say, p. 210, a colony wintered at 38 to 40 will not dwindle as soon as one at 50 to 52. Right, provided the air is the same in each case. But I suppose you would agree with me that a 50 cellar with pure air is better than the average close cellar at 40.

Louis Scholl, you question, page 161, whether "it may not be possible" to breed larger bees, and whether "increase in the size of the cell . . . . would have any bearing." Those questions have both been settled. Years ago I had bees from Florida which were so large as to build worker-cells 4½ to the inch or larger, and in Europe they have reared larger bees by persistent use of foundation with cells of increased size—at least, I've seen the latter statement in foreign journals. But I've never seen proof that increase of size was a material gain.

E. E. Colien, you prevented after-swarms by setting the swarm on old stand and the mother colony in new place, p. 212. May not work next year. I'll tell you how to make it a good deal surer. Put the swarm on an old stand; mother close beside it. In eight days or so move the mother to a new place. Your way gives the mother a week to recuperate and send out a swarm. The other way takes away all field bees and brings on a dearth just at the time it would think of swarming, and the first young queen is allowed to slaughter her rivals.

F. Greiner says, page 170, that all bee-keepers together can not do the right kind of advertising "because they can not be united." Please don't settle down into that belief just yet, Bro. Greiner. I know it looks discouraging, and that some honest efforts have failed; but there are some encouragements. Look what the citrus men have done. To be sure, the citrus men are in a limited locality, but a bigger effort may cover a bigger area. Look what has been done in Colorado and Michigan. If the bee-keepers of a State can be got together, why not two States get together, and then why not more and more States?

Mr. Editor, you say, p. 220, you don't believe in hiving a swarm back on the old stand *on the same set of combs and brood*, and hope any who disagree "will give the reason for the faith that is in them." What's the matter with giving the reason for the faith that is in *you?* I'm ready to follow the fellow that gives the best reason. The plan would suit me well, only I'm afraid my bees would swarm out again. [As Grover Cleveland would say, this question involves, not a theory, but a condition. That condition, so far as our experience goes, is that a swarm will very often come out again when hived on old combs; but, on the other hand, it will usually stay contented when hived on another set of empty combs on the same stand. In other words, our faith is based on fact or condition rather than on any thing else.—Ed.]

B. C. Auten, p. 221, you say publications about spraying advise against spraying during bloom, and then say, "I am afraid you raise a smoke many times bigger than the fire." Well, there's real fire in this locality. A large orchard is in reach of my bees, and the owner begins spraying before the trees are out of bloom. No, the man is not an ignoramus, and he's not a bad man. He is held in high estimation as a good man, and is one of the foremost horticulturists in this region. He says that, with such a large orchard, he can not get through spraying in time unless he begins while the trees are still in bloom, and I suppose he thinks his loss from delay would be greater than my loss in poisoned bees. I believe he is a sincere man, although somewhat mistaken, and I suppose I must stand the loss until Illinois gets abreast with New York and other States that have a law against spraying during bloom. [Your case is by no means an isolated one, as we know by the correspondence in our office.—Ed.]

Why would it not be possible to send comb and extracted honey by parcels post? is asked, p. 195. Just what they've been doing in Europe this many a year. And it would have been done here long before this if it were not that congress is controlled by the interests and not by the people. May be we'll have to wait for parcels post until United States senators are elected by direct vote. And, again, may be we won't. [If every bee-keeper and every farmer in this country would sit down and write to his senator and representative, even though it be only a brief postal, asking each to support parcels post, we could get the measure in short order whether senators were elected by popular vote or by the general assembly as now. The trouble is, we Americans do not half appreciate the fact that this is a *government of the people*, and that when the people *en masse* express what they want they will get it. If, for example, five to ten million people during a certain month of the year would write to their senators and representatives, asking for parcels post, there would be something doing in congress.—Ed.]

Bee-keeping in the Southwest

By LOUIS SCHOLL, New Braunfels, Texas

A HANDY WIRE-REEL.

About a year ago, while helping unload some of a fellow bee-keeper's truck from a car in which he had moved to this locality, I came across one implement with which I was not acquainted. After some guessing I decided that it was a reel for holding the fine wire used in wiring frames, and permitting of easy cutting-up into suitable lengths, as required for the frames used. The spools, or coils, as the case might be, were placed in a holder on the base, and one end of the wire carried over a board of the proper length, so arranged as to be turned with a crank, thus making a reel. When all the wire was wound around this board, and then tied near each end with a stout string, it could be cut at each end of the board, and then one wire after another, just the right length, pulled out by the operator when wiring the frames.

TEXAS HONEY-CROP PROSPECTS.

Here in our immediate neighborhood, and so far as we have been able to learn over a great part of the State, the prospects for a good honey crop are most favorable. Bounteous rains in most portions assure this now, although there are always some spots that are not as well favored as others.

We have had here, besides numerous other rains at various intervals, a 4½-inch rain recently. This assures us a goodly quantity of moisture until well along in the summer months, and is very favorable for a good honey yield.

A late freeze in the early part of March did some damage to the earlier-blooming plants. We have learned from sources further South that this freezing weather, coming, as it did, when the most of the honey-yielding shrubs and trees there had already taken on considerable growth, gave these quite a set-back, so that they may not yield as well as if they had been uninjured. This, however, was in the more southwestern localities, while further north of this section, which includes our own localities, the growth of the different honey-yielders had not advanced to such a degree, and consequently were not harmed in the least.

Taking it all in all, the prospects are very good. Still it is entirely too early to tell very definitely what the season will be.

PARTIAL TO THE DIVISIBLE HIVES.

Since we began to use the divisible or shallow-brood-chamber hives extensively more than ten years ago, we have learned of many others who have tried them after reading what we have had to say about their advantages; and not a few, indeed, have adopted them in preference to any of the deeper hives that they had used previously. Their experience with the shallow and divisible-brood-chamber hives and the shallow supers, which are identical and interchangeable, shows the many advantages that may be obtained by the use of the shallow hives and supers just mentioned, and that results may be secured that are not possible with the deeper hives and frames. Right in this connection we have the following letter from a bee-keeper in one of the States of the Middle West, who uses these shallow hives to advantage. We quote part of his letter:

> After having read your many articles and Mr. Wilder's letter, p. 493, Aug. 1, 1910, I was especially interested in his statement, that the shallow frames are too small to allow both brood and honey in them, and therefore there is no rim of honey above the brood as in the deep frames! Great argument, this! That is the *meat* of the cocoanut. The bees put the honey in the supers above. By having two shallow stories for the brood-nest we can alternate these and keep the rim of honey away from above the brood. By putting the upper story with the honey above the brood below, and the lower story with the combs filled with brood above, the bees store all the honey in the supers. They begin work in the supers immediately, and do not loaf as they do with the deep combs and a rim of honey below the supers.
>
> This alternating also furnishes as much brood as is wanted, as it stimulates brood-rearing and gives the queen and bees plenty of room; and if they are kept busy storing the honey above, there is not the least desire to swarm. With the deep hives and the rim of honey next to the brood, the brood-nest becomes crowded and the swarming fever begins. That is just what starts queen-cells and swarming right at the time when the bees ought to be in the best shape for storing honey in the supers. In deep frames, the rim of honey around the brood can not be gotten out of the way, but with shallow frames it can be removed without any fussing.
>
> I wonder how much longer others are going to keep arguing in favor of those bulky deep frames which are often stuck to the walls of the hives, or buckled down during hot weather on account of their depth, or the foundation stretched to such an extent below the top-bar as to allow the rearing of nothing but drones in them. Yes, and queen-cells are built anywhere in the middle of the combs where they can not be seen except when the frames are removed, while with shallow-brood-chamber hives all that is necessary to do is to raise a story; and the cells, if there are any, are found along the lower edges of the combs.
>
> Then, again, a shallow story with either honey or brood may be removed in a jiffy; and with a snap, a few jerks, and a shake, every bee will be shaken out of an entire super in the same time required by the other fellow to dig out a single comb from a deep hive. In this way much more has been accomplished. Time and again I have been asked to reveal my secret of success in getting a larger yield of honey than some other bee-keepers. It is so simple any child can understand it. My bees gave me 150 sections to the colony. Seven old stands gave me 1680 1-lb. sections. I have foul brood to contend with. For the lack of swarms I am compelled to make all my increase artificially each year, or sometimes I buy nuclei. This is because I cut out all swarming by the use of the shallow hives.

Our experience has been so much like that given in the above letter that we give it place here. While there are points of superiority in the shallow divisible hives it must *always* be borne in mind that, unless the right kind of system of manipulation is used with it, these can not be taken advantage of, as there is no value in shallow hives if they are used in a manner similar to deep ones; i. e., frames handled individually instead of handling them in full shallow stories, etc.

Siftings

By J. E. CRANE, Middlebury, Vt.

When I read F. Dundas Todd's explanations of bee-hives for beginners, p. 21, I feel as though I wanted to begin all over again.

What makes the central leaves of almost every number of GLEANINGS burst apart like a rich ripe melon? Is it because it is so full of sweetness, I wonder?

I was glad to note, on p. 68, Feb. 1, that the demand for cartons to cover comb honey is on the increase; but our New England markets demand a full carton rather than one of those scrimped four-sided affairs.

M. E. Truitt, page 70, Feb. 1, gives some very good proofs of the antipathy bees have for any thing black. On the other hand, I have no doubt bees will, to some extent, become accustomed to dark clothes; but it is doubtful whether it will pay to try to educate them. They are too short-lived and too numerous.

Page 20, editorial on the importance of accurate and honest grading of comb honey is worthy of being printed in italics or heavy-faced caps. When will the rank and file of humanity learn that honesty is not only the best policy, but at the very foundation of all commercial prosperity, to say nothing of character?

Much has been written of late on winter-nests for bees. I recently found one of considerable interest. Last Saturday I looked over three yards, finding every colony alive. One, however, had gone to the outside of a division-board, where there was nothing but two heavy combs of honey, and the bees had clustered there, having come through the winter in good condition.

That is a new wrinkle in percolating sugar syrup and feeding, given by Dr. Miller, page 88, Feb. 15. How stupid of me not to have thought it out before! Why, I thought the percolator folks had something like a large water-filter into which they poured fifty or a hundred pounds of sugar and then water on top, and that in two or three days it was drawn off to be fed to the bees. Thanks, doctor. "Doesn't it leave a lot of hard crystallized sugar in the bottom of your feeders?"

Mr. J. L. Byer calls attention, on page 63, Feb. 1, to the importance of having the hives so arranged as to work with the least expenditure of strength. It is amazing to see the amount of energy many people waste because of the lack of forethought. Some will stoop when they could stand upright, and others will stand when they might be sitting down just as well, while still others will fret all day long over trifles, leaving little strength for essentials. I remember having found a bee-keeper, many years ago, who was sitting on the floor of his shop nailing shipping-cases together instead of using a chair before a low table or bench. Some, too, will even lug honey or clamps long distances in their arms when a light wheelbarrow would save both time and strength.

On page 85, Feb. 15, the editor invites discussion regarding corrugated paper and better shipping-cases. I feel as though I had already had my share in this matter; and it has been a surprise to me that more interest has not been taken in this subject. Only this morning a neighbor was telling me of a bee-keeper in a neighboring town who sent a lot of honey to market in corrugated-paper cases and wooden cases; that in wooden cases was so badly broken that it was returned to him, and he had the privilege of paying freight both ways, and, in addition, a lot of broken honey for his pains.

Mention is made, page 86, of a shipment of comb honey received at Medina in the Crane corrugated shipping-case. I was interested in that report, for I packed that honey myself; and while it was of fine quality, though rather light weight, it was very poorly attached to the sides and bottoms of the sections — to many of them, scarcely at all. It was shipped during the coldest part of the year, and doubtless was transferred once or twice on the way from one car to another. What would have been its condition when received, if it had been in wooden cases? I believe the editor is quite right in thinking that the cross-partitions inside the case are of much value, as it can readily be seen that every partition helps to break all further jars.

The honey referred to was raised in the Champlain Valley, about twenty miles from here—supers with solid separators.

We shipped another large lot of honey of our own production to another place in the West, and the parties receiving it write they are so well pleased with it, and the way it was put up, that they would like to handle our honey exclusively another season. Our honey averaged a little more than an ounce to the section more than the lot shipped to Medina, and was well attached to the sides and bottoms of the sections. What made the difference? I believe it was largely due to the different separators used. One lot was produced with solid separators, the other with those which were slatted, having pins to hold them in position, thus giving the bees free access, both lengthwise and crosswise, through the super. An ounce to the section on our 1910 crop would amount to upward of 1500 lbs., and would be worth between $200 and $300. It pays to look after these little matters, and to get the best separators and shipping-cases.

Conversations with Doolittle

At Borodino

COMB HONEY AND SEPARATORS.

Will you explain how to work successfully for comb or section honey, and state whether it is as easy to produce as extracted?

I have always considered that the securing of a fine crop of comb honey each season is the best test of skill and proficiency in the art of apiculture. In the production of honey I take most delight in working for the comb, as it seems to me that nothing is more beautiful than a perfect specimen of clear white comb honey. This is especially true when the combs are uniform, smooth, and well filled. Almost anybody can secure extracted honey; and for the novice, or the one who does not study to attain the best, it is, perhaps, wisest to work for extracted honey. The advantages in comb honey are: A much more beautiful product—one which brings a much higher price in the market, and the satisfaction of knowing that the highest skill of the art has been attained. However, there is generally a smaller quantity secured, and it is much more difficult to ship comb honey so that it will reach its destination in perfect condition. With colonies very strong, and a bountiful harvest of nectar, I have succeeded sometimes without separators in getting quite uniform and well-filled combs in sections which were filled with thin comb foundation; but with a moderate yield of nectar I have found many of the combs thicker, and a general lack of uniformity. I decided years ago, because of this unevenness, that it was never wise to try to get along without separators.

The first effort toward the production of comb honey should be to have the colonies strong at the dawn of the surplus flow of nectar. This requires a knowledge of one's location, whether there are many flowers blooming in the field, and which of these will best supply the needs of the bees and the multitudinous brood. Generally speaking, in New York, clover, linden, and buckwheat are the main flora giving a surplus above that needed by the bees.

Supers should always be ready to set on the hives of all strong colonies at the very beginning of the honey-flow; otherwise the first honey is stored in the brood-chamber, the swarming fever contracted, and the season frittered away.

No one who works for section honey can afford to dispense with thin comb foundation. I usually put full sheets of foundation in the sections, especially in the first super, although good-sized starters do very well. A few bait sections must be used in the first super put on each colony to secure the best results. If I could have my way I would have every fifth section in the first super a bait, using them in two tiers, each two-thirds of the way from the center on either side. This would start all colonies, strong enough to work in sections, on the whole number in the super at about the same time, which is of much advantage in securing nice, even, snow-white capped honey which now is styled "fancy white." I can not make it pay to cut out the combs from the partly filled sections in the fall and sell them for "bulk comb honey," as many tell me they do.

After having decided that it was never wise to try to produce section honey without separators, the question which next confronted me was how to use them. During my thirty-five years' experience with separators I have used solid tin and wood, queen-excluding zinc, fences of wood and tin, and ¼ and ⅜ inch-mesh wire cloth; but I have come to the conclusion that, for me, nothing is as good as tin separators nailed to wide frames; and as my honey has always brought as much as or a cent or two more a pound than the highest market quotations, I see no reason why I could secure better prices if I were to change my system of securing section honey. After an experience based on many carefully conducted experiments, I am satisfied that the claim that tin separators have a tendency to cause less work in the sections, resulting in a decreased yield of section honey, is more theory than fact.

I prefer wide frames, because the bees do not have access to the outside of the sections at any point except the edges of the horizontal pieces above and below the separators, and here there is very little stain or bee-glue used. Hence when the sections are filled and finished they are nearly as new and perfect as they were when put on the hive, requiring little if any scraping to clean them of propolis, or bee-glue, as it is often called. This is no small item, as our older apiarists know who have spent days if not months in cleaning sections so they would be presentable when marketed. With a good yield from basswood, I have taken off hundreds of sections each year, that came out of the wide frames nearly if not quite as clean in all parts as they were when they left the supply-house.

More work is undoubtedly required when producing comb honey than extracted; but as the larger part of this work can be done during the slack season of winter, the real rush of the busy honey season is much lessened, so I have always considered it easier to produce comb honey than extracted.

Homestead Lands with Bee-ranges Scarce in Idaho

We note, page 184, March 15, Mr. J. E. Miller's letter on "Idaho as a Bee State." Mr. Miller is right in his statement that there is yet homestead land to be had in Idaho; but he is mistaken regarding the possibility of securing a bee-range on or very near homestead land. We are holding down a homestead, but our bees are four miles from it, in the irrigated valley. We agree with Mr. Bradshaw, page 96, Feb. 15, that at present all the range is well stocked. Evidently Mr. Miller has not thoroughly investigated the question of ranges.

Parma, Ida., March 21. WENDT BRO'S.

A PLEA FOR HOME-BRED QUEENS.

Do Queens that Go through the Mails Equal in Egg-laying those Reared at Home if One Knows how?

BY ALFRED L. HARTL.

Some very good and up-to-date bee-keepers are advocating the purchase of queens; but I have never been an advocate of the practice, because I am sure that I can rear my own queens cheaper, and have my colonies headed by a vigorous queen the following season, and not by a half-dead one—at least she looks half dead in her egg-laying after she has gone through the mail. Home-bred stock certainly puts a different look in our supers the following season, and a different feel in our pockets. I have bought queens from different breeders for years, but haven't received a queen that has come up to the average of my own.

I don't intend to boast about my queen-rearing at all. I only want to give my reasons. I do not rear queens for sale, so have no ax to grind. I rear them only for my own use. I don't want queen-breeders to get the impression that I think they are sending out nothing but half-dead queens, because I know that the queen-breeders are just as honest and honorable as the men who depend on honey-production. It is the confinement and rough handling in the mails that hurt the royal mother. By rearing queens from such a purchased breeder her daughters will always be ahead of her—that is, in prolificness at least.

Now, isn't that enough evidence to show that the queen we buy is of good quality? But she is incapable of laying as many eggs as she might, simply because she has been injured in some way.

It is very profitable to rear one's own queens—that is, for the experienced bee-keepers, not for the novice.

I make it a rule to requeen all colonies every fall that do not come up to the average. Seventy cents or a dollar for each queen amounts to something worth considering. To have our surplus-honey crop cut in two on account of poor queens amounts to still more; so, do you blame me for breeding my own queen-bees, thus saving and gaining all this?

After the flow the apiarist's work is not so much in a rush, and that's the time to get busy rearing queens for the next season.

As the queen is the foundation of our honey crop we surely must keep an eye on that most important matter to determine the quality of our queens, so we may be ready to requeen all weak colonies at the earliest opportunity.

We leave the requeening till fall unless we find a colony headed by a played-out queen in early spring.

Some might say they would not have queens reared after the honey-flow; but I have reared queens during the flow and also during a drouth by feeding them daily, and never could determine any difference. On the contrary, it occurs to me that the queens reared during the feeding period are superior.

Is there any excuse for not rearing our own queens? Surely all bee-keepers who keep bees in an up-to-date way can at least find enough time in the fall to employ in queen-rearing, which is always a profitable and sure income. By all means buy some queens if you have no good stock.

Before we establish our queen-rearing yard we must test our strain of bees. It is penny wise and pound foolish to rear queens from a poor home-grown strain of bees. So in that way we can not do better than to buy some queens from different breeders to test the different strains, and then select the best from them for our own breeders.

Elmendorf, Texas.

NO SWARMS IN FIVE YEARS.

A Triple-walled Hive and Plenty of Empty Combs in the Brood-nest Stopped all Swarming.

BY C. D. BENTON.

By trade I am a mason, and therefore am away from home a great deal through the day. When I was considering keeping bees I was told that the colonies would swarm, and that I would lose them, as I could not be at home; but during my five years' experience I have had absolutely no swarms thus far.

My first two colonies were in single-walled hives, and every hot day the bees seemed to suffer from the heat. By leaning some boards against the hive for shade they seemed to be relieved; and when I put on more boards the results were still better. In building my own home, few years ago, I gave considerable attention to the problem of making it warm in winter and cool in summer, with the result that I built two air-chambers in the outside wall. The contrast between this house and houses built on the ordinary plan is very marked. As the house was a frame structure I felt that the same plan might be carried out in a bee-hive; so I built two hives with triple walls and packed the inner space with cork chips, leaving the outer one empty. As soon as I could I placed my two colonies in these hives, which were of the eight-frame size, and one of these colonies was watched very closely in order that all the movements of the queen might be noted. After filling the first clustering space on each side with eggs she moved over to the other side of the comb. I was afraid that all the eggs on the outside of the brood would be chilled if a change of weather came, so I proceeded to put an empty comb in the center, which the queen occupied immediately. This plan I kept up all summer; and, although one of the colonies was very large, neither one swarmed at all.

The next season I bought three more col-

onies, as I did not wish to divide the first two, as that would spoil the test that I was making for swarming. That season, like the first, I had no swarms. All colonies were given empty combs in the center of the brood-nest. All this time the entrances were only ⅜ by 4 inches, and old bee-keepers all around told me that the colonies would swarm for lack of ventilation. However, they were fooled; for, although I tried different strains of bees, such as Caucasians, Banats, blacks, hybrids, goldens, and leather-colored Italians, the result was always the same—no swarming.

The third year I had 23 colonies to experiment with. I put them in three, five, ten, twelve, twenty, and twenty-four frame hives, always putting empty combs in the brood-nest, as before, and, again, there was no swarming. I have continued this process for five years, always with the same results.

Mr. Alexander says that swarm-cells intensify the tendency to swarm. Yes, and superseding-cells intensify superseding, and cells used from a good honey-queen intensify the gathering of honey. As I have had no swarms I have reared no queens from swarm-cells, all of my queens coming from colonies that have had no desire to swarm, so that, to keep up the colony life, the bees had to supersede their queens. Nature provides an evolution in bee-life by supersedure, hence there is no need of swarming. I do not think non-swarming is contrary to nature, for I believe what Mr. E. L. Pratt once said when he stated that swarming is not increase. During three years of queen-rearing from supersedure-cells, and using drones from such queens, I have noticed quite a difference as to how old the queens are before the bees think of getting rid of them. Last season I was not able to keep a single queen that was over a year old except by close watching to cut out all queen-cells.

Some may suggest that these were all weak colonies, so that, of course, they did not swarm; but I should like to ask what constitutes a weak colony. When eight to twelve frames of brood are on the go all the time, and when one queen in particular in a 24-frame hive-body keeps 18 combs in constant use for brood-rearing, I do not regard such as weak colonies.

I use no eggs for queen-rearing except from five-banded golden Italian queens less than a year old. I pay ten dollars for breeders.

In early spring I take especial pains to confine all colonies to only the number of combs that they will cover from top to bottom. I use division-boards on one or both sides of the cluster, and remove the rest of the combs to the honey-house. When inserting empty combs in the center I expand the cluster until the hive is full. One comb the first week seems to be a plenty, after the queen commences to lay. After brood-rearing is well started I find two combs a week is enough for the average queen. Of course, conditions vary in this respect. I had one queen last summer that used four combs a week. When the hive is full of brood and honey I remove one outside comb on each side of the hive to make a place for the empty ones in the center, and I either extract these or use them for forming nuclei. Combs that have been extracted are used in this way just like those that are empty.

All my hives are triple-walled. I think this feature has more to do with the prevention of swarming than the spreading of the cluster; for by the latter plan a larger colony is secured, that, in time, has no more room; hence I see no reason why bees manipulated in this way might not finally swarm just the same, if they were not in a hive kept cool by the three walls.

Akin, N. Y.

TOADS A REAL PEST IN SOUTH AMERICA.

BY JUAN CHRISTENSEN.

I have had a curious experience with bees. I may say that I am an amateur with no experience, but I am getting it. About a year ago I bought two swarms in frame hives, and I brought them to this place (600 miles) by rail, and set them on stands about a foot above the ground, at a place called Beltrán, where I was at the time. I now can go there only occasionally for a day or two. About the middle of November I left them doing well, as I thought. Arriving there at midnight on December 31 I was up on New Year's day at 5:30 A.M. and had a look at one of the hives and found not a bee out. As the climate is warm and dry I had raised the hive about an inch above the base-board, as recommended somewhere, in order to ventilate well. I peered under the hive and saw some dark objects. Thereupon I lifted off the hive and found 12 fat toads which had gobbled up most of the bees. Notwithstanding I am half a Theosophist I lynched those toads. From this hive I have taken sixty sections this season, but there are too few bees to gather more honey now.

Next I went to the other hive and found seven toads comfortably lodged inside the hive, and most of the bees inside the toads. I found the queens in both hives, but no eggs nor brood. I placed the hives on higher stands.

The bees are hybrids of some sort. Later in the day I found them so demoralized that they were being robbed by a tiny yellow bee about the size of a mosquito.

I do not know where the bees get the honey, but they seem to be able to find it. I have noticed them on algarroba, mistol, aguaribay, jarilla, chañar, alfalfa, and on weeds the names of which I do not know.

I would like to get Italian queens, but I suppose I am too far off from anywhere to get them by mail. They would take a month to come from North America.

Santiago del Estero, Argentina, S. A.



FIG. 16.—EDWIN G. BALDWIN'S "MEDRA" QUEEN-REARING APIARY AMONG THE PINES, CENTRAL FLORIDA, IN THE ORANGE BELT.

BEE-KEEPING IN FLORIDA.

Some of the Difficulties.

BY E. G. BALDWIN.

Continued from last issue.

Were it not for the fact that there is no rose without its thorn, bee-keeping on the peninsula might be the "Eldorado" of apiculture, the beeman's paradise. As it is, bee-keeping here is beset with as serious difficulties as it is further north. To be sure, that bugbear, the winter problem, has not to be met and overcome here; nor has foul brood made its dreaded ravages in our fair State, that our northern brethren are now experiencing. But let me enumerate some of the "lions in the way;" then decide for yourselves whether our favorite pursuit in Florida has not foes worthy of the bee-man's best steel.

Foremost among his arch enemies stand the deadly freezes, already alluded to, that sweep down on our fair land, congealing the succulent juices of myriads of trees and semi-tropical shrubs and plants into solid frost, leaving the land a blasted and withered heath. Not only does the orange-grower suffer, but the bee-man, whose chief surplus is from that source, suffers with him. The apiarists, too, who depend largely on the black mangrove for surplus, are as hard hit as any branch of agriculturists, and many were driven altogether out of the business back in '95 and '99, never again to join the ranks; and when one branch suffers, all suffer indirectly; for when the orange-man has no fruit, he has no money with which to buy honey, and local prices and local demand suffer. Such damaging frosts come about every ten years, with a less severe one between them. Of course, this is on only a very general average. There is not really any set time. Were it so, then preparations could be made.

In 1886 there was a deadly freeze; in 1895 an even more severe one; in 1899 one not quite so bad, though bad enough; and in 1909 another severe freeze. The latter was not quite so damaging to trees as was at first feared. The palmetto does not suffer at all from the cold "snaps," nor do the southern portions of the State feel them as severely as the northern half. There seems no remedy against the ravages of Jack Frost. The bee-men of Florida must even take their share of the burden along with the rest of mankind. Proper conservation of the natural forest resources would no doubt do much to prevent, if not entirely, at least in great part, the suddenness and severity of these cold waves that now come with such merciless swiftness. The cutting-away of the pine woods so generally over large areas of the State and the northern tier of States,

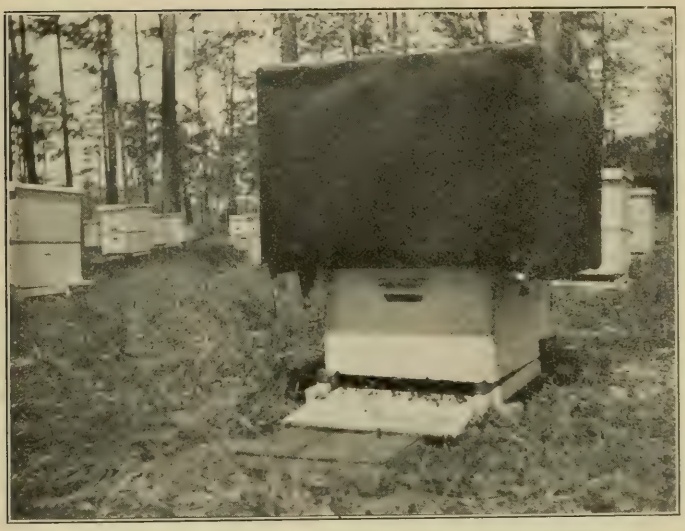


Fig. 17.—Corner of queen-rearing apiary of E. G. Baldwin, DeLand, Fla., showing tarred-paper warming device for the cell-building colonies in early spring. The hive is lifted from bottom-board by entrance blocks to prevent too great heat during the hot part of the day.

undoubtedly has much to answer for. But Uncle Sam has started forest conservation in one large tract in the central part of Florida, and is making attempts to reforest denuded tracts. There is hopefulness in the movement.

One thing is certain: Our early springs and late autumns feel the vascillating weather of the North much more quickly, and drop with a suddenness that follows the pulse of the thermometer north much more perceptibly, than was once the case. This results, beyond contradiction, from the deforesting of so much of Florida lands. Our wall of stately pines is sadly eaten into by the gouge and saws of the turpentine and lumber men. The changing spring weather hits the queen-breeder hardest of all. Last spring was a case in point. Many queens were lost as late as April, due to the cold spring north. When one reflects that February and March are the queen-breeder's most vital months for his early trade, it is easy to see with what feelings he views the increasing demolition of the natural pine woods. There is no tree nobler in appearance nor richer in its gifts to man than the long-leafed Southern pine. Here is a glimpse into a ten-acre group of them—tall, stately fellows, fifty, sixty, even seventy feet high, whose tops of shimmering green blend with sun to form a desirable shade for the hives below (Fig. 16). Fig. 17 shows a corner of the eighty-colony apiary of the writer at DeLand. The entire yard consists of Moore's leather-colored Italians, that have never failed to produce at least somewhat of a crop of honey, even when other bees all around were starving for food. Here are reared queens for Northern bee-men who need early queens. The only shade is that from the pines, even in the hottest months of the year. Occasionally, in the height of the swarming season, March and April, shade-boards are also used, but not after May. But, hot as are the days in March and April, the nights are often severely cool, so that queen-rearing under ordinary methods would result in nothing but disaster. A temperature of 90° in the shade, with 45° at night, or even lower, is no uncommon range of temperature at that time. In the apiary shown, the queens are reared above excluders in powerful colonies; but the cool nights will often drive the bees of unprotected hives down into the brood-chamber, leaving the upper story cold and empty. To accommodate both the extremes, two devices are necessary: First, plenty of air below the bees by day, and plenty of covering over the upper story by night. Both plans are shown in the hive in the foreground (Fig. 17). The hives are raised by means of the entrance wedges from one to one and a half inches above the bottom-boards in front, and the upper stories are covered with four thicknesses of burlap, and this with a tarred-paper case as shown. The black paper, suggested by a note in Mr. Alexander's pamphlet, absorbs the heat during the latter half of the day, and gives it off slowly to the hive during the frosty nights. Repeatedly I have lifted the cover of one such hive on a chilly morning, only to find the upper chamber swarming with bees as active and lively as on a May morning—no cessation of queen-cell building there. About eight or nine o'clock in the morning the black cases are set aside till three or four in the afternoon, depending somewhat on the temperature. Both blocks and case can be seen in the illustration. The blocks, by the way, are the same tapering wedges that act as entrance-contractors in cold months or during a robbing time. The large entrances and the warm covers may look like a paradox to outsiders; but in our vascillating spring months they are essential to the successful rearing of queens. The hives shown are all dovetailed and painted, Root stock, the best and strongest hive for Florida of which I have any knowledge. An unpainted and ordinarily nailed hive will warp and check and absorb moisture till it is out of all semblance to a hive. Early queen-rearing in Florida demands untiring patience, energy, and resourcefulness. Mr. I. T. Shumard, I think, is about right when he says that not

more than one man in fifty will make a success of it.

Then there is this troublesome feature, that, in many localities, and in many seasons in the same locality, the light crop of honey is overlapped by the earlier or later blossoming of another source, whose honey is rank or dark, or both, tainting or tingeing the clear nectar with its gratuitous but unwelcome contributions. We have already referred to the almost simultaneous blossoming of orange and wild cherry. Let one or the other hasten or retard its coming, and dire are the results. The wild cherry is almost always found in plenty wherever the orange-tree thrives. If too near together, it is impossible to keep the two honeys distinct. The clear honey becomes reddish-brown in color, and in taste more resembles the tang of a peach-pit. Few honey-flows in the North are so menaced on all sides by inferior flows as are many nectar periods here. It constitutes a real difficulty with many. Happy is that apiarist whose overlapping sources all yield equally choice nectar. The latter is the fortunate case of those men on the East Coast whose first crop, the saw palmetto, comes along with the gallberry, and whose second crop, the black mangrove, is almost coincident with that from the cabbage palmetto. Both blends are delicious. There is no deterioration from the double sources.

DeLand, Fla.

To be continued.

BEE-KEEPING FOR BEGINNERS, ILLUSTRATED.

The Gravity Separating-tank; how Constructed.

BY E. D. TOWNSEND.

In the accompanying picture, Figs. 1 and 4 show our latest pattern of separating-tank. It is built of galvanized steel, 32 inches high and 22 in diameter. Near the bottom a 1½-inch Scovile gate is soldered, the lower side of the hole being just 2 in. from the bottom of the tank, so that, when the gate is wide open, 2 in. of honey will be left in the tank, when all has run out that will. With this construction no scum will pass the gate, even if all the honey possible is drained out.



E. D. TOWNSEND'S LATEST SEPARATING-TANK FOR CLARIFYING HONEY WITHOUT A STRAINER.

On the side of the can containing the gate a partition is soldered, cut out of a piece of galvanized steel 15 inches wide and 31½ inches long, after the edges have been turned over. The upper edge of this partition, as shown, is just even with the top of the can; but there is a space between the lower edge and the bottom of the can of half an inch.

The float is made of hard-wood slats ⅞ inch wide, placed about ¼ in. apart. The length of these slats is such that the float is about ½ inch less in diameter than that of the can, and at intervals of two inches around the circumference staples are driven in and left projecting a little less than ¼ inch. These permit the float to rise and fall very readily, as there is less friction than if the wood were in contact with the side of the can.

Fig. 3 shows a 60-lb. can on the scales ready to be filled. The separating-tank stands on the floor, while the scales containing the 60-lb. cans are down in a pit, as used at our Camp 23 yard in Charlevoix Co. This is shown more clearly in Fig. 2, where my oldest son, Delbert, who has charge of the 269 colonies at this location, is filling a can. The principal point to be noticed is the position of the hands. It must be remembered that our honey is canned while still warm from the hives, so that it runs quite rapidly. Then our honey-gates are all of the 1½-inch size, so it does not take long to fill the can. From the time the gate is opened until the can is full the hands are kept in the exact position shown in the cut. An exception to this rule is when the honey is not in good condition to extract, it being rather too cold, so that it runs very slowly. Then the right hand is allowed to assume a position of rest. The eyes are kept on the stream of honey running into the 1¾-inch opening in the can. The weight of the left hand makes the scale-beam go up at about the 59-lb. mark; then the gate is nearly closed; and when the scale-beam is seen to start up again it is closed entirely. This operation seems rather long and tedious, but we keep the separating-can nearly full at all times, drawing out only two or three cans at a time, which really does not take very long with this rather large gate. This plan of filling cans is the only one that we have ever tried which at some time or other has not gotten the start of us, run the can over, making a sticky mess, and losing a lot of honey.

Let me call attention again to this Scovile gate that we use. With some of the cheap gates, and, in fact, with most of them now in use by bee-keepers, the cut-off is flat; and when the gate is opened the stream shoots to one side and misses the opening in the can until the gate is wide open, and then, of course, they work about as well as any; but when the handle is put down again, the stream will be deflected to one side, thus daubing the can. With this Scovile gate the cut off slides squarely over the opening from the top. This is a good point in itself; but the main advantage is that this sliding portion has a rounding opening corresponding with the bore of the gate, so that a round stream is assured whether the gate is partly or entirely open.

In working this "rapid" separating-tank one must bear in mind that, if warm honey from the extractor, containing impurities, is poured in with the cold honey previously extracted, the results will not be very satisfactory. The warm honey will mix more or less with the cold honey in the tank; and as impurities do not separate very fast in cold honey, some of the particles of comb, etc., will be drawn through the gate. I have called our tank the "rapid" separator to distinguish it from the ordinary separating-tanks that are large enough to hold the day's extracting, and in which the honey is left to stand over night, then skimmed and canned in the morning. To operate our rapid gravity separating-tank we always begin with the tank empty and the separating-float in place. As soon as the honey is extracted, and while it still has the warmth from the bees, the tank is filled full; then with a large spoon, what little scum and particles of comb there are on the gate side of the partition are skimmed off into the main part of the tank. This is not absolutely necessary; but since we want to keep this side of the partition as free from impurities as possible, and since there are more impurities on this side of the partition the first time the tank is filled, it is better to skim the first time at least.

Our practice now is to draw but one, two, or at most three, cans at a time, keeping the tank as full as possible, drawing it off only as it becomes too full, and when some one has the time from other work to do it. By this plan, while not much (if any more) time is actually spent in weighing the honey, the tank does its part better.

When the extracting for the day is over, the tank should be left full and the float removed to the uncapping-tank to drain, the honey underneath being well skimmed, especially that on the gate side of the partition, as any particles on that side go into the 60-lb. can with the honey. The partition extends to within half an inch of the bottom of the can, as mentioned before; and since every thing has to pass down under it to get to the gate, the honey may be drawn lower before impurities begin to come. We then draw off the honey into the can until there is none left except that containing a considerable amount of scum. The work should be continued, even when there is not enough left in the tank to fill a 60-lb. can. All should be drawn off possible, the cap being screwed on the partly filled 60-lb. can, and this one set away to be the first one filled the next morning.

Some have had trouble with this separating-tank. I would suggest that all such try it again, making sure to build the float of heavy wood like oak, beech, maple, or birch, and put the slats not further than ¼ inch apart. With this heavy float a pail of honey emptied upon it will not sink it down very much, almost the whole contents of the pail remaining on top. Gradually, however, the float will find its way to the surface. The object of the float is to prevent the fresh honey, as it is poured in, from disturbing the part underneath, already partly separated, so that the work of separation will not be retarded. This makes all the difference between rapid and slow work.

There is some question as to how clean honey must be for the market—that is, I mean what portion, if any, of the scum is permissible. When honey is strained through cheese-cloth, and canned as fast as extracted, the scum is nearly all with the honey in the can. No one has objected to this, especially since it has been mentioned that this very scum represents the aroma, bouquet, and almost all the elements that



A DOCTOR'S APIARY ON A ROOF IN WASHINGTON, D. C., THAT HAS BEEN A SUCCESS FOR THE LAST TEN YEARS.

go to make honey superior to other sweets. If the volatile oils are allowed to evaporate by leaving the honey in open tanks to get all the impurities separated, as has been the practice heretofore, some of this beautiful aroma is lost, and honey is placed nearer the level of the cheaper sweets. We can not afford to do this. The 60-lb. can is a distinctively wholesale package; and as all dealers melt and remove any foreign matter before bottling or canning it for retail trade, a little scum on top of that in the 60-lb. can does no harm, and the up-to-date dealer knows that he has in that can all that goes to make good honey, provided there is nothing in the way of an objection but the scum.

The time is ripe when producers of extracted honey should wake up to the importance of canning the honey as soon as possible after it is removed from the combs. We must all be progressive, and adopt such a system.

Remus, Mich.

A DOCTOR'S ROOF APIARY.

BY MARY A. MUNSON.

I know a busy doctor in a large city who realized he was getting a case of "nerves," so prescribed for himself a fad. Being country-bred he decided on bees. He had a wooden platform made in sections so it could be easily moved. This he placed on the roof. On this platform he arranged eight hives of bees. Around the roof a wire fence was fastened to upright posts, and across the roof wires were attached to the same posts. A grapevine growing up the side of the house was trained over these wires, and a beautiful roof of leaves was formed. Incidentally two bushels of grapes were picked from that vine in 1910. It has been ten years since the doctor took up the bee fad, and in that time they have more than paid their expense. His large family have had all the honey they could eat, friends and neighbors have been supplied, and there has been some to sell at a good price. Meantime, the tired nerves have been cured by the interesting study of bee life and the manual labor incidental to their care.

Washington, D. C.

A SWEET-CLOVER COW.

BY WESLEY FOSTER.

Being bee-keepers, we are always a little prejudiced in favor of any thing that is popular with the bees, and so all the cows we ever owned have been given sweet clover to eat at every opportunity; and the calves have been introduced to the tender green leaves and blossoms almost before they lost their wabble. Perhaps we have shown about as much zeal in teaching the calves to eat



WESLEY FOSTER'S SWEET-CLOVER COW IN HER FAVORITE PASTURE.

sweet clover as many a German daddy does in teaching "Bubschen" to sip beer. Any way, we never could taste the sweet-clover taint in milk and butter as soon as our neighbors, and so our cows always had good exclusive pasturage upon which our neighbors' animals were not permitted to forage.

Here is our cow that we raised from a calf. She has a sweet-clover appetite and we let her gratify it. She eats the tips of the stems that are tender, and we have never been troubled with the taint in the milk except in the spring. You see in the picture that our sweet-clover cow is "belly-deep" in her favorite eatable, and there are hundreds of bees all about her, but she never pays any attention to them.

Boulder, Colo.

THE BEST PAINT FOR HIVES DEPENDS UPON LOCALITY.

Two Coats of Paint that Lasted Eighteen Years.

BY W. A. PRYAL.

The question of the best paint for hives has cropped up again. It always seems to be an interesting one, though there appears to be quite a diversity of opinion in regard to the subject. I firmly believe the editor is right when he states that locality has much to do with the durability of the different paints. I have used lead paints in different forms for years; and, though a pure lead-and-oil paint lasts for several years without need of renewal, still I find that our climate causes it to calcine sooner than is desirable. This is owing, no doubt, to the fact that our air is charged, I believe, with saline mixtures, as I am not more than 18 miles from the Pacific Ocean, and only four east of San Francisco Bay—almost opposite the Golden Gate.

The most durable paint I ever used was composed of white lead, yellow ocher, and boiled oil. I have hives that were painted two coats eighteen years ago with this mixture, and they are still in good condition. Another coat would make them look brighter, and, perhaps, put them in a way to last without further painting for, say, fifteen years longer. I have photographed one of these hives, which is shown in the accompanying half-tone. The lower story is of our native redwood. The upper one is of Oregon spruce. The first-named wood makes a good material for hives, though it is best to have it well seasoned before putting it up into hive material. Then it does not rot nearly so readily as the wood that hives are generally made of. On the other hand, spruce rots the fastest of any hive material I am acquainted with—not enough, though, to prevent its being used for this purpose. Its worst features are that it shrinks much, cracks or checks considerably, and often warps. The latter objection is shown in the rear end of the hive here illustrated. In nailing such wood together it is well to see that the "heart" side is on the inside of the hive. A couple of checks even show on the side of the hive pictured; but usually these are not very objectionable. They can be closed with putty. When I make my own brood-frames I always prefer

Oregon pine. It is sufficiently durable, and, besides, has great strength, of which the average frame made of Eastern pine is lacking.

MARBLE-TOP HIVES

This hive I have been mentioning is much out of the ordinary, as may be noticed by reference to the cut. It is a sort of "drawing-room hive"—a marble-top-table sort of affair, to put it that way. Having quite a nice large piece of marble that had been used in a printing-office that fell into my hands twenty or more years ago, and not knowing where to store it (the marble), and have it out of the way, as it was covered with printers' ink on one side, I concluded it would be just the thing for a hive-cover. It would not leak, blow off, nor become hot in summer. This cover has done service many years, and I have not found it too heavy to lift on and off.

FUEL-STARTERS FOR BEE-SMOKERS.

And I am not yet done with the aforesaid hive. I have made this particular marble-covered home of the honey-bee serve another purpose. It is this: Often I like to have my smoker start off with a good "healthy" smoke. To get up a good fire in a short time I hit upon starting a fire in an old frying pan that had several holes punched in the bottom. Some shavings or other light material is first thrown in, then comes some harder material, and, last, some solid small-sized blocks of oak or eucalyptus. When this material has well ignited it is poured into the smoker, and the bee-keeper is ready to attack any colony of bees. Such preparation gives him a fire that will last, to say



FIG. 1.—PRYAL'S HIVE WITH A MARBLE ROOF.



FIG. 4.—MANZANITA BUSHES GROWING ON A HILLSIDE, NEAR NEW ALMADEN, CAL.

nothing of the effectiveness of the smoke that will come therefrom. I keep the fire well off the marble by providing a few brickbats for the fire-pan to rest on, as shown in the cut.

COMBS INJURED BY BEES.

It is astonishing to see how bees will sometimes gnaw to pieces combs that contained honey. Last year I had a colony decimated for some cause, I know not what, as I had not been giving the apiary the attention that a well-regulated bee-yard should receive. It fell a prey to robber bees. When bees are properly looked after they are not so apt to play the pranks shown in the accompanying illustration.

It is possible that the colony that built the combs had left some sealed stores, and robber bees found it out and at once greedily set upon securing the abandoned honey. At such times the avaricious bees will pull the cells all to pieces in their mad rush to get at the newfound treasure. In this they resemble human beings. I have known boys who, breaking into a store or even into a cherry-orchard, did more damage while stealing the fruit than the articles stolen were worth.

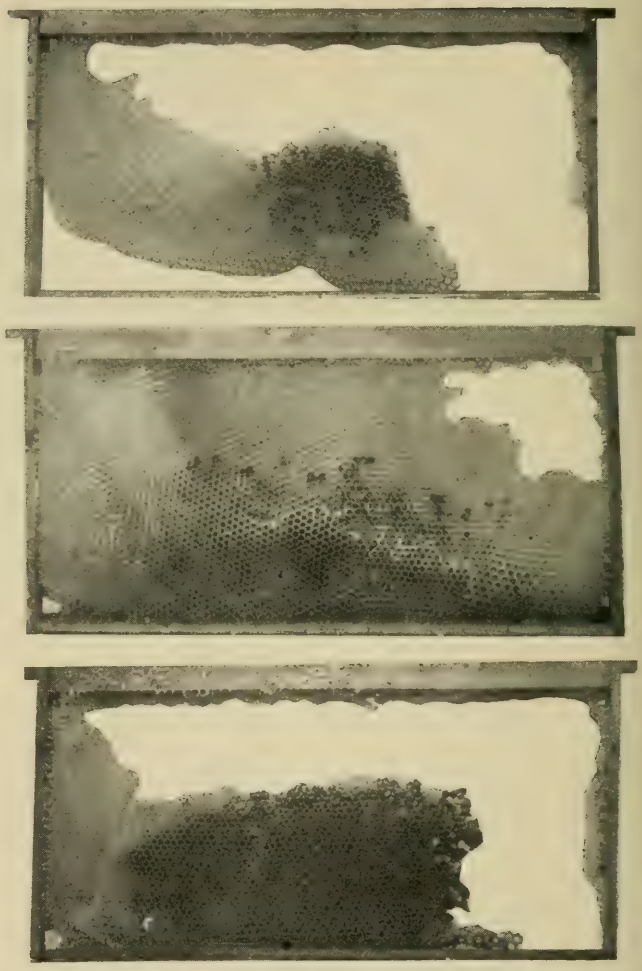


FIG. 2.—COMBS TORN TO PIECES BY ROBBER BEES.

MANZANITA; A WINTER-FLOWERING HONEY-PLANT.

Manzanita is a plant peculiar, I believe, to California, and is found in several varieties, all assigned to *Arctostaphylos*, of the order *Ericaceæ*. The plants or shrubs are found in patches on the hills and mountains, as shown in the larger cut, made from a photograph taken above New Almaden, Santa Clara Co. A peculiarity about the plant is that seldom a piece of its wood (trunk or limbs), even if only a foot long, can be found without some sort of a turn or twist in it. Perhaps for this reason it is the crookedest wood in the world.

It has a special interest to the bee-keeper of the Golden West inasmuch as it is a good secreter of nectar during the winter and early spring months. In some localities it yields considerable bee-forage.

Oakland, Cal.



FIG. 3.—MANZANITA-BLOSSOMS.

CLEARING SUPERS WITH CARBOLIZED CLOTHS.

How to Prepare and Apply.

BY JOSEPH GRAY.

I have used carbolized cloths in the apiary for many years, and for such a variety of purposes that I for one certainly can not subscribe to the editor's statement on page 26, Jan. 1, "pretty in theory, bad in practice." I am aware that there is a difference in subduing a colony of bees with the smoker and the carbolized cloth; yet, rightly used, the latter becomes a valuable convenience—one that leaves both hands free for work.

PREPARING THE CLOTHS.

Take two pieces of unbleached calico, 20×10. I prefer them hemmed so that there will be no fraying edges to catch the legs of the bee. Having these ready, take a bottle of carbolic acid, flatten the cork, and insert it half way into the bottle so that the liquid will sprinkle out when shaken. Open the cloths, laying one on top of the other, and sprinkle them well. Press in the cork with the cloth. Don't use the fingers. Fold up the cloths, place in a tin box, and they are ready for use. Too heavy or too light a material is not so good.

We use a calico quilt on the hive, and drop a carbolized cloth against the entrance; then as we peel off the quilt we draw on the other cloth. The first one can in turn be picked up from the entrance. A third cloth may be used if desired, and the first left near the entrance. At this point comes an important difference between the use of the smoker and the carbolized cloth. With the former, one has to manipulate the bellows, and the effect may be seen; with the latter one has nothing to do except to wait, and the effect can not be seen; for, as the supers are covered, no robbers can enter.

On a cold dull day the smoke will arouse the drowsy bees quicker. On a hot day the carbolized cloth will clear every bee out of the super. I would suggest that, instead of waiting for the bees to leave the super, the apiarist use a second set of cloths and get the next hive ready. If robbers are about, the two cloths enable him to keep the supers covered except in case of the comb which is being handled.

If an apiarist has been accustomed to handling plain or unspaced frames he will feel strange when handling closed-end frames. The same rule will apply to the smoker; for one who has always handled the smoker will at first feel strange in the use of the carbolized cloths; yet for many purposes I much prefer the latter.

In transferring from box to frame hives no drumming is needed, as the carbolized cloths do the work. One can start transferring the comb while the carbolized cloths are transferring the bees. In hiving a swarm, the carbolized cloth will turn the bees in any direction required. In dealing with disease, no smoker need be used, and the carbolized cloths can later be destroyed. In spring examination no robbers can enter the brood-nest, as the two carbolized cloths cover up the remaining frames. In nucleus work the carbolized cloths are sufficient. When shaking bees from combs on foundation inside of a hive, the cloths prevent the bees boiling out on the opposite side.

The sun will evaporate the strength of the solution, but a slight dampening of the cloths will restore the strength of the odor.

On a hot day every bee will be driven out of the hive if the cloths are left on too long.

Will carbolic acid taint the honey?

Carbolized cloths will not taint the honey; but there is a text-book that says, "Use a feather; dip it into the carbolic acid, and draw it along each top-bar." By this method of using carbolic acid there is certainly great risk of the honey being tainted.

Hagersville, Ont., Jan. 1.

[Eighteen or twenty years ago we tested several different schemes for using carbolic acid in lieu of smoke. While the bees would retreat from the odor of the drug, it did not seem to have a permanent effect, and they would come back. If inclined to be obstreperous in the first place, they would renew the attack as soon as the carbolized cloth was removed. Smoke, on the other hand, with a colony of this sort, has a more lasting effect—that is to say, it takes them a matter of two or three minutes to recover to a point where they will get back into their old fighting spirit. But we are frank to say that we did not try the use of carbolized cloth in the manner that you describe. We shall be pleased to renew our experiments this coming summer. In the meantime, we suggest some of our readers try out the instructions given by our correspondent, Mr. Gray, and report to us the results. So far we do not know of anybody in this country who is using carbolic acid to subdue bees. If there is any such person, will he please hold up his hand and tell us what he knows?—ED.]

SWARM CONTROL WHEN PRODUCING BULK COMB HONEY.

BY J. J. WILDER.

I should like to get a method of swarm control, when running for bulk comb honey with eight-frame L. hives and shallow supers. The trouble I find is a lack of drawn combs in the spring. Mr. L. H. Scholl's method will not do, as he uses supers for a brood-nest.

Greeneville, Tenn., Dec. 21. W. H. BROWN.

[The above letter was sent to J. J. Wilder whose reply follows.—ED.]

My method of swarm control in the production of bulk comb honey with eight-frame hives and shallow extracting-supers is as follows: In early spring, a few days before the first honey-flow, when swarming may be expected, I vent all colonies that will probably swarm by elevating the hives

from the regular bottoms, placing a ⅞×⅞×20-inch strip on either side, on top of the regular ⅜ ferring-strips on which the hives have stood during winter. This gives a vent 1¼ inches deep across the front of the hive, and a ⅞ vent of the same width at the rear. The strips, of course, close the sides solidly, and allow the air to pass under the frames, only from the front or the back. A stone or block placed at the entrance for the purpose of venting the hive is not sufficient, because it does not allow a current of air to pass freely under and up through the combs. Nor is it advisable to put four ferring-sticks, one under each corner of the hive, because the weight during the season might cause the bottom-board to become warped so that it would not fit well later when setting the hive down for winter.

We have found that an eight-frame L. hive makes too small a brood-nest for our average queens; but with a regular shallow extracting-super, the frames of which contain combs built from full sheets of foundation placed on top, plenty of room is afforded. One or more storing-supers should be put above this a short time before the honey-flow.

We have no apiaries that we run solely for extracted honey; but we produce it along through our bulk-comb-honey apiaries.

In the production of bulk comb honey, at least one-third of the crop must be extracted, as about this amount is used for pouring over the comb in packing. Any which is left will supply customers who prefer extracted honey. We usually produce a little more in order to avoid having to meet this demand later by extracting from beautiful combs; so at least one-third of our shallow extracting-supers contain ready-built combs carried over from season to season. One of these is placed on each hive, next to the brood-nest, which, as stated, consists of one eight-frame L. hive and one shallow extracting-super. This hastens matters by giving the bees a chance to store without first having to build comb. The strongest colonies are given additional supers containing full sheets of foundation in case they may be needed before we get around again, which is five days later. If swarming is expected in the least when we place this super, we raise the one next to the hive which we call our "brood" super, and see that there are no queen-cells started. If there are we tear them out and mark the hive.

In ordinary seasons, with this arrangement, very little if any swarming may be expected at the beginning of the honey-flow; but if the weather should turn cold, or there should be constant rains, thus keeping the bees in confinement in their hives, they are apt to have a desire to swarm, because they have nothing else to do.

On our next round, supers are added wherever they may be needed before our return in five days again. But on each round, before any supers are added, we tip up the brood-supers to see if any queen-cells have been started. This is quickly done; and if any preparation has been made for swarming it is easily detected and removed; for, as a rule, bees will not start queen-cells on the brood-frames near the bottom of hives thus ventilated. But if they do start cells, some will surely be found in the brood-supers.

This is not all that is done to prevent swarming; for on our rounds if we find any honey being capped in the first storing-super, it is removed and placed in the one above, and frames of foundation are inserted in its place. If the bees are storing mostly in combs in the center, they are usually placed on the outside of the super, and those less finished are placed in a central position, usually between frames of foundation which are exchanged for those where capping has been started. No combs of sealed honey are allowed to remain next to the brood-super. If all the honey in the first super is about ready to be capped, we raise it and slip the next super under it and put a bait or two in it if the bees have not already begun to work it. At the close of the flow the bees are allowed to fill all remaining supers without much manipulation.

So far as we are able, all honey is removed as fast as it is sealed and is packed and put on the market. The first honey is always stored in the darker combs, which are carried over from season to season, these being put on first, and all this is extracted and placed in large tanks; and a few days later it is in good condition to be drawn off, ready for packing bulk comb honey.

Late in the afternoon all supers containing empty combs are given to the bees at the home yard, where extracting and packing are done. By morning these are cleaned up, removed, and distributed again in out-apiaries as we visit them. If they were not cleaned up they might excite robbing, and cause trouble in removing and loading.

As soon as the combs suitable for bulk comb honey are cut out, the frames are cleaned, and full sheets of foundation put in, then they are again carried out and distributed. This process is repeated until the end of the season, when they are stored at the packing-house, ready to be put in order for the next flow.

Cordele, Ga.

SHALLOW VS. DEEP SUPERS.

BY ALFRED L. HARTL.

Many apiarists consider the style of the super of little consequence—that is, whether it is of the standard Langstroth or shallow type; but in my opinion this matter is very important. I have used both in the same apiary to determine the relative merits of each, and the best results have invariably been secured from the shallow-frame supers. When giving a medium-sized colony such a large surplus apartment as a Langstroth super at once, the bees hesitate about entering and beginning work, for they

are handicapped on account of being unable to maintain the desirable temperature for wax secretion; or if the combs are already built the bees will be slow in storing honey in them if they are cold. This is especially true when the nights are cool.

Another objection to the deep super is that it is very heavy and clumsy to handle.

Such a super holds about 50 lbs. of honey, which, with the added weight of the combs and the super itself, is too much for an average person to lift and carry around all day during the extracting season.

Again, in our locality we often have light, unexpected honey-flows of about five days' duration, and at such a time the bees will not store honey as well in deep supers as in the shallow ones, and, as a consequence, they clog the brood-chambers instead. Bees enter shallow supers more readily when the flow is light or when the weather is cool. Thus the brood-chambers are not so apt to become the storage-places for honey, provided the colony is of average strength.

I can remove honey faster from the Ideal shallow supers than from any other that has come to my notice. I have taken off as much as 100 lbs. in one minute's time.

Elmendorf, Texas.

REPORT OF THE OHIO STATE CONVENTION.

BY HENRY REDDERT, SEC.

The second annual convention of the Ohio bee-keepers was held at the Grand Hotel, Cincinnati, February 16. The following officers were elected for the ensuing year:

President, D. H. Morris, Springfield, O.; Vice-president, Frank Hammerle, Hamilton, O.; Secretary, A. N. Noble, Springfield, O.; Treasurer, Chas. H. Weber, Cincinnati, O.; Executive Committee, G. G. Lingo, Cincinnati; Wm. Schmees, Cincinnati; C. A. Brooks, Cincinnati; J. C. Creighton, Harrison, O.; Fred W. Hammerle, Hamilton, O.

Owing to the desire of the majority of visiting bee-keepers, the meeting was limited to the first day. This necessitated the curtailing of the program to "Visits to Points of Interest," which had been set for the second day.

The members engaged in some very spirited discussions, owing to the fact that this convention was the first State meeting since the one at Toledo in 1888. Interesting and instructive papers were read by Mr. C. H. Weber, on shipping comb honey to market. Mr. Chalon Fowls' paper was entitled "How to Increase the Demand for Honey by Building up Trade at the Groceries;" Mr. E. R. Root, "Modern Methods of Extracting Honey," and "American Foul Brood Differentiated from European Foul Brood." The paper from Mr. J. G. Creighton, of Harrison, Ohio, entitled "Foul Brood in and around Cincinnati," gave an account of the history of the disease from the time it started, twenty years ago, up to the present.

At the evening session Mr. N. E. Shaw, Chief Foul-brood Inspector of Ohio, held his audience spellbound by a chart indicating the alarming situation of foul brood in Ohio, which showed that practically one-third of the State is infected with the disease. He said, however, that the map could be greatly changed if sufficient funds were forthcoming by an appropriation from the State legislature. Bee-keepers from the entire State should assist him by urging their Senators and Representatives to vote for the necessary funds required for his valuable work the coming year.

Mr. E. R. Root's stereopticon lecture, "The Value of Bees in Fertilizing Fruit-blossoms," was very instructive, both to bee-keepers and horticulturists. He showed how these two industries are partners, and that one can not exist without the other.

During the day's session the coöperation of bee-keepers with farmers to preserve sweet clover, and promulgate its culture for the benefit of both, aroused a great amount of interest.

Red-clover queens and how to get the most wax out of a given quantity of cappings was explained in detail by Mr. Root.

Taken as a whole, the convention was a success. The next one will be held in Springfield, Ohio, Feb. 15 and 16, 1912.

Eighteen new members were enrolled on the membership list.

TREASURER'S REPORT.

Receipts to date, $15.00. Disbursements, $9.65. Balance on hand, $5.35.

BULK COMB HONEY MORE EASILY SOLD THAN SECTION HONEY.

BY J. L. YOUNG.

I have been watching the discussion of the relative merits of bulk comb and section honey. I sell to consumers, and I can dispose of ten pounds of bulk comb honey as easily as one pound of section honey, getting 15 cts. per lb. for the bulk comb and twenty cents per section.

At the Agricultural College here, some experimenting has been done to determine the difference in the cost of producing bulk comb and section honey; and it has been decided that the former can be produced at 12 cts. per lb. as easily as the latter at 20, and when producing bulk comb honey the swarming tendency is almost eliminated too. Swarming is the bane here of the bee-keeper who tries to produce section honey.

When I first started to sell honey, everybody asked whether the honey was pure, as no one had ever heard of a honey-extractor. Then they wanted to know how I could sell it so much cheaper than the section honey. When I explained that I had a machine that threw the honey out of the combs, so that I could give them to the bees to refill, thus saving them the trouble of building new combs each time, my questioners would say, "Oh! so you have a separator." I had no further trouble in selling extracted honey.

Manhattan, Kan.

EUROPEAN FOUL BROOD.

BY H. HARLEY SELWYN.

I hardly care to take issue with Mr. Cavanagh on the subject of European foul brood and the curing of it, as he has had years of experience while I have had but one; but I should like to make a few remarks as to our work with the disease this past season and the methods we tried to prevent its spreading.

Mr. Cavanagh's statement as set forth March 1, p. 130, that, during a honey-flow, combs of brood and honey from an infected hive which has been shaken can be placed over a healthy colony, the queen of which has been confined to the lower body, and that no danger of spreading the disease will result, seems to me rather hard to believe in view of the following, which is our experience in the matter.

I would mention, first, that we had never seen the disease, and it had gained considerable headway before we realized that there was something the matter with the brood in many colonies. This, of course, started an investigation as to the source from which it came, and we were immediately suspicious of some box hives we had bought, and the contents of which had been distributed among a number of the weaker colonies early in the spring to help strengthen them. A hasty inquiry as to the appearance of brood affected with European foul brood confirmed our fears, and a visit to the apiary some twelve miles distant, whence the box hives came, showed it to be also rampant there. Let this be a warning to those who contemplate buying bees in box or any other kind of hives. Never again shall it occur in the writer's camp. The saying goes that one's experience is often dearly bought, and we certainly paid dearly for those three box hives, as, I feel sure, they were the means of our losing hundreds of dollars during the season.

We understood that shaking is a sure cure, and proceeded to put it into practice. We shook the bees on some supers of nicely drawn extracting-combs which we had on hand from the previous year. This was done during the main honey-flow so that the bees were never in need of stores. When we shook a colony and got the bees and queen nicely settled in the new brood-chamber, there was always the question of what should be done with the brood and honey just taken away, and the idea occurred to us to place it *over* the new hive with a queen-excluder between, letting the brood hatch out that would, and, when the remaining cells were filled with honey, to remove it and extract, and thus (as we thought) save that brood and honey. But when we removed these supers some weeks later, and looked at the brood in the new combs which we supposed would be fed with nothing but new honey from the fields, and have thus escaped disease, it was just as bad as if not worse than that in the original combs. There was no remedy but another shaking, although by this time the colonies were beginning to show the effect of lack of increase, and our supply of drawn comb was seriously depleted, but out the bees went again, this time on wax sheets to "work or starve." This time they went to work, apparently with renewed vigor at having left behind such a hopeless task; and in every instance where they were entirely isolated from their former abode, and no portion of it was left hanging over their heads, as the sword hung over the head of Damocles, brood-rearing was once more carried on successfully, and we had the satisfaction of seeing the larvæ pearly white and symmetrically graduating from the tiny egg to the full-grown form. Well, so much for placing foul-broody combs over clean hives. I hardly think I would do it again under any conditions, not even if there were a yield of 25 pounds of honey a day.

Mr. Cavanagh also spoke of putting out extracted combs, which had previously contained foul brood, for the bees to clean up after brood-rearing had stopped in the fall, and said that no bad results followed. Why would not this honey be the means of spreading the disease again the ensuing spring if not all used during the winter?

Ottawa, Ont., March 13.

A PLURALITY OF QUEENS IN ONE HIVE.

How it May be Accomplished by a Scheme of Two Entrances.

BY GEO. W. RICH.

Will bees swarm with two or more queens in one hive? If not, is there any better way to control swarming? Here in Tennessee bees will swarm almost as much in August as in the spring; and the reason for it is, one would think, because there is scarcely any honey from June 15 until August.

Well, I want to tell you how I fixed some colonies last year, and they did not swarm. I am so sure it is a success that I shall work it on my whole apiary this year.

The first thing to do, 15 days before the bees are ready to swarm, is to select the queens from which we can have a supply of ripe queen-cells, or virgin queens ready. Now, when you find a colony preparing to swarm, take a hive-body filled with frames of empty brood-combs or foundation. Remove the old body from the bottom-board; place an empty body, containing one frame with some brood, in its place. Shake nearly all the bees in front, and be sure the queen goes in. Next put a wire screen on top and set the old body containing brood on top of this. Now on top of this old body set another body or super, just which you like, with an entrance cut in the bottom in front. This is to be the entrance for the bees in the old body. Now is when you want the queen-cells or virgin queens to give the bees (or brood rather) in the old body and above the

wire screen. The heat of the bees below will keep the brood warm.

As soon as the queen upstairs begins to lay, remove the wire screen and put in its place a queen-excluder. The secret of keeping two queens in a hive is the two entrances.

I have tried three queens in one hive with queen-excluders when all the bees came out of the same entrance; but as soon as the honey-flow stopped, two queens disappeared. At another time I tried four queens in one hive and all were killed.

But when hives are equipped with two entrances, both or all queens are left, or at least were last September. Previous to that time they had gone through a month and a half of honey-dearth. The bees worked at both entrances as strong as any other colonies at their one entrance. I have them built up four bodies high.

I am sure that having two entrances is the secret of the two queens remaining in the one hive. One thing, they work stronger at either entrance than the best colony I have in the yard.

If any one wants a bigger thing than this, just give the lower queen two bodies in place of one, and as many as you please on top.

Trezevant, Tenn.

[We don't quite see *why* the scheme of two entrances should make the bees or the queens tolerate each other any better than one entrance unless each hive-body with its separate entrance has its own cluster of bees, each with its own queen. The plan is worth trying, and we should be glad to have our readers try it and report.—ED.]

FOUL BROOD IN CALIFORNIA.

A County Ordinance to Prevent Diseased Bees from being Shipped in.

BY OTTO LUHDORFF.

Tulare County recently passed an ordinance which seems to have a good effect in keeping diseased bees out. The ordinance had been in force only a few days when a party with some 250 colonies came from an adjoining county. The bees were not yet unloaded when he heard of the new ordinance. He did not unload, but turned his teams around and moved back to his home county. We did not know whether his bees were diseased or not.

I inclose a copy of this ordinance. I believe it might be adopted to good advantage in many places, and it would certainly be a benefit to many bee-keepers.

Visalia, Cal., March 8, 1911.

An ordinance enacted for the purpose of eradicating the diseases of bees; to provide for the care of bees, and for the cleansing or destruction of bee-hives containing disease, and to provide for the proper inspection of bees and bee-hives in the county of Tulare.

The Board of Supervisors of the county of Tulare, State of California, do ordain as follows:

SEC. 1. It shall be unlawful for any person, firm, or corporation in the county of Tulare to keep bees in boxes or stationary frames or immovable-comb hives for more than thirty days after written notice, served upon said person, firm, or corporation by the Inspector of Apiaries of said county, or his deputy, to transfer the said bees from such boxes, stationary frames, or immovable-comb hives to suitable and legal frame hives; provided that no removal shall be required between the first day of November and the first day of April of any year. Every person who owns, controls, or has in charge any boxes, stationary frames, or immovable-comb hives containing bees, who neglects, refuses, or fails in any manner to remove or cause to be removed the said bees from the said boxes, stationary frames, or immovable-comb hives within the time specified in this section after the service of the written notice herein provided for, shall be guilty of a misdemeanor; and upon such neglect, refusal, or failure so to remove the said bees, the Inspector of Apiaries, or his deputy, shall have the right and authority to burn, or cause to be burned or otherwise destroyed, all of the said boxes, stationary frames, or immovable-comb hives, together with all the contents therein, including the bees.

SEC. 2. It shall be unlawful for any person, firm, or corporation to ship, express, haul, or transport in any manner into this county, from any other county or place, any empty second-hand hives or parts of hives that have previously had bees therein, or any slumgum or other refuse material from bee-hives. Any and all such hives or parts of hives or slumgum or other refuse material from hives that shall or may be shipped, hauled, expressed, or transported into this county shall immediatly and without delay be reshipped to the owner at his expense, or the same shall be destroyed by the Inspector of Apiaries; provided that any person, firm, or corporation who may desire to ship, express, haul, or transport any second-hand empty hives or parts of such hives into this county shall file with the Inspector of Apiaries of this county at least five days before said hives are received into this county at least two affidavits showing that all of said hives or parts of hives have been boiled under close steam pressure fully thirty minutes or more. On the boiling of said hives and parts of hives, and the filing of said affidavits, said hives and parts of hives shall be admitted into this county. Any person, firm, or corporation violating any of the provisions of this section shall be guilty of a misdemeanor.

SEC. 3. It shall be unlawful for any person, firm, or corporation to move or cause to be moved in any manner any bees into the county of Tulare from any county not having a duly authorized inspector of apiaries, unless written notice of the removal of said bees be given the Inspector of Apiaries of this county within three days after they have been received by such person, firm, or corporation in this county. Any person, firm, or corporation who violates the provisions of this section shall be guilty of a misdemeanor.

SEC. 4. It shall be unlawful for any person, firm, or corporation to ship, haul, or transport, from this county to another, any empty hives or parts of hives without first obtaining a written certificate from the Inspector of Apiaries, showing that all of said hives and parts of hives are free from disease. Any person or corporation violating the provisions of this section shall be guilty of a misdemeanor.

SEC. 5. It shall be unlawful for any person, firm, or corporation to move or caused to be moved in any manner into the county of Tulare any bees or empty hives, or parts of hives, that have at any time had bees therein, from any point within thirty miles of a known seat of infection of foul brood, American foul brood, black brood, or any other disease which is infectious or contagious in its nature, and injurious to bees, their eggs, or larvæ. Every person, firm, or corporation who violates the provisions of this section shall be guilty of a misdemeanor; and the Inspector of Apiaries of this county is hereby authorized and empowered, upon such violation, to burn or otherwise destroy or cause to be burned or destroyed, any and all such hives and parts of hives and their contents, including the bees.

SEC. 6. Any person, firm, or corporation found guilty of a misdemeanor under this ordinance shall be punished by a fine not exceeding three hundred dollars, or by imprisonment in the county jail not exceeding one hundred and fifty days, or by both such fine and imprisonment. This ordinance shall take effect immediately after publication.

Passed and adopted at a regular session of the Board of Supervisors of the county of Tulare, State of California, this 9th day of February, 1911.

Heads of Grain

from Different Fields

Ten-frame Hives should be Wide Enough for a Follower.

The tendency of bee-keepers seems to be in favor of the ten-frame hive; and, if I am correctly informed, that hive is made without a dummy, follower, or division-board. Why are the ten-frame hives thus made? Is not a follower or division-board as important in ten-frame as in eight-frame hives?

A hive of any kind without a follower or division-board would be to me an intolerable nuisance; and if we are going to discard the eight-frame for the ten-frame hive, why not make them with followers or division-board like the eight-frame hive?

My Muth Ideal bee-veil gives me the headache, and makes me dizzy. What is the cause?

While looking into one of my hives I noticed one cell which had two eggs in it. Does a good queen ever lay more than one egg in a cell? The queen is a Banat? J. T. L.

[In view of the fact that the ten-frame hives are being more and more used, the width has been altered so that there is as much room for the dummy and follower as in the eight-frame hive.

In case of the bee-veil, we presume that the wire cloth happens to be just such a distance from your eyes as to cause confusion. If you could arrange to have the wire cloth closer, so that the muscles which control the focusing are not constantly fixing the focus on the wire cloth, you would have no further trouble.

One cell with two eggs in it would not necessarily indicate a poor queen. Sometimes a good queen, being somewhat cramped for room, will lay more than one egg in a cell; but if there is very much of this kind of work when there is still plenty of unoccupied room in the hive, we should say the queen was not up to the standard.—ED.]

Clover Honey; 320 Combs of it Too Thick to Extract.

I have about 40 eight-frame Dovetailed hives filled with very thick clover honey, all sealed. I waited until cold weather, thinking I could extract at my leisure; but I find that, if I warm the honey over a stove until it will extract, the combs (many of which are new on full sheets of foundation, and wired) will break, and can not be pulled from the comb-basket of the extractor. Can you suggest any remedy or any thing helpful? If I keep it until warm weather will it work any better? or will it then be candied in the combs?

Wells Bridge, N. Y., March 20. L. C. JUDSON.

[Your difficulty comes about from the fact that you placed your Dovetailed hive-bodies, filled with new combs and sealed honey, right over the stove. The heat would be too intense near the bottom of the combs, and insufficient near the top. Moreover the outside surfaces of the combs would be warmed up while the centers would be cold. In cases of this kind the combs should be stored in a warm room, and kept there for at least 12 hours, and 24 would be better. The temperature of the room should be somewhere about 75 or 80.

Then, again, when you come to extract, turn the reel very slowly, extracting one side of the combs partially, and then the other side, and extract that partially. Increase the speed of the extractor a little: reverse, and so on until the combs are fairly clean. With new combs you may have to turn the reel longer, and use a moderate speed rather than a high one, for a short time.—ED.]

More Directions for Carbolic Cloths.

In answer to the inquiry made on page 26, Jan. 1, regarding carbolic acid for quieting bees, I submit the following report: In "The British Bee-keeper's Guide Book" directions are given for one part of Calvert's No. 5 carbolic acid to two of water; but I prefer at least equal parts of each, and sometimes more acid. My experience of twenty years in the use of the carbolic solution has proven that the other mixture is not strong enough. Since having used the carbolic cloth, the smoker is almost a thing of the past with me.

The cloth should be cut the size of the top of the hive, or larger, and hemmed. After wetting it thoroughly with this solution, and wringing it fairly dry, it should be placed, when not in use, in a covered tin box, ready to be used when needed. By way of caution it may be well to add that care must be exercised in wringing the cloths or the acid may burn the hands. Some bee-keepers perforate the cork of the bottle containing the solution, and sprinkle the cloths.

When ready for use, pull the quilt from the top of the hive, and at the same time replace it with one of the cloths. The bees will soon run down into the lower part of the hive. If the cloth is left on too long, however, it will excite them too much, and will sometimes drive most of them from the hive. A little practice will be required to accustom one to the use of carbolic acid in this way.

Wallington, Surrey, England. C. LONGLEY.

[If the solution of carbolic acid has to be strong enough to eat the skin off the hands it would seem that a smoker would be preferable. Would it not be better to follow the directions given in Cowan's book, which provide for a solution not so strong but that the hands may be used to wring out the cloths? It may take longer to do the work, but it would be safer. After all, it is our opinion that most bee-keepers will prefer to use a smoker.—ED.]

Borrowing Bees for Cell-building.

I have kept bees for the last 25 years, and the longer I keep them the more I love them. I have 36 colonies in the cellar; and if all is well I should like to increase to 100 in the spring and summer by the Alexander method, buying young queens and introducing them. Or, if, I find time, I may try to raise them from my best queens. Still, I feel convinced that I need fresh blood in my apiary, so I will buy some queens.

Please explain "borrowing bees for cell-building," of Alexander's Writings on Practical Bee Culture, page 75.

A TEMPERATURE OF 60° BELOW ZERO.

What do you think of bees which wintered in fine condition when kept for six consecutive months in the cellar with the temperature outside sometimes as low as 60° below zero—average consumption of stores, 12 lbs.?

Valley, Ont., Feb. 13. JAMES M. MUNRO.

[The term "borrowing bees" was originated, if we are correct, by the late E. L. Pratt, better known as "Swarthmore." He simply shook off four or five frames of bees into a box with wire-cloth covering, and confined them there for a few hours. At the end of that period they could be used for starting cells. After the cells are started, the bees are returned to their original colony; hence the term "borrow."—ED.]

Size of Bees in Old Combs.

On p. 88, Feb. 15, I read with interest the article regarding the melting of old combs when the cells have become small from age, so that the brood is cramped for room. I dare say that this is true in some cases, for two years ago my father and I found a colony of bees in an old oak in the woods. I was much surprised to find that the bees were very small, and made the remark that they had been there for a long time.

Upon examination I noticed that the combs were very old. I cut them from the tree and placed them in the frames from a hive that I had brought with me. After the bees had been smoked into the hive and had been taken home, frames of foundation were put between the frames of old comb. In due time bees hatched from the combs that were built on the foundation. These were about a third larger than those from the old combs.

Birmingham, Mich. OTTO A. PARK.

[Many of our best authorities do not believe that old combs hatch out any smaller bees than new ones. Bees appear to be smaller under some circumstances than at other times. When the weather is a little cool, bees look much smaller than when it is warm and when they are engaged in the business of gathering or evaporating nectar in the hive. We rather doubt whether the change of combs made any difference in the size of the bees. —ED.]

The Importance of Having Hive Lumber Cut Heart Side Out.

Mr. Scholl's method of repairing old hives and supers that have warped, as outlined on pages 90 and 91, Feb. 15, and to Mr. Wesley Foster's diagram of dovetailed hives on p. 355, June 1, 1910, I would say that I have no criticism to offer; but I should like to make one suggestion. Mr. Foster has left out one essential detail. He did not say that the hives should be made with the heart side of the lumber on the exterior. If the manufacturers of hives would take the trouble to make them with the heart side of the lumber out, and if afterward the hive were kept well painted, there would never be any warping as shown in Fig. 2 B, p. 355, June 1.

All lumber warps from the heart. For example, a floor made of boards with the heart side up is always smooth; but when the sap side is up it is uneven because the edges are up.

There would be quite a saving of time in putting hives together if the suggestion made above were followed. All the joints of my hives are put together with thick white-lead paint, thus rendering them water-proof. Perhaps I am too much of an old fogy in this matter, but I think it pays in the long run. I have been a wood-worker all my life, and retired, not because I have a barrel of money, but because of poor health. I took up bee-keeping as a fad, and it has grown to such an extent that it keeps me moving most of the year.

Red Bank, N. J. C. H. ROOT.

[We believe that most manufacturers attempt to make their hives so that the heart shall be on the outside of the hive when put together. Sometimes in the rush of the season the workmen may get careless and put the hand-holes and the rabbets on the wrong side of the boards.—ED.]

Making Increase by Placing a Queen in an Upper Story of Empty Combs

Please give me your opinion of the following plan for increase (or dividing) and requeening. In early spring, when brood is well started and queens can be reared, place a queen and empty combs in an upper story, and all the brood in the lower story, with an excluder between them. At the same time, place two ripe queen-cells in the lower story with brood, one in the protector and the other in a long cage with candy. If the one in the protector fails to return after a flight, the other can be liberated. Would the virgin below be accepted? and could she get through the excluder to the laying queen above? And then in order to requeen the story above, about two weeks later (May 15), divide, catching the old queen, and then place two ripe cells the same as in the lower story?

If you think this plan advisable, please give the earlier dates on which this operation could be undertaken. Also state when it is practicable to begin feeding in spring. Would the center of the ordinary unflavored chocolate candy be good to put in a cage to feed a queen?

Detroit, Mich., March 5. W. S. VAN HORN.

[Your plan would probably work providing it were warm enough; but we certainly would not advise doing this in "early spring," as you suggest, as you would be likely to lose a good deal of brood, and disorganize the colony generally. The virgin below might or might not be accepted. A good deal would depend on conditions; but in early spring we would imagine that the laying queen would come as near the cluster as possible. If she should occupy the lower edge of the upper set of frames, the probability is that the virgin below would be killed; and it is also possible that the laying queen above would be sacrificed, and the virgin allowed to become the reigning mother. A little later on in the season, when the colony has become very powerful, you could put on an upper story of empty combs, as suggested, and the virgin in the lower section and the laying queen in the upper section would probably both be allowed to reign supreme. In general, we may say it is bad policy to work for increase by any plan in the spring in northern climates.

You can begin feeding in the spring at almost any time when the bees can fly freely, but we would not advise it before. It is always better, however, to give combs of sealed stores in the spring, said combs being taken from a reserve supply kept for the purpose. We always make it a practice here in Medina to keep extra combs of stores over, to give out in the spring.—ED.]

Satisfying the Desire to Swarm, yet Preventing Increase.

Not having nor wanting many colonies, and being unable to procure queens, what would be the objection to the following plan?

When a colony is pretty strong, and directions have been followed under head of "Increase," page 284, A B C and X Y Z of Bee Culture, would it be advisable, after queen-cells in the top story have been sealed, to cut out all cells but one and put the frame with this one below, placing the old queen in the original hive above with the newly hatched and hatching bees, and leaving her there as long as her laying capacity is good? If plenty of room for surplus were given, the only objection I can see is that, when the young queen hatches below, a swarm might go off with her. But would this be likely, with the old queen excluded, and unsealed brood in the lower *hive*? As an experiment would you advise it?

Shan-hai Kwan, China. J. F. MOORE.

[The modified form of Alexander increase that you propose would work, we think; but you would get far better results by using a laying queen in place of cells or virgins. Mr. Alexander recommends laying queens because, with virgins or cells, so much valuable time is lost that it defeats, to a very great extent, the very object of making increase in this way.—ED.]

Alfalfa and Bee-keeping in New Mexico.

Mr. Root:—In your issue for April 1 you have an article headed "Drawbacks to Bee-keeping in New Mexico; the Future of Alfalfa very Uncertain." We have always looked upon your magazine as one which endeavors to state facts; but the heading which you give the article by Mr. Metcalfe is entirely misleading. He refers to the condition existing around Mesilla Park. This condition does not exist in all sections of New Mexico; in fact, in the Roswell district there is alfalfa which is twenty odd years of age, and it is still yielding large crops. There is plenty of water there from the artesian sources, and no chance for the uncertainty of the future of alfalfa. There are many colonies of bees, and at least fifteen of the citizens there make their living from bees alone. Over fifty-two keepers of hives are around Roswell.

New York, April 5. H. ROBINSON.

Swarms Entering Empty Hives; the Record Broken Again.

I can beat Mr. Calvin C. Hunter's bee-story somewhat, page 561, Sept. 1, 1910. The bees died off very badly during the winter of 1909, but I know of 31 swarms going into hives around here. Mark Hurd, of Marshall, superintendent of the apiarian department of the Calhoun County fair, had 10 colonies in the fall of 1909, and he lost all but two, leaving eight empty hives. He just shook out the dead bees and left the hives as they were. In June a neighbor asked him if he would come over and hive a stray swarm for him, for they were afraid of it. He did so, so that he had only seven empty hives left. In June stray swarms came and filled all of the seven empty hives, and all made a full super of honey apiece. He said he did not let either of his old colonies swarm, and most of the bees must have come for miles.

Marshall, Mich. G. F. PEASE.

The Sour Smell from Aster.

On page 150, March 1, more information is requested regarding the source of a sour odor from the hives. Under my own observation it has been mostly from asters. In Shenandoah Valley, in Virginia, where I lived for fourteen years, there were many acres of the small white aster, locally known as iron-weed. There were several seasons when the bloom was in sheets, affording a good yield of surplus. The honey was a very light amber, of fine quality, and was considered next to white clover. At such times a strong odor could be noticed when walking among the plants, which was distinctly sour in the vicinity of the hives. I have never noticed this except when the asters were yielding nectar. My Italians have seldom done much on goldenrod when any thing better was within reach. A "knock-you-down" smell about the hives is often noticeable, too, when buckwheat is yielding plentifully. BURDETT HASSETT.

Alamagordo, New Mexico, March 16.

Putting Foundation Under the Brood chamber to Prevent Swarming.

What is your opinion of the following method of running for extracted honey? Will it prevent swarming? What would be the objections to it apart from the trouble of lifting? I propose to put a hive with frames of foundation under the brood-chamber as soon as it is nearly filled with brood; then, when the queen has gone down to the new chamber, repeat the process—lift off both of the hives and put a third (with foundation) underneath. Am I right in supposing that, as brood hatches near the top, the cells are filled with honey, and so the queen is gradually driven down? I use ten-frame hives—British standard frame. It looks as if it would prevent swarming; but could I get as much honey as by putting supers with foundation in frames above?

Alfriston, England. A. G. WHITE.

[In all probability the queen would be very slow about going into the lower chamber. Her tendency is rather to go above than below. We would rather doubt also whether the bees would build comb from foundation as readily when it is below the brood-nest as from above. No, we do not think your plan would work very satisfactorily unless the weather were very warm and the colony very strong. If you desire to get extra combs or increase, follow the Alexander plan of increase, the same as the one referred to in the letter of Mr. J. F. Moore, on preceding page.—ED.]

Feeding in the Spring Very Successful.

As my experiments with the Doolittle brushed swarms have proved to be very successful, and nothing has been said of the importance of feeding in connection with this plan, I thought possibly my experience along this line might prove to be of interest.

On April 23 I put on a full-depth upper story with frames with filled foundation, and placed two frames from below in the upper story. May 29 the colonies so arranged were booming, and some had sealed queen-cells, so I brushed the strong colonies and gave the brood from these hives to the weak colonies. Every thing looked promising; but by June 11 the bees were on the verge of starvation because of the unfavorable condition of the weather. Now comes what I think is the most important part of the whole plan. I put an Alexander feeder under each hive and fed a very thin syrup, about three to one, and kept this up until the honey-flow started.

At this writing, July 20, I have taken off 52 pounds of section honey per colony, spring count, and the prospect is good for nearly as much more. This plan does away with drones, as I have not seen any flying for a long time. While I am a great admirer of Mr. Doolittle, it seems to me that too little space is given in the bee-journals to the question of feeding. If the bees are fed in the spring they will get the honey when it comes.

Sag Harbor, N. Y. I. WARREN SHERMAN.

[In case of a shortage of stores, there is nothing to do, of course, but to feed in the spring; but if enough honey or sugar syrup can be fed in the fall to last until the main honey-flow begins again in the early summer, it has been found that spring feeding is only a waste of time and bee energy. When weather conditions are unfavorable, as reported by our correspondent, that is another matter.—ED.]

Honey-bees Visit Roses.

Under the heading of "Nectarless Flowers," page 98, Feb. 15, Mr. John H. Lovell attacks another writer whose article appeared on page 680, Nov. 1. I am not capable of discussing flowers with Mr. Lovell, but feel that I ought to defend the other writer so far as I think he is right. There is not the least doubt in my mind that he saw honey-bees working on wild roses; in fact, I have never known the blooming season to pass without noticing real honey-bees gathering pollen freely from wild roses. Possibly roses do not secrete nectar; but Mr. Lovell evidently doubts that bees visit roses under any circumstances. If he were here in Madison Co., Alabama, during fruit-bloom I could show him bees working on plum-blossoms; but, of course, bees are very much influenced by conditions, and conditions vary in different localities.

Huntsville, Ala. H. M. WEBSTER.

Our Homes

By A. I. ROOT

For he shall give his angels charge over thee, to keep thee in all thy ways. They shall bear thee up in their hands, lest thou dash thy foot against a stone.—PSALM 91:11, 12.

The above is not only a wonderful promise but it is one of the most *precious* promises in God's holy word, and it has been a comfort and encouragement to thousands for ages past; and the question naturally arises as to *whom* the prophet was referring when he used, we might almost say, such extravagant language. Happily the very first verse of this justly celebrated 91st Psalm answers the question most fully. It reads, "He that dwelleth in the secret place of the Most High;" and that also celebrated *first* Psalm makes the meaning still plainer. He that "meditates" on God's holy word, "both day and night," shall surely have guidance and protection from on high.

For several months past I have had letters from many good people remonstrating because of my criticisms in regard to the *Woman's National Daily*, and its editor's way of doing business. Several have sent me clippings, evidently inferring that I have not been reading said daily. Permit me to say here that I have at least "run over" almost every issue since its start, and, as you may remember, I for a time gave it excellent notices in connection with these extracts; but finally I felt sure I should not be doing my duty if I did not warn the public at large against sending the institution any more money. Some great and good man, I forget now just who it was, but, if I remember, it was a great preacher who said, as they found a drunken man in the ditch, "But for the grace of God, there lies ——" calling himself by name. Well, when I have been following Lewis of late I have often thought "But for the grace of God there is where A. I. Root might be now." Please do not think I mean to boast, dear friends, for God knows I have nothing to boast of; but I want to go back and give you a little bit of history to show you how the loving heavenly Father sent kind friends in answer to prayer to keep my poor erring footsteps from being "dashed against" many a financial "stone." I told you not long ago of the advice an old money-lender gave me when I was about to go into my first business venture, and of the way I surprised him and my old father when I decided not to borrow any money after all. Well, in my Home paper for March 15 I also told you how I was helped out of a financial trouble in answer to prayer; and I want to give you here one more little story that I have often thought of when watching friend Lewis through his many speculations.

It happened after I had built up a pretty large business, and was astonishing people with the growth of our industry; in fact, I

was *myself* getting a little excited to see how my many projects were prospering, and I became a little careless about making payments, as my friends had a right to expect one who made the profession I did *should* make them. The timely admonition came from the cashier of our Medina bank who had always been a firm friend of mine, even if I did not always take his advice. He took the trouble to write me a letter, and I am going to give the contents of that letter here as far as I can remember it, for I feel sure such a letter is needed, possibly, by a great number of young men *just now*—say young men who are for the first time getting into the whirlpool of great business enterprises. The letter was something like this:

Dear Mr. Root:—This is a friendly letter and not a business one; and in view of the fact of the large amount of interest money you have been paying our bank for years past, as an officer of the bank I might come under criticism for driving *away* business. I write a letter because I want time to think of what I say, and because I want you to take time to read carefully and consider what I am about to write, whether you take my advice or not. I want to remind you that your friends and people at large are getting a little uneasy about the way you are branching out and taking up so many new lines of business. So long as you have your health, and every thing goes well, you may come out all right; in fact you seem to have done so thus far; but would it not be wisdom and prudence to hold up just a little until you have a little money ahead, say, for the proverbial rainy day? Another thing: As you know, I am not a member of any church, although I am permitted to have a class in the Sunday-school, and I greatly enjoy our teachers' meetings. Your religious experiences are attracting a good deal of attention just now, and any kind of financial failure would injure the cause you and I hold most dear—more than *you*, I fear, have any idea of. Reflect, I beg of you, that your teachings have already gone through that journal broadcast over the world to at least a great extent. Dollars and cents are but a drop in the bucket compared with the keeping of your good name above reproach before the outside world. Now, my good friend, I know you will excuse the above, and I think you will excuse me for going a little further and saying, that, as you are always pushing some new hobby, you make your *next* one a cur ail of outgoes until you have a little money ahead in the bank instead of being all the time crowded, as you have been for some time past.

As ever your friend,
ROBERT MCDOWELL.

I replied briefly something as follows:

Dearfriend Robert:—I don't know how I can thank you enough for proving yourself a veritable "friend in need," unless it is to tell you to keep watch and see how well I take your very kind suggestion.

A. I. R.

I have reason to believe Robert and the pastor of our church had talked the matter over before that letter was written; for, shortly after, I received a letter from Rev. C. J. Ryder, now of Stamford, Conn., which read something as follows:

Dear Friend A. I. R.—Robert writes me, "A. I. R. has now $10,000 in our bank, and all his bills paid up ahead." I want to congratulate you.

Your old friend and pastor,
C. J. RYDER.

Now I want to tell you that that "turning about" in my business habits was not an *easy* thing. At times I just had to shut my teeth and say no to every thing that came up; but I soon found that something ahead in the bank enabled me to do many things I had before been unable to do. In fact, Robert mentioned it in his letter. A cargo of lumber, for instance, was offered at a low figure if moved and paid for at once; or a carload of printing-paper for our journal. In short, the lesson I learned in consequence of that friendly letter was more far-reaching, away out into the future, than any one can measure; and I hope and pray that the letter may prove a kindly warning to other young men as it was to me at that time, years ago. Truly, a good name *is* rather to be chosen than great riches.

Did Lewis have any such kind friend to advise him to let "well enough alone" when he was already doing well? I felt sorry to see him, even several years ago, use so much space in blaming others, even our government officials. All in all, I think this is a pretty good world to live in; and I think our government, even our postal department, means to be, as a rule, fair to all; and if the people *continue* to demand it, we shall soon have parcels post and these other things. That good old book says, "When a man's ways please the Lord he maketh even his enemies to be at peace with him," and I have found it true; but sometimes we have to *wait* quite a while for said "enemies" to get around to *recognizing* their friends.

High-pressure Gardening

By A. I. ROOT

"HIGH-PRESSURE GARDENING" DOWN IN FLORIDA DURING A SEVERE DROUTH.

We have had no rain since the first week in January up until about the middle of March — something like a nine-weeks' drouth, and about the most severe dry spell recorded at this season of the year for many years past. Neighbors Rood and Dr. Braymer, with their great artesian wells, got along very well; and where I "borrowed" the overflow from these wells, as I have told you about, I got along very well growing sprouted oats and other green stuff for the chickens; but in my lanes, where we have no water, the oats never came up; or after they were up, they withered and dried up under the scorching March sunshine. There were other things, however, that had got their roots down into the ground water that is always found in this region four or five feet below the surface, and these kept growing right along, seemingly oblivious of the dry weather. The mulberries particularly have been all along furnishing the most juicy and delicious fruit. Just before getting dead ripe they swell out and fairly glisten in the sun, seeming full to bursting with moisture. Why, one of these large heavily laden trees must pump up daily an almost incredible quantity of water. Today, March 27, they are taking so much of that spring in the cellar that there does not seem to be any in the pipes for poultry, and we are having to carry water again for the chickens. But it is not the *water* alone that gives the mulberries such a vigor of growth, for very likely the poultry drop-

pings for two or three years past have had much to do with it; and right where these trees stand is where Wesley has sown oats, raking them in for the chickens to scratch out, until the ground is in the highest state of tilth.

In our May 15th issue for last year I wrote up the Northey blackberry at considerable length. At that time the vine or mound of vines had never failed to give a crop; but this spring, on account of the severe drouth we have had, the crop on my neighbor's vines is pretty nearly a failure. Our own, on plants set out right in fruiting time last May, are very much better;* and our neighbor Raub, who carried water for his plants, has great luscious berries, and much earlier than those I have mentioned. His also had the poultry manure, for he too, as you remember, is a "chicken man." This severe drouth has enabled us to demonstrate most conclusively that watering pays on almost every thing.

As it is a big task to pump and carry water by hand, we have been discussing either a windmill or a little pumping-engine. The windmill saves the expense of gasoline, it is true; but when you consider that you must have a tank to hold water when the wind doesn't blow, it is a question which is better and cheaper. Another thing, the windmill must be out in the weather the year round, and take its chances, while a very small engine which would supply our moderate wants could be easily taken in and housed during our absence in the summer, and it could also be inside out of the way when there is plenty of rain so its services are not needed. As water is so near the surface all over our premises, it is an easy matter to sink a well where water happens to be needed, and to move the little engine over to it. This would be very much cheaper than going to the expense of iron pipes to carry the water where wanted, even where one has an artesian well. I am speaking now of the wants of old people like Mrs. Root and myself, and not considering the truck-gardener who wants water in great quantities for his immense crops.

CHUFAS, OR EARTH-ALMONDS.

As you may remember, I gave the above quite a write-up in our Dec. 15th issue; and this write-up, or something else, has sent the price away up. A letter from The Crenshaw Seed Co., Tampa, just at hand, reads as follows: "There are no chufas to be had that we know of in the country, and the last we sold we got $2.00 per peck for." You may remember their seed catalog claims that ordinary Florida soils will give 50 to 100 bushels to the acre with very little cultivation. My experience would indicate that you might get something like the above with good ground well fertilized; but the biggest job is to harvest the crop. What do you think it would cost to harvest a crop of potatoes if they were only about as large as white kidney beans? I grew chufas when a boy, more than sixty years ago, and they have been advertised more or less ever since by different seedsmen. All the seed I have to spare is promised, but I think you will find them offered in the seed catalogs. They will grow all the way from Maine to Florida, and I have been told that in some places they get to be a bad weed.

In closing I might mention that egg-plant has been sold as high as $10.00 a basket, during the past winter, in New York; and neighbor Rood also informs me that it is no unusual thing to get as many as *1000 baskets* from an acre of ground. Now, mind you, I have not said that anybody ever got $10,000 from a single acre of egg-plants, yet my first statements are probably true.

I think this may be a good stopping-place for my talk on "high-pressure gardening in Florida."

SWEET CLOVER IN KENTUCKY, ETC.

Please note that the writer of the following, which we clip from the *Ohio Farmer*, is not a bee-keeper, and does not even mention sweet clover as a honey-plant:

Most of the writers to your valuable paper reside in Ohio, Pennsylvania, and New York—too far north to be of much practical value to us here south of the Ohio River, the most valuable being articles on alfalfa. While alfalfa is well adapted to our soil, is easily started, and, under nearly every circumstance, does well, yet it is to its twin brother, sweet clover, that I desire to call the attention of your readers. This is a biennial that will grow in any kind of soil, no matter how poor, washed, or stony. Where there is enough soil to sprout the seed it will flourish.

This clover has come to be considered of great importance by the farmers of Robinson, Pendleton, and Bracken counties, Ky. Here we raise sheep, cattle, corn, and tobacco; and around this part of Pendleton Co. we do a great deal of dairying, in all of which sweet clover plays an important part. We have bluegrass, alfalfa, red clover, and timothy; yet we have more acres in sweet clover than all the other grasses put together. It is fine pasture, either alone or mixed with other grasses—bluegrass often growing spontaneously along with it. It is among the earliest grass in the spring, and lasts until killed by the frost in the fall. In the spring, young lambs will get rolling fat where permitted to run upon it. Horses and mules become as slick as moles when they run upon it. No grass is superior to it for milk production.

When it is sown in washes it soon levels up the ground. I have seen washes on a hillside, that a horse could not cross, fill up and plowed over in four years. It often piles upon the ground in great heaps, the finest of fertilizer. The roots grow to be large, and are covered with nitrogen nodules which in a few years make the poorest soils yield a bounteous crop. For hay it is second to none, yielding several cuttings a year of hay on which horses will do as much work as on good timothy.

It seems to be as well adapted to wet sandy soils as to our clay hills, growing upon land where alfalfa runs out. Its roots, which rot every second year, form rich humus, thus distributing the fertility evenly through the ground. A. E. HOWE.

How does the above look to the crowd that, only a short time ago, were trying to make out that sweet clover is a "noxious weed"?

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* We have used some of the Northey berries for making sauce, before they were dead ripe; and Mrs. Root, who, you know, is not given to extravagant statements (like myself), says she really believes they make the finest sauce of any berry, or fruit of any kind, that she ever came across before. Just think of it—setting out a few roots while the fruit is in full bearing, and gathering a crop from these same plants set out, in less than one year! We hope to give you a picture of our "blackberry-patch" very soon.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. ROOT, Assistant Editor
A. I. ROOT, Editor Home Department
E. R. ROOT, Editor
A. L. BOYDEN, Advertising Manager
J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX MAY 1, 1911 NO. 9

Editorial

SPRAYING TREES WHILE IN BLOOM, AND ITS EFFECT ON BEES.

FOR most northern localities where fruit is grown, spraying will be under way for fungi and injurious insects. Fortunately, our intelligent fruit-growers are not spraying while fruit-trees are in bloom; and fortunately, too, our experiment stations everywhere are advising against it, not only because the practice kills thousands of bees, but because of the injury to the delicate reproductive organs of the flowers. If any of our readers know of cases where spraying is being done while trees are in bloom, and where bees have been killed, we wish they would promptly inform us. We are gathering data going to show conclusively that spraying when the trees are in flower is very damaging to the bee-keeper. This evidence will be presented later on to State legislatures.

FIFTY-YEAR-OLD BEE-KEEPER.

IT speaks pretty well for an occupation or pursuit in life when one follows it for fifty years. In a letter just received from Geo. W. Aldred, Lapel, Ind., he mentions that it will be fifty years next month since he got his first colony of bees, and he says he has been in the business ever since. Dr. Miller is another who is in this class. The next edition of his book, "Forty Years Among the Bees," that he is now working on, will be known as "Fifty Years Among the Bees."

Here is another who has been a bee-keeper for 54 years:

> This is my 54th year since I started to make acquaintance with the bees. Have manipulated the old-fashioned straw hives with a funnel-shaped piece of spruce bark for cover.
> Lanesboro, Minn., March 27. JACOB WAHL.

THE FOUL-BROOD SITUATION IN BRITISH COLUMBIA,

THE following letter from our correspondent Mr. F. Dundas Todd will explain itself:

> The Department of Agriculture for the province of British Columbia has appointed two foul-brood inspectors—E. Leonard Harris, Vernon, B. C., for the eastern half, F. Dundas Todd, Victoria, B. C., for the western half. The action is precautionary, not remedial, as no defined case is known to exist. One suspicious case was reported in midwinter, and will be attended to at the earliest opportunity. The aim of the Department is to learn the name of every bee-keeper in the province, and to have every hive examined so as to insure a clean bill of health. In addition, the inspectors will give instruction in the art of bee-keeping. F. DUNDAS TODD.
> Victoria, B. C., March 27.

The unusual activity in foul-brood legislation all over the United States is going to do an immense amount of good. Great is the power of example.

BUCKWHEAT HONEY IN THE COMB NOT MUCH IN DEMAND.

MR. SEGELKEN, of the firm of Hildreth & Segelken, New York, says in the *American Bee Journal*, page 46, he notices a decided falling-off in the demand for buckwheat comb honey in sections, and therefore advises producers in the buckwheat sections to run more to extracted, for which there is a good demand. He also emphasizes the importance of shipping comb honey in carriers, and selling *early*. The whole article should be read carefully by producers.

FOUNDATION IN THE HIVE; IS THERE A RIGHT AND A WRONG WAY TO HANG IT? OR DOES IT MAKE NO DIFFERENCE HOW IT IS HUNG?

ON page 282 of this issue will be found a discussion on this question. The verdict of our own men who have made a number of tests *seems* to show that it does not make any difference. Notwithstanding that, it is undeniably true that in most cases the bees build their natural comb in such a way that there will be two parallel walls, vertical, thus:  Theoretically it would also seem that this should give the stronger construction; but it is equally true that bees in a good many instances build their comb the other way. If any of our readers can give us more positive data we shall be glad to have them do so.

WILDER'S METHOD OF SWARM CONTROL.

WE would call particular attention to Mr. J. J. Wilder's method of swarm control, as outlined by him in our last issue, page 251. The writer did not notice it till his return from Florida and the forms had been made up, or he would have called special attention to it editorially in the same issue. Mr. Wilder is one of the most extensive honey-producers in the United States, operating in all 21 out-apiaries in Florida and Georgia. A man who is so extensively engaged in the business ought to know whether his plan of bottom ventila-

tion to control swarms is a success or not. It is so simple to apply that we wonder more bee-keepers have not made use of it. Our readers will remember that we have described a scheme very similar to this in these columns, saying it worked very successfully in our locality. See GLEANINGS, page 504 for 1909, also last edition of A B C and X Y Z, under head of Entrances and Swarming.

SECTIONS WELL FILLED AND CAPPED NEXT TO THE WOOD NOT AS WELL ADAPTED TO SHIPPING AS THOSE WHERE THE CELLS ARE EMPTY NEXT TO THE WOOD.

THE time was when there was an effort made to have sections with every cell of honey sealed, including those next to the wood of the section itself. While such combs look very pretty, and are classed as "extra fancy," yet experience shows that they are the very first sections to leak as a result of rough usage in shipment. The combs that stand the hardest treatment are those that are fastened on all four sides, with the cells next to the wood empty. A little racking of such sections, breaking the combs partly from the wood, will not be nearly as likely to cause leaking as a like treatment on those that have every cell sealed next to the wood. A slight breakage or cleavage from the wood when the cells are empty does no particular damage; but it makes a bad mess when the line of cleavage runs right through sealed honey—that is, when the honey and the cappings are built right up against the wood.

NO ADJECTIVE NEEDED BEFORE THE WORD "HONEY."

LETTER after letter has come in with suggestions as to a substitute for the word "extracted;" but, as we mentioned before, we doubt whether the publication of these letters would help matters to any great extent, for they are so conflicting. No less an authority than Samuel Simmins, however, agrees with the sentiment that we expressed; for, before he saw our editorial, page 85, Feb. 15, he wrote:

> In Great Britain the word "extracted" is often not used at all on the label. The contents are referred to as "Pure English honey," "Pure Flower Honey," etc., while in Ireland and Scotland, as the case may be, the bee-keepers have their own distinctive applications without any intention of disguising the fact that the honey has been extracted. The purchaser realizes that the product is from a pure source, and he takes it in bottles or cans for what it it is, according to description, without troubling as to the method in which it was removed from the comb. In Scotland, indeed, the heather honey is not extracted in the ordinary way, and can be removed from the comb only under powerful pressure. Such honey is not labeled as "expressed honey, but simply "Pure Heather Honey," etc.

If all bee-keepers and dealers would be willing to omit the word "extracted" on the labels, but use it, of course, as it always has been used, every place else, a misapprehension in the mind of the consumer would often be prevented. The less the consumer thinks about honey compounds, honey extracts, extract honey, etc., the better.

SENDING SUSPECTED BROOD SPECIMENS TO DR. E. F. PHILLIPS RATHER THAN TO MEDINA.

As the warm weather comes on, samples of foul brood are beginning again to come in to this office for identification. In view of the fact that the Bureau of Entomology, Washington, D. C., will examine and report on all brood sent, free of charge, we ask our readers not to send any more samples to us. There are two reasons for this. We have a large investment in bees in and about Medina; and too often specimens of brood are improperly packed. As we ship bees all over the United States we feel that we have no right to have specimens of brood probably diseased come to Medina if we can help it, especially as the Bureau has a corps of experts who can give a much more accurate determination than we can.

We have in hand one sample of brood that was sent to us in a *paper* box, all broken out at the corners. Fortunately it arrived in cold and rainy weather. But no bee-keeper should send foul brood in paper boxes. Strong tin or wooden boxes should *always* be used, and then securely wrapped in heavy manilla paper to catch any drip that may leak out. The Bureau, we understand, if you will ask for it, will send a suitable box and instructions for sending. Address Dr. E. F. Phillips, Bureau of Entomology, Washington, D. C.

THE OLD ROOT TWO-STORY CHAFF HIVE; THE NEAREST APPROACH TO THE "WORK-FOR-NOTHING-AND-BOARD-YOURSELF" PROPOSITION.

IN this issue, page 271, will be seen an illustration of the old-fashioned two-story Root chaff hive. It is not manufactured any more, simply because the average bee-keeper would not be willing to pay the price for so large a hive; and because, in modern apiculture, it has been found to be more practicable to have the upper story separable from the lower one, as will be explained later. Aside from these two objections we doubt if there ever was a hive designed that wintered bees outdoors as this one would. The packing was 5 inches thick on the sides, and 4 inches on the ends. On top there was a cushion 12 inches thick that projected 4 inches on the sides and 2 inches on the ends over the brood-nest. When this cushion was carefully tucked into the upper story the bees below could stand any zero weather.

In the summer time, or during the period when honey was being gathered, the upper story would take in 15 frames, making the total capacity of the hive 25 Langstroth frames; and what jumbo colonies we could raise in those hives! And when it came to the production of extracted honey, or comb honey either—well, we doubt if there is any modern hive that will beat it. The secret of its success was due to the fact that brood-rearing would start very early in such a hive with its very thick packed walls, and to the

further fact that it could accommodate a very prolific queen. The thick chaff-packed hive-walls to the upper story protected the supers so well that, during the cold nights, the bees would never desert the sections nor the combs. They would stay right upstairs, building comb, and the next morning would be ready for the field.

We have time and time again wintered whole apiaries in these hives outdoors with a loss of less than one per cent. And one severe winter we wintered in it nearly three hundred colonies in our home yard without the loss of one. It did not merely bring the colonies through, but throughout almost the whole yard every colony would have a big force of bees.

But, you say, if all of this is true, why was the hive ever abandoned? Very largely, as we have already said, because the modern bee-keeper would not pay the price. When the hive was set up and painted, all put together with the surplus equipment for comb honey, it cost an even $5.00. (It would cost more to-day.) But it would often bring in that much cash in one season. Another very serious objection was the difficulty of getting at the brood-chamber when the upper story contained frames. This was a fatal defect.

Our correspondent, Mr. De Temple, in telling of his experience with this hive, explains that he lives 500 miles away from the apiary, and hence he is able to see his bees only a few times during the year. We doubt if there was ever a hive sold that would "work for nothing and board itself" with as little care and attention as this old hive. We are, therefore, prepared to believe every thing Mr. De Temple says of it. Those of our older readers who have been with us ever since the starting of this journal will, perhaps, remember when our Mr. A. I. Root brought *out* this hive. His success with it partly paved the way for the business that followed later.

Some may say that this looks like a great big booming advertisement for this hive. We do not expect to make it any more, because we do not guess, but know, the public will not pay the price for it; nor would it put up with the nuisance of getting at the brood-nest.

WHAT A. I. ROOT, THE INVENTOR AND INTRODUCER, THINKS OF THEM.

In addition to what Ernest has said above I want to add that I thought at the time, and still feel largely the same way, that the two-story chaff hive was my most valuable contribution to bee culture. While the hives are expensive and unwieldy to move about, I would recommend letting the chaff hives remain on their summer stands year in and year out. In addition to what Ernest has said about these hives, I want to suggest also that it is the best hive to prevent robbing I ever had any thing to do with. After the honey-flow is over, there are no bees hanging around the cracks in the covers and bottom-boards; and seldom or never are there any bees hanging around the entrance, because there is too big a colony inside to render such a thing safe.

In regard to the objection to having the upper frames crosswise, this can be got around by having a light upper story made to hold combs that can be lifted off all together, and put down somewhere; then one could handle the frames and brood-nest as well as in any hive. There are other advantages that have not been mentioned that will occur to any one who has worked with these hives season after season. A non-conducting double wall is oftentimes as important during a honey-flow as it is for safe wintering. The bees will store honey in combs or in sections clear up to these warm outsides, because, when closed up during a cold night, a low outside temperature does not drive the bees away from their work as it does with ordinary hives of one-inch boards or something thinner.—A. I. R.

THE EIGHT-FRAME HIVE GOING INTO A STATE OF INNOCUOUS DESUETUDE; HOW THE TEN-FRAME WIDTH IS GAINING IN POPULARITY.

After interviewing our supply-manufacturing department, we learn that the demand for ten-frame hives is far outdistancing that for the eight-frame width. Ten years ago hardly any ten-frame sizes were sold. In spite of the fact that all the manufacturers have favored the eight-frame by giving it greater prominence in their catalogs the ten-frame width has been gaining in popularity. A year ago it was running neck and neck with the eight-frame, which it had just overtaken, and now the figures show that, for Medina at least, it is clear in the lead. If the present rate of gain is maintained, the eight-frame will soon be classed as among the odd sizes; or, as Grover Cleveland would say, go into a state of "innocuous desuetude;" and the only people who will continue to buy the eight-frame hive probably will be those who already have it in use, and can not afford to make a change.

For the average beginner, at least, who in taking off his surplus does not know the importance of looking after the brood-nest, the ten-frame hive is certainly to be preferred. In most localities, and especially those worked on the single-brood-nest plan, the ten-frame hives will furnish proportionately a larger force of bees, and, of course, yield a larger return in honey. Comparative tests in our yard have shown this quite plainly.

But why, if the ten-frame width was once universal, was the eight-frame ever adopted in the first place? James Heddon and others argued, 25 years ago, that the average queen would not fill more than eight frames with brood, and the journals at the time were full of articles arguing in favor of a contracted brood-nest, so that all the honey would be forced out of the brood-chamber into the sections. As contraction was all the rage it certainly looked as if it would be good policy and good economy, so far as

cost of hives was concerned, to adopt the eight-frame rather than the ten-frame hive, because an eight-frame hive would not have to be contracted like the ten-frame. At that time many of the ten-frame users who were running for comb honey were putting dummies in their hives, just wide enough to take up the space of two frames; and, naturally, many believed that it was a waste of money to make a hive two frames wider than was ever needed.

Witness the change. The last 25 years of actual experience, in localities all over the United States and Canada, have shown clearly, if they have ever shown any thing, that contraction is nicer in theory than in practice. Experience has shown that queens do not like to lay eggs next to the outside walls of the hive.

Now, please don't understand us as saying that a queen will *never* fill eight frames in an eight-frame hive; for she does do it many times in some parts of the season, and perhaps she may do it as a *rule* in some localities where it never gets very cold. But in our northern localities in the spring, just when we want all the brood that the colony can care for, she is quite inclined to avoid the outside frames; and these outside frames ought to have honey and pollen in them if we expect brood-rearing to proceed properly.

We are aware that some good men will oppose this general proposition; but we ask why is it, when all the bee-supply catalogs and some bee-books have been favoring the eight-frame size, that the ten-frame has been steadily gaining patrons? and why is it to-day that nearly two-thirds of all the hives sold have ten frames rather than eight? Quoting again from Grover Cleveland, it is "not a theory but a *condition*" that confronts us. The logic of hard stubborn *facts* that are worth more than many volumes of *theory* should show the new investors what hive to buy.

LESSONS THAT CAN BE LEARNED FROM MISTAKES IN THE POULTRY BUSINESS; THE IMPORTANCE OF MAKING A BEGINNING ON A SMALL SCALE WITH EITHER BEES OR CHICKENS.

As we have mentioned before, beginners are constantly writing to us, asking our advice as to whether they could succeed if they bought out an apiary of so many colonies, etc. Time and again we have replied, cautioning such beginners against buying up a lot of bees at once. Just as much can be learned with two or three colonies as with fifteen or twenty; and the mistakes the first year, which are sure to come, will be far less costly. Later on, increase can be made as the bee-keeper learns more about the business; but it is usually a wise rule to let the bees pay their way.

The gigantic failures in the poultry business should serve as a warning to bee-keepers. This point has been mentioned before; but just at this time of the year, when many are considering going into the bee-business, it is well to refer to it again. A man who has twenty-five chickens, too often gets the idea that his profit would be two hundred times as great if he had five hundred; and so he launches out, builds buildings, buys a lot of incubators, sets them all going at once without having had the training from any previous experience; and then, after losing all he has invested, he gives up the poultry business, claiming that it does not pay, when, in reality, it would have paid if he had increased gradually and learned as he went.

The bee-keeper is no exception to this rule. Those who build the greatest castles in the air, and who have visions of getting rich quick, usually become disgusted after a while, and give up bee-keeping with the verdict that there is no money in it. All this time the thousands of conservative men (and women too, for that matter) who had sense enough to increase only as their experience warrants, are making good and staying by the business year after year.

One reason why so many fail in the poultry business is that they spend their money for complicated and expensive buildings and pieces of apparatus in the shape of drinking-fountains, feeding-devices, trap-nests, anti-this, that, and the other, when something costing practically nothing would answer just as well. It takes a lot of eggs at fifteen cents a dozen to pay for a $5000 poultry-plant.

A good many bee-keepers, too, are spending their time and money in getting up machines and complicated outfits for performing simple manipulations. On page 238, April 15, Mr. Louis H. Scholl describes a reel turned with a crank, for winding wire to use in wiring frames and cutting it in proper lengths. We do not wonder that Mr. Scholl was puzzled to know what it was used for. We venture to say that, if this bee-keeper had spent half the time required for making the machine in winding wire around a board of the proper length by hand, he could have had enough wire cut up the right length for twice the number of frames he was making. In all the thousands of frames that we wire, we wind the wire on the board by hand—we do not need any machine.

Just the other day we received by express a large box containing a complete outfit for use in wiring frames. There were carefully adjusted springs for holding the frame in place, a reel for the spool of wire, a friction arrangement to keep the spool from unwinding, thus snarling up the wire, and a number of other attachments that could be used. In spite of all this machinery we use nothing but our two hands and a pair of pliers when we wire frames, and we think we can do the work pretty fast too.

Before spending dollars for a machine that can be used but a few minutes a year, see if cents and *sense* can not be used to better advantage on labor in doing the work by hand.

Stray Straws

By Dr. C. C. Miller, Marengo, Ill.

Editor Digges says, *Irish Bee Journal*, p. 31, that no taint will be imparted to sections if one part carbolic to ten of water be used.

The bees now cultivated in Missouri are almost entirely the posterity of queens introduced years ago from Portugal is a statement in *Leipzg. Bztg.*, 44.

This year was one of the years when soft maple was not a safe guide as to taking bees out of cellar. It bloomed March 21, but the weather was so unfavorable that bees stayed in cellar 23 days longer.

Editor Hutchinson justifies his use of honey-boards by saying that he leaves the honey-board on *all summer long.—Review*, 117. I wasn't bright enough to think of that when I wrote that Straw, p. 88. Apologies herewith, friend Hutchinson.

To get pollen emptied out of combs, spray with diluted honey, and the bees will empty it.—*Leipzig. Bztg.*, 191. [This looks as if it might work, providing we want the pollen out of the combs. Pollen in the combs in the spring is a splendid asset. —Ed.]

M. L'Abbe Pincot, *L'Apiculteur*, 110, lodged 55 colonies on foundation with 368 cells to the square decimeter (about 23.74 cells to the square inch). Three months later, the bees born in these large cells were so much larger that they were no longer recognizable as belonging to the same colony as their elder sisters. [See answer to Straw opposite.—Ed.]

J. W. Rossman. p. 208, you say you're a novice and don't see the point in non-swarming after getting 2700 lbs. from 30 colonies and increasing to 70. Well, there is no point in it for you, for you probably wanted the increase. When you outgrow your novitiate and want no more increase you'll see the point. If your bees had not swarmed, instead of 90 lbs. per colony you might have had 115 or 150.

"No colony ever works better than a newly hived swarm," p. 208. That's true; it does its level best, and no colony can do better. It's also true that no newly hived swarm works better than many a colony that never thinks of swarming. The latter devotes all its energy to storing, the swarm devotes its energy to overcoming the loss to the honey crop by its swarming, *and it never quite makes it.* [We wonder if your statement in italics is *always* true.—Ed.]

A. B. Marchant, in spite of your protest, page 227, against printing unreliable things, Gleanings goes right on and prints your assertion, "Why! if I could winter two queens in one hive, and keep them in the same hive up till ten or fifteen days before [the honey-flow, I could increase my honey crop 50 per cent." Gleanings ought not to print that, for it ought to know that one queen can lay all the eggs a colony can take care of up till ten or fifteen days before the honey-flow in this locality, and likely in your locality. Ten queens would not increase the strength of the colony.

J. E. Crane, p. 239, when water is poured on sugar in the way mentioned, there is no trouble from a crust of sugar left in the bottom of the feeder. Of course, it will be there if too little water is given, in which case all that is needed is to pour in more water and you can have your feeder emptied out clean and dry. But I don't value the *percolating* part. It's simply a handy way to dissolve the sugar. [While the Dr. Miller plan of making syrup is very simple and easy, much of the syrup made on that plan, it would seem to us, would be as thin as nectar. Experience shows that a *thin* syrup for winter feeding is very wasteful of bee life just at a time when it ought to be conserved. It is much more economical to feed a thick syrup than a thin one. While this statement may be out of harmony with some things we have said in years gone by, we are frank to admit that the logic of hard facts has converted us. For *stimulative* purposes in warm weather a thin syrup may be just as good or even better.—Ed.]

Ye editor says, p. 780, Dec. 15, "Granted that you can produce larger bees in larger cells, have you gained any thing? Cheshire says if we enlarge our bees we would put them out of harmony with all the blossoms visited." Abbe Pincot quotes this, *L'Apiculteur*, 110, and says, "Can a good American admit progress that comes from Europe? However, the enlarged bees are so much in harmony with the flowers that they bring more honey than common bees. In 1908, 30 colonies of improved bees stored 330 more pounds than 31 colonies of unimproved bees of like strength in the same apiary. In 1909, 30 colonies of improved bees stored 660 pounds more than 30 common colonies of like strength. That, Mr. Root, is what I have gained by my larger bees; and whatever Cheshire's *theory, practice* here replies that enlarged bees do not cease to be in harmony with the flowers they visit." [Our friend Pincot is certainly wrong in believing that no good American will admit progress in Europe. As a matter of fact, we believe that our columns will bear out the statement that our European cousins need to take no back seat when it comes to scientific research or development in races of bees. On the other hand, we are frank to say that we are skeptical as to his ability to enlarge bees by merely making their cradles bigger. Ordinary bees vary so under different conditions it would seem to us that one might be mistaken. If it were possible to enlarge our strain of bees by merely enlarging the cells in which they are reared, some one would have discovered this fact long ago.—Ed.]

Bee-keeping Among The Rockies

By WESLEY FOSTER. Boulder, Colo.

At the Colorado convention Rev. R. H. Rhodes said that he had been charged with having sown the first sweet clover in Colorado, and that, whether it was true or not, he would always defend sweet clover. As the agricultural colleges are endorsing "the weed" we may soon be hailing Rev. Mr. Rhodes as a benefactor instead of a malefactor, especially since there are hosts of bee-keepers and farmers who vehemently declare that sweet clover is not a weed.

CROP PROSPECTS FOR 1911.

The snowfall on the mountain ranges in Colorado has been heavier than for ten years past. On the Front Range, which extends from Pike's Peak to the Wyoming line, the snowfall has been about thirty feet. Last winter it was only six feet. The farmers are feeling hopeful, though the damage from grasshoppers is yet hard to conjecture. They have already hatched out in large numbers, and at this writing, April 10, some of them are an inch long; but we shall probably have snow and rain that will destroy most of these, so the more that come out now the better.

NATURE AND BEES.

I sometimes think that every bee-man is a queer genius, if not a little bit off in the upper story. The bee-man is always a mystery to his neighbors, receiving stings that do not pain him at all, but which would kill anybody else. Then he knows all the mysteries of the hive, an unknown world to the uninitiated. What queer ideas we have of things we do not understand! In wandering over the fields to find the source of the pollen and honey the bees bring in, one sees many wild bees, hornets, wasps, etc., that are after the same foods that the bees collect. If he makes a study of insect life, a fairly clear chain of the voluntary process may be discerned, the wild bees living solitary lives, but social to the extent that their burrows are close together. Wild bees, as a rule, do not visit every flower that has nectar and pollen, as the honey-bee does, but a certain species will confine its efforts to just one flower. The promiscuous work of the honey-bee has made its existence over the whole earth possible. The honey-bee seems to be the only one that secretes wax and builds comb therefrom. Some flies resemble bees very closely; but these may be distinguished by the number of wings, as they have only two.

One can not know too much about the brothers, cousins, and second cousins of the honey-bee. The physiology of the bee egg, as told on pages 72, 73, Feb. 1, by Dr. Bruennich, and the psychology of the bee in "The Life of the Bee," by Maeterlinck, are well worth further study. The nature of the little subjects is a never failing source of interest to the true bee-keeper; but, after all, isn't it just a little bit queer to be interested in bees, bugs, and flowers?

CONCERNING COÖPERATION.

Mrs. Acklin, page 164, March 15, asks why it is more difficult to secure coöperation among bee-keepers than among those in other industries. The reason is that bee-keepers, particularly those who specialize, are nearly all widely separated, and no association can do aggressive work where the members are isolated from each other. In districts where bee-keepers are not great distances apart, coöperation is and has been a success; but they, the same as other producers, have not worked out a coöperative business organization such as the trusts have perfected. The success achieved by the orange-growers would never have been accomplished without a close association. If the orange-growers were spread all over the country, as the apple-growers are, there would be no orange-growers' association. My only hope for a national association founded on business lines is the joining together of local associations of producers that in the future will make the marketing of honey and the buying of supplies a success.

First we must demonstrate our ability to get together locally, and market successfully, before we can make a go of the larger association. Colorado bee-keepers for ten years have proven the value of coöperation. If each State would organize in this way, it would be an excellent preparation for the larger association talked about. The State associations of bee-keepers and the National association are all thinking and working to some extent in the line of business coöperation; and a few questions that will have to be answered in the affirmative may not be out of place if this question of coöperation is ever any thing more than talk. Do I believe that there are business brains and honesty enough among bee-keepers to make a national coöperative association a success? Do I know of a man with the knowledge, ability, and judgment to manage such a business and safely get the craft afloat? Could seven directors (of sufficiently good judgment) be found who would serve without pay? Am I willing to put in 25 cts. for stock for every hive of bees that I possess? Am I willing to sell my honey through the association on commission, say 10 per cent? Am I willing to grade my honey according to the rules adopted by the association, and trust the manager's judgment when he tells me that it will have to be regraded in the association's warehouse at a cost to me of 5 cts. per case? Do I have the fullest confidence in the honesty of purpose and management of the association? and am I an enthusiastic believer in the idea of coöperation? These questions answered in the affirmative will give a fair reply for a prospective candidate for membership in an association. Do we really mean any thing, or are we just talking?

Bee-keeping in Southern California

By Mrs. H. G. Acklin, Glendora, Cal.

Winter losses have been heavy in some sections of our State. Lack of stores is probably the first cause, while the cool cloudy weather was responsible for the loss of many weak colonies.

Mr. Frank Hanson, California correspondent for German and French bee journals, writes me that, in his opinion, California bees are thinner-blooded than those reared in a more rigorous climate (just as people are), and that bee-keepers from the East do injury to their bees the first winter or two by not keeping them warm enough. Considering our winter just merely another summer, they are so warm themselves that they never think of partly closing the entrances to the hives.

Some months ago I mentioned an uncapping-device on which Mr. C. H. Clayton, of Los Angeles, was working. The other day I called again to see how he was getting along with it, and found that the old one had been discarded as impracticable, and another of an entirely different pattern was being perfected. The machine seemed to me almost perfect; but the inventors are not satisfied yet, and are having others made with added improvements. It is a capping-melter and uncapping-machine combined, and is to be used over a small stove. The bottom is arranged for water, the steam from which affords heat. Pieces of heavy metal, scalloped and very sharp, run the entire length on either side; and by touching levers at the upper corners the comb is shot down between those knives and uncapped in the twinkling of an eye. Probably five combs could be uncapped with this device while one could be done by hand. The upper part is made to open a little wider so as to include Hoffman and other self-spaced frames. It is compact and strong, and takes very little room. The wax and honey run off at the lower end. The scalloped knives need only to be sharpened. I wish I could give a better description of this machine; but one almost needs to see it before all its good points can be appreciated. Mr. Clayton expects to put out several, to be tested during the orange-flow this spring.

I am fully persuaded that a more intensive method of bee-keeping would pay here as well as in other States. Anything which is done in a haphazard way never wins. I often hear of neglected apiaries, of combs thrown out in which there is foul brood, etc. Now, friends, you would never expect to succeed in any other business by such careless methods, neither can you in the bee business. Let us take better care of our bees. Unite enough weak colonies to make a strong one, for a weak colony is no good anywhere. See that there are queens and stores, and keep them warm so that brood-rearing will not be checked. Clean up the yards and tidy up the honey-house just as though you were expecting company. Then you will see how much more pleasant it is to work there, and will soon become more interested in the bees. The natural scenery in most apiaries is so magnificent that one can hardly blame the bee-keeper for not beautifying his grounds, as he has only to lift his eyes to behold the utmost grandeur; but that can not take the place of a neat tidy yard. The extra care given our bees will come back to us in added tons of honey. Deliberately letting bees starve should be made an offense the same as cruelty to large animals. Think of our being in a comfortable house with plenty to eat, and the little workers, some of which helped bring in last season's crop, starving in their hives, through no fault of their own.

In his paper at the State convention Mr. W. H. Allen gave some good suggestions about starting in the bee business without much expense. One was, to make a box quite tight except where the bees are expected to enter, and put it in a deciduous fruit-tree where a runaway swarm will be sure to find it. Several of those boxes can be used, and many swarms caught during the season. Another paper, by L. L. Andrews, pointed out the way to locate an apiary where there are no conveniences, if one can imagine an apiary in such a place. These two should have been companion papers, as the instructions given, if followed, would enable almost anybody with an average amount of intelligence, strength, and energy to go into the bee business.

CUPID STUNG.

BY H. CARY.

Cupid once upon a bed
Of roses laid his weary head;
Luckless urchin, not to see
Within the leaves a slumbering bee.

The bee awoke with anger wild,
The bee awoke and stung the child.
Loud and piteous are his cries;
To Venus quick he runs, he flies.

"O mother! I am wounded through:
I die in pain, in sooth I do!
Stung by some angry little thing,
Some serpent on a tiny wing.
A bee it was, for once I know
I heard a rustic call it so."

Thus he spake, and she the while
Heard him with a soothing smile;
Then said, "My infant, if so much
Thou feel the little wild bee's touch,
How must the heart, ah Cupid! be—
The hapless heart that's stung by thee?"

Notes from Canada

By J. L. BYER, Mt. Joy, Ont.

"The best way to avoid spring dwindling is to insure good wintering. Bees that winter well are not likely to dwindle in the spring very much," page 92. Doolittle never wrote any thing more sound than that, and it will pay every beginner to paste in his hat that statement of Mr. D. Perhaps some of the older members of the craft might profit by doing likewise.

Mr. Doolittle still claims, p. 200, April 1, that age does not injuriously affect super foundation for sections; and while I do not produce enough comb honey to be able to give an intelligent opinion, still I do know of a lot of comb-honey producers who could not easily be persuaded that Mr. Doolittle is right in his view. Not the least among the number would be Mr. House, of Camillus, N. Y.

C. P. Dadant says on page 135, when referring to Canadian bee-keeping, that "their bees begin to eat of the stores in the center earlier than ours, for they have fewer warm days in the fall." My experience is that, the more warm days we have at that season, the heavier the consumption of stores. With the weather cool enough to keep the bees quietly clustered when they are without any brood, the consumption of stores is very light indeed, and the more they are aroused by warm weather the more honey they will eat.

Page 86, Feb. 15, mention is made of winter-killing of clover. In our section the term "winter-killing" is a misnomer, as only once do I recollect that the clover was damaged in winter. While I refer to alsike, the same will apply to a great extent to both red and white clover. Practically all the damage to clover here in Ontario is done after March 15, sometimes not till after Apr. 1. Warm days causing the ground to thaw out to the depth of three or four inches, followed by freezing at night, fix the clover. It will be literally lifted out by the roots, and many a time have I seen whole fields ruined in this way. The common red clover is much more susceptible to this than is alsike, owing to the latter having more lateral roots. Red clover, having a longer tap root, is more easily lifted out of the ground. I have seen plants of red clover raised so high as to measure eight inches between the ground and the top of the root. Some land is more susceptible than others; but underdraining improves any kind of soil so far as this is concerned.

Regarding inspection for foul brood, as touched upon by Wesley Foster, page 199, April 1, I would say that, while it is impossible to tear open a hive on a cold day, yet if there is any American foul brood present in the colony a very simple test will decide the matter. If the top of the hive is sealed so that little if any ventilation passes upward, the least trace of foul brood can be detected at the hive entrance by anybody who is acquainted with the characteristic odor of the disease. After the supers are on the hives, the odor in slightly affected colonies is not as noticeable; but in the early spring, when the bees are getting a little honey from willows and other bloom, I have frequently spotted colonies which, on examination, showed only about a dozen diseased cells.

While the list of inspectors has not been made public as yet, April 7, from what I have learned the majority of those who acted last year will again be "on the job;" but at least one has refused to serve again this year because he could not give the work proper attention without neglecting his own interests too much. In the next issue I hope to be able to give the list of inspectors for 1911, with territory assigned to each.

I am glad to note what J. T. Dunn has to say on page 203, April 1, about Carniolans being able to resist the attacks of European foul brood. Mr. Benton, of California, also agrees with him on the subject, and has so expressed himself in a recent issue of the *Bee-keepers' Review*. I hope they are right, for I really like the Carniolans better than any other bees. What Mr. Dunn says about their keeping the hives populous all the time was brought forcibly to my mind yesterday while looking over the Cashel apiary to see if all had stores. The day was cool, and no bees were flying. All I did was to turn back the packing behind the frames, and then lift up the quilt. If sealed stores were in evidence, no further examination was necessary.

The bees seemingly have wintered well in the yard in question, as every colony was alive, and only two were found short of stores. No smoke was necessary in examining Italian colonies, as the bees were all clustered near the front of the hives. As a rule, they reached across the hive and about half way back. When Carniolan colonies were examined, what a different story! Bees were crammed into the furthest corners of the hives; and as they were a bit stupid from the cool weather, it took a lot of smoke to drive them down so that I could see whether there were any stores. It is only fair to say that the Italians have the most honey on hand, for, aside from the well-known tendency of this race to pack more honey in the brood-nests during the buckwheat flow than do the Carniolans, they have not nearly as many bees to winter as do the latter race. This fact accounts, no doubt, for the extraordinary wintering qualities of the Carniolans, for, given an abundance of good stores in the fall, it matters not how cold the winters are—they always come out in the spring boiling over with bees.

Conversations with Doolittle

At Borodino

EARLY DRONES.

"I wish to rear some early queens before the drones of black and hybrid bees kept by my neighbors begin to fly. How can I secure drones early from my best drone mothers, for my queens?"

I doubt the wisdom of trying to rear queens before there are any flowers in bloom or before the colonies are strong enough or the hives fairly well filled with bees and brood; and by that time some of your neighbors' colonies are likely to have drones also. Queens reared out of season are generally of poor value—so much so that it is better to sacrifice the purity rather than have queens of inferior quality. As a general rule I would advise waiting for strong colonies before commencing.

Where one wishes to rear reasonably good queens just as soon as such work can possibly be done I have found the following method as good as any: In the fall, select the queen or queens you wish for your drone-breeder, and give to her or to their colonies the bees from some weaker ones early in October, having killed the queens of these weaker colonies about a week before uniting. See that there are two drone combs in the center of the brood-chamber of these united colonies, with two combs of worker-cells between them, and that stores enough have been provided to last until the following May.

As soon as it is out of its winter quarters, the colony should be made as warm as possible, and should be given a teacupful of warmed syrup in a feeder each evening. For this purpose a division-board feeder is preferable, as this can be brought right up to the cluster, and the syrup will warm the bees and enable them to take the feed, even if the weather should be quite cool. If you can take a few bees at this time from some strong colony, keep them in a comfortable room for two days, and then unite them with your drone colony just at night by letting them run out of the confining-box into the hive through a little hole in the covering on top. These bees will cause the queen to be fed for drone eggs much sooner than otherwise, thus favoring the early depositing of eggs in the drone-cells.

When you notice capped drone brood in this colony, it is time to begin to rear queens. Feed the drone colony during every cold or rainy spell, and at all times when the bees can not secure any thing from the fields; otherwise the drones may be killed or your drone brood dragged out, for all colonies having good queens seem to realize that drones are not needed so early in the season.

As soon as the drone part seems to be a success, select the strongest colony, one which should have its hive well filled with bees and brood, and look over the frames until you find the queen. Set the frame having her on one side while you fit in a sheet of queen-excluding metal near the center of the hive, this sheet fitting so closely that it will be impossible for the queen to get around it, or she may get in with the cells and destroy them. Put that part having the younger brood on one side and the older brood on the other, taking care that the frame with the queen is near the older brood. Twenty-four hours later, take out a frame from the side opposite the queen; shake the bees off, and give it to some other colony if it has brood in it, allowing one farme of brood to come between the excluder and the empty space made by taking out this frame. Next prepare a stick of cell-cups from your best breeder for queens and place it in the space referred to, and the bees will go on and perfect the cells just the same as if an upper story were used later on, with an excluder between it and the brood-nest below, as is the usual custom. If there is an abundance of bees to cover the entire length of this stick of cell-cups, you should get from twelve to eighteen perfected cells from the twenty cups given; but if ten are perfected you will have no reason to complain.

As soon as the queen-cells are ripe, nuclei should be prepared to receive them, or, any colonies with poor queens which were not superseded last fall could be used to advantage by killing the queens three or four days before the inmates from the cells emerge. If you use only very small larvæ, or those not more than twenty-four hours old, for grafting the cells they will become ripe in eleven days, or in ten days where those from thirty-six to forty-eight hours old are used. By a little close watching of a larva for the first forty-eight hours after the egg hatches you will soon be able to tell its age by glancing into the cells. If there are not enough colonies in the apiary having poor queens to take all of the ripe cells, it is better to divide a colony or two into nuclei rather than keep them without a good laying queen at this time of the year when the eggs that are being deposited are needed to render the colonies prosperous for the clover harvest of honey.

Then, too, colonies used for protecting virgin queens at this time of the year, from the time the ripe cells are given until the young queens begin laying—which should be about fifteen days—are very much impaired for good results in the harvest. The queen emerges from the ripe cells in from five to fifteen hours after the cell is given to the colony; then it will be from seven to nine days before she goes out to meet the drone, and from two to three days more before she begins laying. During these twelve or fifteen days a good queen, if undisturbed, would lay eggs enough to make all the difference between a good crop of honey and a poor one.

General Correspondence

PRODUCING HONEY ON A LARGE SCALE.

Modification of Methods Needed.

BY W. P. SOUTHWORTH.

Manager Western Honey-producers' Association.

It was with pleasure that I read Mr. Greiner's article, page 133, March 1, as it contains many good things and gives a very clear idea of how he works with his bees; but I am sorry to note that he thinks that my former articles on extracted-honey production are in any way making light of his method, or of that of other bee-keepers, provided the results are satisfactory.

What I have said in regard to producing extracted honey, and the importance of allowing it to ripen in the hive, applies more particularly to the extensive honey-producer; for it is he that gives directions to his helpers in a general way, and they proceed to extract every thing that comes into the honey-house, regardless of whether it is ripe or not. The person who can afford to put in his time with fifty colonies or less, surely could have no excuse for extracting green honey.

When Mr. Greiner extends his honey-production so that he has as many apiaries as he now has colonies, and computes his crop by tons, he will have to employ some help and use different methods. No doubt he will find engine-oil cheaper and more effective than elbow-grease to turn the extractor, and the removing of full supers of fully capped combs more economical than taking off four frames that are two-thirds finished, and replacing them with empty ones; and he will not imagine that the Western honey-producers use the half-depth frames, but he will understand that the full-depth Langstroth frame is the one for business all around. The bees enter them more quickly, and store more honey in them, and the average wielder of the uncapping-knife will slash them down even with the wood faster than twice the number of shallow ones can be handled. Many are claiming that honey stored in virgin comb is better than that stored in old combs. My belief in that theory is my reason for uncapping deep; and, in addition to good honey, more wax is secured.

It is true that we must all work in our own harness, and handle our bees and harvest our crop as our individual equipment and locality demand; and those who have read my former articles carefully will note that I have made due allowance for the use of the method best adapted to the locality; but I do not want to be misunderstood on this one point — that honey must ripen in the hive to be at its best. For better authority on this subject, send to E. F. Phillips, Department of Agriculture, Apiary Department, Washington, D. C., and get his bulletin on the production and care of extracted honey.

No doubt Mr. Greiner will think I am making light of his methods again, if I should say that extracted honey is not ready for table use when put up right from the extractor or strainer-tank, but that it should be put through a process of clarifying that removes the pollen grains and ferment germs. The latter are taken up from the air in the process of extracting, and should be removed before the honey is fit for consumption.

Western honey-producers may be in advance of the times, as most bee-keepers think their fresh extracted honey perfect; but taking into consideration that our little business has grown in four years from an output of 40,000 to 250,000 lbs. per year, and consumers are calling for more of that fine honey, saying that it is the best they ever had, there must be something in this refining process.

All the honey we put out goes through this clarifying and refining process. Extensive honey-producers are recognizing the importance of this work, and are sending their honey to us to be prepared for market instead of putting in the expensive equipment that is required.

One bee-keeper says, "I am sending you my honey and buying it back from our grocer, because it is better after you have treated it, and it is free from that peculiar substance that I am not prepared to take out of it."

In another article I will take up this subject of preparing extracted honey for market.

Salix, Iowa.

TOBACCO HONEY IN CONNECTICUT.

Something Concerning the Possibilities of the Tobacco-plant as a Source of Nectar.

BY E. H. SHATTUCK.

Connecticut, strictly speaking, is not a honey-producing State, not over 50 colonies being profitable in one location, and 20 to 25 being much more productive. The farmers depend mostly upon tobacco, and thousands of acres are raised in Hartford County within reach of any apiary.

Tobacco in this section has always been raised in the open field; and when about four feet tall each plant has been "topped," and not allowed to "go to seed." The "suckers" have been picked off up to the time the crop is cut, between the middle of August and September 1.

The past season has noted a change in the methods of harvesting the tobacco crop. It is now being "picked" in the field instead of being cut by the old method. The plant is allowed to grow from seven to ten feet high, and it goes to seed. The leaves are saved by "picking," this work commencing at the bottom, one row of leaves being gathered at a time, and the top leaves

picked last. The plants are thus allowed to blossom, each one bearing hundreds of individual flowers, and they continue to bloom from August 1 until frost, which usually occurs some time in September, perhaps not until October. Thus we have thrown open to our bees hundreds of acres of tobacco, containing myriads of flowers. The bees swarm on it, some days more than others, and the honey comes in as fast as during some of the earlier flows.

This year it is reported that much tobacco will be raised under cloth, or "shade grown," in this vicinity, and the towns adjoining, Simsbury and Bloomfield. Probably 3000 acres will be raised. Whether the bees will find easy ingress to these fields remains to be seen. The flowers will be allowed to bloom, and doubtless the bees will find plenty of places in the cloth where they can get to and from the source of nectar.

"Tobacco honey?" did I hear some one say? It's fine, and I am going to mail GLEANINGS a sample within a short time and let the "editor" pass upon it.

Granby, Conn., March 18.

[Mr. Shattuck has promised to send some photographs illustrating certain phases of the industry in his part of the country, and we understand that "tobacco honey" will be treated more at length a little later.—ED.]

ARTIFICIAL SELECTION AND THE HONEY-BEE.

BY G. W. BULLAMORE.

In discussing the possibility of producing, by selection, a non-swarming strain of bees the distinction between natural selection and artificial selection is not always observed. Natural selection is "the survival of the fittest," or the preservation of those individuals that are most advantageously equipped in the struggle for life. It concerns itself solely with those characteristics that are advantageous to the individual and to the race. When man removes a plant or an animal from its natural environment, and proceeds to improve it by artificial selection, the struggle for life is far less keen. The bodily wants of the animal are attended to by the breeder, and selection ceases to occupy itself with details which are advantageous only when there is a fight for subsistence. The art of the breeder perpetuates strains which would be hopelessly outclassed in a state of nature.

The sitting tendency in hens has been compared with the swarming instinct in bees, and it is interesting to consider the difference in the treatment of domesticated fowls and of domesticated bees in the past. Among the thrifty inhabitants of the countries surrounding the Mediterranean Sea a desire on the part of a hen to "keep the race from dying out" after she had laid a few eggs was often rewarded with a broken neck. The hen that continued laying was the favorite, and escaped the cooking-pot for the longest period. This would inevitably lead to a modification of the incubating instinct, and the non-sitting Leghorns, Spanish, and their sub-breeds have resulted.

But when we turn to the bees, how different is the tale! We find that, under the sulphuring system, the heaviest skeps were condemned because of the quantity of honey they contained, and the lightest skeps, because the bees would not live through the winter. Now, if a primitive bee-keeper possessed stocks of about equal strength and of different swarming tendencies, the stocks that did not swarm would always be among the heaviest, and would be taken to the sulphur-pit. If this has been done regularly for hundreds of years (and there is little doubt that the ancient method systematically exterminated the stock that failed to swarm), we can not wonder that a non-swarming bee now requires a lot of finding.

As I understand the matter, swarming is brought about by the reaction of the bees to certain sets of conditions. To control swarming, we modify the conditions. If we wish for non-swarming bees we must modify the reaction to the conditions. I do not know exactly *why* bees decide to swarm; but an old English writer (Nutt) attributed it entirely to temperature. There may be some objections to this view; but if we look upon it as proven, then ventilation and supering restrain swarming by lowering the temperature. The non-swarming bee, however, will experience the critical temperature without commencing queen-cells or manifesting any desire to send off a colony.

Under present conditions such a colony would be heavily handicapped. Unless it got into the hands of a scientific queen-rearer who was interested in the subject, it might remain one colony as long as the world endures, provided it did not die out altogether from improper wintering, disease, leaky roof, or some such calamity. The swarming colonies also suffer from these mishaps, but some win through and perpetuate the race of swarmers.

In England at the present time much of the increase is obtained by natural swarming. Where artificial swarming is practiced, and a queen-cell is given from a swarmed stock, the product is really a "cast" so far as heredity is concerned. If artificial queen-rearing from the strain with the best honey record ever becomes general, the swarming instinct must necessarily undergo considerable modification. Heavy supers are not yielded by the swarming hives; and in working for the improvement of the bee I am inclined to think that the comparison of supers is the best that will always yield the most satisfactory results. Systematic requeening from the best hives will correct all our errors as to color, tongue-length, etc., if continued for a long enough period.

If the red-clover bee ever arrives, it will be heard of in a red-clover district where the disparity in the weights of supers will betray its presence. Although it is possible to measure the tongue-length of bees, I have

not much faith in this measurement as an index of the bee's powers. The tongue of the bee is a complex piece of mechanism; and to increase the length of one part without troubling about the other parts might lead to a lessening of its usefulness in some directions.

Although the honey-bee is not adapted to red clover, observations in Europe show that it visits twice as many species of flowers as the bumble-bees that are adapted to it. This leads me to suspect that the present tongue-length is the most useful for general purposes, and enables its owner to compete with both short-tongued and long-tongued bees in the gathering of nectar. To adapt the clover to the bee by raising a variety with shortened florets would be far better. We should know that we were adding to the sources of nectar, while the adaptation of the bee to other flowers would remain unchanged.

In attempting to raise improved strains of bees, the inability to control male parentage is certainly a difficulty; but that it is not an insuperable obstacle is shown by the success of breeders for color. The truth is, if the mating is limited to a certain district, a "sport" will often impress its characteristics on the whole of that district. The Manx cats, mentioned by W. E. Flower, p. 787, Dec. 15, 1910, are an illustration of this. They are a variety formerly confined to the Isle of Man, and probably originated in a "sport." The breed is said to have disappeared in recent times, owing to the introduction of tailed cats.

Another well-known instance is that of a village in France where intermarriage was the rule, and where all the inhabitants possessed twenty-four fingers and toes. There can be little doubt that this was originally the peculiarity of one individual. With such examples in mind, I feel that I must follow Dr. Miller and subscribe to the view that one never can tell what the future has in store.

Albury, Herts, England.

TWO METHODS OF SWARM PREVENTION.

A Modified Shake-Swarm and Heddon Plan Compared.

BY DR. C. C. MILLER.

A correspondent from the good old Keystone State writes:

"A farmer within a mile of me works his bees in this way: While the swarm is in the air he replaces four frames of brood with four frames of foundation; cuts out all queen-cells left in the hive and returns the swarm, using the removed frames of brood to strengthen other colonies. He uses eight-frame hives. He seldom has another swarm from that colony. Last year he got twice as much surplus as I did, but I had fifteen increase and he had only four.

"The plan I have used is to hive the swarm on empty comb or foundation, set it on the old stand, and give it the supers from the parent colony. I set the old hive beside the new, with entrance to the rear, and gradually bring it around till, on the 6th day, the entrances face the same way, and then in the middle of the day I remove the old colony to a new location.

"Will I do well to change to the plan of my neighbor? Are there objections to it? and if not, why not remove the brood before the bees swarm, and thus save trouble? Or is there a still better way?"

Your neighbor practices a variation of shake-swarming, and yours is a variation of the Heddon plan. Your plan may be improved considerably. So may his.

First, as to his plan. Although he says he very seldom has another swarm from a colony thus treated, I'm afraid that, in a bad year for swarming, you would find that too often the colony would swarm again in a few days, because left still too strong—at least too strong in brood. Sometimes taking away two frames of brood will make a colony give up the notion of swarming, but oftener it will have no effect. The usual way is to take away all brood just before danger of swarming, as you suggest. Sometimes, however, when left thus bare the bees swarm out, and so it is well to leave one frame containing the least amount of brood. Thus treated, there ought to be no more danger of swarming than if the bees had swarmed naturally.

Second, as to your plan. Instead of reversing the old hive and then moving it partly around each day, set it beside the swarm, facing the same way, and let it stand there for seven or eight days, and then move it to a new location. That, you will see, is a good bit less work. Leaving the hive a day or two longer will throw a bigger lot of bees into the swarm when the old hive is moved to a new stand, for all the bees that have become field bees up to the time of removal will join the swarm, and that includes all that would join the swarm by your plan, and, in addition, the output of the one or two days additional.

You will like either plan better, probably, if you will make the changes suggested, and it is not certain which you will like better. The amount of honey harvested should not differ much. You might try some each way.

Perhaps there is no plan to suit you better, unless you are working for extracted honey, in which case you might prefer the Demaree plan. Just before there is danger of swarming, raise into the second story all the brood except one frame, leaving in the lower story that one frame containing the least brood, and fill up each story with empty combs or frames filled with foundation, having a queen-excluder between the two stories, making sure to leave the queen in the lower story. A week later it may be necessary to destroy cells in the upper story. As the brood hatches out in that story, the combs, of course, will be filled with honey, making them extracting-combs.

Marengo, Ill.



OLD-STYLE TWO-STORY-CHAFF HIVE APIARY. THE OWNER OF WHICH LIVES 500 MILES AWAY.

THE OLD TWO-STORY CHAFF HIVES GOOD FOR WINTERING.

BY F. W. DE TEMPLE.

For the past ten years I have been a traveling salesman. My residence is 500 miles from my apiary, which is located 25 miles east of Buffalo, N. Y. I have found that this long-distance bee-keeping can better be done with the old-style two-story chaff hive than with any other style I could use, as, under the circumstances, outdoor wintering is necessary; and where but few visits are made during the year, the two-story hive answers my purpose best, although I know there are other hives more convenient for the ordinary bee-keeper.

Last season I practiced the Doolittle plan, working for comb honey; and while this style of hive necessitated much extra handling of frames, etc., I secured a crop of nearly 3000 pounds of comb honey from 45 colonies, and controlled swarming to two natural swarms, and from several of the colonies took as high as 126 pounds of salable honey each.

The photo was taken in August, on a very hot afternoon, during a dearth of honey, which accounts for the clustering of the bees on the outside of the hives. I built most of those hives myself, and enlarged the entrance to $\frac{7}{8}\times10$ inches, the old-style entrance being $\frac{3}{8}\times8$ inches—too small for summer ventilation. As fall approaches I have a plug that is inserted, which was fitted when the hives were built, which reduces the entrance to $\frac{3}{8}\times6$ inches, and when visiting the apiary about Nov. 1, as I usually do, I reduce the entrance to $\frac{3}{8}\times4$ or $\frac{3}{8}\times2$, according to the size of the colony. I find that the larger entrance, $\frac{7}{8}\times10$, has the advantage of preventing dead bees from clogging the entrance in winter; for while the front or outside entrance is reduced to small dimensions, the space at the inside remains $\frac{7}{8}\times10$ inches, and there is little danger of dead bees piling up over such a space. There is great danger of their doing so over a $\frac{3}{8}\times8$-inch entrance. As the bees always cluster immediately over the entrance in forming their winter nest, and the old bees usually die early in the winter, the danger of clogged entrance is great, especially when cold winter weather sets in early, as it did last fall, about Nov. 1. The larger entrance also retards swarming to a great extent.

My winter losses are usually not over five per cent; but the winter of 1909 was an exceptionally severe one, and the combs contained much honey-dew, so that the loss was about twenty per cent—the heaviest I have had for years. I use absorbents over the frames for winter packing. On the frames I put heavy Brussels carpeting, cut to fit the hives 16×20 inches, and over this a sack of forest leaves. The bees are always dry and warm.

The old Root chaff hive has answered my purpose well; and, although rather clumsy and unhandy at times, I shall use them un-



H. N. SIMMONS' APIARY IN THE YUMA VALLEY, ARIZONA.

til I can devote more time to my bees, when I may possibly adopt a more modern hive and cellar wintering.

Darien Center, N. Y.

BEE-KEEPING IN THE IRRIGATED LANDS OF THE WEST.

How Good Bee Locations are Opening up to the Prospective Bee-keeper.

BY C. J. BLANCHARD,
Statistician of the Reclamation Service at Washington, D. C.

Among the numerous specialized industries which are taking root, and which promise a large measure of success on many of the irrigation projects of the Reclamation Service, is the production of honey.

During a recent trip covering nearly all of the reclamation projects, the writer made an investigation of this industry. On a large number of the projects the apiaries were only just being established. Those which had been in operation a year or more, almost without exception, reported an abundance of food for bees, favorable climatic conditions, and a very fine grade of honey for which there was a good demand. The white-sage honey was an especial favorite on the coast.

As the cultivated acreage increases on the projects, adding large areas of alfalfa and clover, orchards, and small fruits, the food supply will take care of more bees. Development of agriculture of course promotes the growth of towns and villages, and creates a home market. In most sections the supply has not kept up with the demand. By coöperation among apiarists to produce best grades and to create new markets through intelligent advertising, bee culture will doubtless become one of the most profitable industries in the desert country. As every thing in the arid country is tending toward specialization, the bee-men must get together on a plan similar to that now in operation among the fruit-growers, establish high standards, and by rigid regulation insure the marketing under special label of only first-class honey.

There is a wide field for the bee-man in the West, and nearly all of the projects of the Government offer opportunities which are worthy of consideration.

Washington, D. C.

UNCAPPING FOR A POWER-DRIVEN OUTFIT

BY O. B. METCALFE.

With the old uncapping-knife, heated in boiling water, it took two good men to uncap for a fast man at an eight-frame power-driven automatic extractor; and if the honey were all capped clear to the bottom, and not very thick, they could not always keep

up. With the steam-heated knife in good working condition I think two men can uncap honey, either partly or entirely capped, for any man at an eight-frame extractor; but the boiler for generating the steam must be so arranged as to take advantage of all the heat a good one-burner gasoline-stove will generate going full blast; and even then the uncapper will have to wait a bit on his knife. In other words, two men shoving the knives through big fat combs of solid honey will cool them down until they can not be jerked right through without tearing the cells. The little boiler with flues in it, which I described in a previous article in this journal, does very well, but would do better if it generated twice the steam. Perhaps if this were the case one fast man could uncap for the man at the extractor. This would save a third of the labor in the extracting house. Summarizing these general remarks about the steam-heated uncapping-knife, I will say that, if one is to have an extracting-outfit, up to date in every respect, he must have steam-heated uncapping-knives.

Right here I want to have my little say about that question of hot or cold uncap-



O. B. METCALFE'S WAY OF UNCAPPING WITH THE STEAM-HEATED KNIFE.
Instead of resting the end-bar of the frame on a nail-point, the projection of the top-bar is set into a one-inch hole in the cross-piece of the uncapping-can.



ONE OF E. M. GIBSON'S APIARIES IN CALIFORNIA IN WHICH THE HIVES STAND ON BENCHES.

ping-knives. It is certainly a question of locality; and if any cold-knife advocate does not believe it, let him come down here and put one of his sharp cold knives into one of our well-ripened combs of alfalfa honey; and when he gets it pulled out by sitting back on it good and hard, and then goes over and looks in the extractor and sees honey hanging to the sides of the extractor in ropes of silvery silken-looking threads that merge together only very slowly into a solid mass, and then go rolling down the sides of the extractor in great balls, catching the baskets here and there, he will never go home and write an article on the use of a cold knife, for New Mexico bee-keepers at least. This fall, when we were doing our last extracting, I sat down by the gate of the extractor and touched the honey as it crept out, and it was so thick that it did not stick to my finger at all. How would you like to uncap that sort of honey with a "sharp" cold knife? So in regard to the steam-heated uncapping-knife. I say they are a "go." If you have thick honey, get them. They deliver the frames to the man at the extractor, and they deliver them in better shape.

Fig. 1. of this series shows my partner, H. L. Parks, picking up a comb to uncap. In Fig. II. he is seen using the uncapping-knife to assist his left hand in placing the comb with the end of the top-bar in a one-inch hole in the cross-piece which extends across the uncapping-can. There is a similar hole in the other end for the other uncapper when two are at work. This little trick of using the knife to assist the left hand in placing the comb enables the operator to place the comb quickly without putting down the uncapping-knife. In Fig. III. he is seen uncapping one side of the comb, and in Fig. IV. he has swung the comb around so as to get at the other side. The way we jerk combs around and jab them down when we get in a rush would split end-bars all to pieces if we tried to use the nail-point to pivot them on.

Fig. V. shows how the uncapper who works on that side of the uncapping-box must reach over with his left arm to deliver the comb to the comb-box next to the extractor. This is the only unhandy move an operator has at our uncapping-outfit; and the man who works on the near side does not experience that, for the comb-box is on his left, and he can set his stack of combs to be taken up and uncapped right under his left hand.

Mesilla Park, N. M.

FINDING LOCATIONS IN CALIFORNIA.

Will a Greater Number of Bee-keepers Lessen the Average Production per Colony?

BY E. M. GIBSON.

Mr. P. C. Chadwick, p. 23, Jan. 1, thinks I am unfair when I say there were scores of bee-keepers who did not produce a pound of honey, but it was not the fault of the season or the bees. Then he adds, "the implication is that it was the fault of the bee-keepers." Most assuredly that is what I intended to imply. Perhaps I did not go into detail as much as I should; but no doubt all contributors try to express themselves in as few words as possible; for in these days of cheap and good literature the prosy fellow's writings are going to be passed by. I did not produce enough honey for a full carload, and the railroad company asked more to ship what I had by local freight than they wanted for a car. I wrote to several producers to see if I could buy enough to fill a car. From some I received the reply: "Not a pound of surplus this year;" from others that they had "a few cases," the amounts ranging from six to thirty-five

cases (720 to 4200 pounds). What inference could one draw from such replies but that some of their bees were in better condition than others, knowing their ranges were practically the same? Some years a few miles makes a vast difference, but this year conditions were very similar throughout the county.

Mr. Chadwick also says he could not point to a single bee-keeper who depends on his bees entirely for support, and I opine he never will until they drop other vocations, stop scattering their forces, and attend strictly to their bees. If work is pressing, and any thing has to be neglected, it's always the bees. I could point to several who depend entirely on their bees for support, among them the writer. I do not even raise the feed for my horses. By working overtime I might get the seed planted, but the harvest would come just at the time my bees need attention the most. Modesty would suggest that I say nothing of my own success, but I know of others who are making a good living, and some of them with whom I have had dealings, I notice, carry a check-book. Those people to whom Mr. Chadwick refers, who keep a few bees, must surely make something or they would not bother with them; and if they can make something from a few without much attention, they would make correspondingly more with a large number and good care. One would not expect a farmer to make a living from ten acres of land; but if he had ten times ten he might do well. Editor Hutchinson sounded the keynote when, in answer to the question, what to keep in connection with bees, answered, "More bees."

The desire of some to locate too near the coast is a mistake. I know of no one who is not back from the coast more than fifteen miles who is making a success with bees. It is much more pleasant and convenient to live near the coast; but if one is going to succeed in bee-keeping or any other business he must adjust himself to conditions. "If the mountains will not come to us we must go to the mountains." There is no danger of my being crowded with barley or any other kind of grain-fields, for the country is so rough there is but very little land that could be cultivated. We have no sages in this section but the white. Eriogonum is the sheet anchor of the bee industry here; and, to my liking, there is no better-flavored honey, although it is a decided amber. There is too much difference in the price of light and amber honey. Tarweed honey is quite light, but I would never taste honey if I could get nothing but tarweed.

By the tone of your comments to my article, Mr. Editor, page 718, Nov. 15, 1910, you, with others from whom I have heard, seem to think I am standing in my own light by encouraging bee-keepers to come here. It is not to get more bee-keepers but to get *better* ones. However, if it brings more I shall still feel it my duty to do all I can for them, for I was treated very shabbily when I came here, and I have not forgotten it. Coming here for the express purpose of keeping bees I naturally called on some of the bee-keepers who were quite friendly until they learned I was looking for a location, when they shut up like clams. I had bought 40 colonies of bees, and I wanted a place to put them, for they had to be moved. I tried three different men who owned a lot of rocks and brush which they called ranches, but there was "nothing doing." There were no bees within nine or ten miles, and not three acres on the three quarter-sections that could be cultivated—not a thing the bees could injure, and absolutely worthless except *for* bees. I am not quite fatalist enough to believe that *all* things are for the best; but in this instance it proved to be; for after I got my bearings so that I knew east from west, and learned what plants produce nectar, I went to the county records and found three much better and more accessible locations than I tried to get at first. After reading the foregoing, if there were any who considered me a fit subject for the insane-asylum, I think they will change their verdict.

HIVES ON BENCHES MUCH EASIER TO MANIPULATE.

In looking at photographs of apiaries in which the hives stand on the ground I often wonder why those who are old enough to begin to realize that they have backs do not have their hives on benches. There is no harder position for me than to work half bent over for a long time. Benches that are 14 or 15 inches high bring the super at just the right height so one can work standing straight. The only reason that I can see for having them on the ground is that they *think* it saves bees that miss the alighting-board; but does it? Are there not many more bees caught by toads, lizards, skunks, etc., than would get lost by missing the alighting-board? If not too busy I always watch a bee if I see one miss; but I can not call to mind an instance when she did not take wing and enter the hive after resting a short time; and if the alighting-board extends four or five inches beyond the hive, but very few will miss it. Then, too, when the grass gets four or five inches high it's a nuisance, and much time is required to mow and pull grass and weeds, which is quite an item when one has many bees; but when they are on benches the grass does not bother until it is 17 inches high, and one mowing will usually be sufficient, especially in this country, where the dry season commences in May. The bottom-boards will last as long as the rest of the hive when on benches. Ants can be kept from hives in countries, where they are troublesome, by daubing the bench legs with axle-grease occasionally. I have seen alighting-boards ruined by skunks scratching on them to get the bees out so they could catch them. Benches, as I make them, are cheap, strong, and easily put up.

Jamul, Cal.



E. D. TOWNSEND ILLUSTRATING FOR BEGINNERS THE PROPER USE OF SMOKE IN OPENING A HIVE.

THE USE AND ABUSE OF THE SMOKER IN HANDLING BEES.

The Varying Dispositions of Bees Make Different Treatment Necessary.

BY E. D. TOWNSEND.

The smoker, the most useful implement about the apiary, seems to be given but little consideration by the modern writer. They are so common that we are likely to give them less credit than they deserve. If we were to be deprived of smokers for even a single day their great value would be more apparent. Of as much importance as the smoker is the "knack" of knowing how much smoke to use and the proper time to use it. The bee-master who has acquired the knowledge of quickly reading the disposition of the individual colony he is handling, so as to know just how much smoke it will take to handle the bees to the very best advantage, is an artist. How many times the aspirant to apiculture, in that bungling way peculiar to the tyro, pries open the hive with many a jerk, using no smoke until the cover is wholly removed. If the colony is one of the nervous kind, the bees by this time are already in a condition where smoke will hardly subdue them. How different it would have been, had there been just a little smoke blown in at the entrance before the cover was pried loose, then, just as soon as the cover was pried up, a crack, a little more smoke, as in Fig. 3, then, as the cover is lifted up, more smoke should be given, as in Fig. 4. By this time the bees ought to be quite well subdued; but if not, more smoke is necessary, and the smoker should be held to one side of the hive, as in Fig. 5, where, taking advantage of the wind in this case, the smoke is allowed to blow across the top of the hive. For any further smoking the colony may need, the wind is taken advantage of as in the last case.

After removing the cover, as in Fig. 5, any adhering bees are dislodged by bumping the corner of the cover upon the ground, near the entrance of the hive. There are nearly always some young bees adhering to the cover. If they are dislodged near the entrance, they will find their way home. However, with the hive-cover in the position shown in Fig. 5, many of the young bees will fall upon the ground near where the work is being done; consequently, many would be stepped on, and the young bees that can not fly are just the ones that do considerable crawling; and if one's pants legs at the bottom are not tied the bees may crawl up inside. If the cover is turned half way round, as in Fig. 6, any young or cross bees are dislodged on the further side, and this trouble is avoided.

There are hardly two colonies in a hundred of the same disposition. Some need hardly any smoke, and others need but a single smoking for the whole manipulation; but there are some colonies of a more nervous disposition that may need smoking almost continuously. The beginner seldom knows how much smoke to use to handle these varying dispositions in bees. Some beginners use much too much, while others think that smoke hurts bees and use too little. Smoke does not hurt bees more than it does man. But too much smoke spoils the flavor of comb honey, and for this reason comb honey should not be smoked more than is necessary to handle the bees. But this is another subject. One is able to stay in a room with some smoke in it, though it is rather disagreeable; but when the smoke gets about so dense, we can not stand it any longer and leave. It's so with the bees. A very little smoke will drive some bees from the hive, while others, less nervous, will stand more. Any colony, no matter what its disposition, can be driven out of the hive with too much smoke. It is useless and very cruel to use more smoke than is absolutely necessary to do the work.

Bees smoked out of their hive, in some cases so that they take wing, are in poor condition to be controlled with smoke. They should be kept in the hive as much as possible; but if, through some bungling, bees are forced out at the entrance, or caused to "boil over" at the top, it may be better to close the hive for the time being, until they have time to quiet down. Later, knowing their disposition, the cover should be carefully removed, and smoke given, care being taken not to jar the hive in removing the combs; and one will be surprised at the different behavior of the colony. In smoking a colony of bees preparatory to handling, and when they are still in the hive, the smoke should be blown over the top of the hive, as I told you above, and illustrated in Fig. 5. An effort should be made to subdue them. No one was ever stung by a bee down in the middle of the hive. It's always those bees that are at the top that do the stinging. Knowing this, the operator should keep his eye upon those bees near the top; and just as soon as a single bee is seen to leave the combs in a stinging mood, a little more smoke should be given.

The experienced hand with bees will know when there is too much smoke, *before* any bees take wing. Usually the first indication of bees needing smoke is when a row of "guards" form in line along the top-bar of the brood-frame. At first only a few will be seen, casting their eyes upward in a threatening attitude. These few may be somewhat down among the rest of the bees (all of them being previously smoked down below the top-bars); and if they are allowed to go ahead without smoke, more guards will form; then, as their number increases, they will venture up to the very top of the bar. By this time the guards are numerous, and, if not smoked down again, some will begin to "squeal" and make a wing motion, a threatening signal. This is the last safe moment one can keep on without smoke; for it is but a moment before some of the "advance guard" make the attack.



SHED APIARY IN NEW MEXICO, CLOSE TO PUBLIC HIGHWAY.

After all one writes about handling bees with smoke, and about the varying dispositions of the different colonies, practical experience is the best teacher; but if I have suggested something that will cause some thought in connection with this experience I shall be satisfied.

THE SMOKER AND THE FUEL.

After having had considerable experience with the different sizes of smokers we have unanimously decided to buy nothing but the four-inch size. At several of our yards we have some smaller smokers; but as long as there are large ones around, the smaller ones are never lighted. These larger smokers burn longer, and it is not so much work to prepare fuel for them, as almost any thing will burn in them when once a fire is started. Then when in working order, one has at his command either a large or small volume of smoke as may be necessary.

Fig. 1 shows our method of lighting the smoker at outyards where a match has to be resorted to. For kindling, very rotten hard-maple wood is procured, although several other kinds do very well. This rotten wood lights very readily with a match; then when it is well under way, some of the same material, not quite so rotten, is added. Finally, after all is quite hot, and a good volume of smoke is secured, some of the regular hard wood is put in. An inexperienced person will almost invariably stop puffing the smoker too soon, before the fire is well started; consequently, about the time he gets a hive open and is in need of smoke, none is available. Take time to puff the smoker until it is well agoing and the fire is very hot, Fig. 2, then there will be no trouble about the smoker going out until the fuel is all gone.

Remus, Mich.

A SHED APIARY IN NEW MEXICO.

Why are the Queens of Natural Swarms Killed?

BY B. B. FOUCH.

I am sending a picture of a part of my apiary, where I had more than 300 colonies last fall. This apiary is right close to the county road, as shown. There are two sheds side by side, with two rows of hives under each. I can go between the rows with a wheelbarrow or cart and take eight supers at a time. I run for both extracted and comb honey. During the last three years I have lost a good many queens because the hives are so close together.

There is a question that I should like to ask: During the last three summers nearly all of my queens with natural swarms have been killed; for the instant that I shake the bees into a box or hive, the queen is balled. I cage the queens as soon as possible, but sometimes they have one or two legs paralyzed from stings, and eight or nine out of ten are killed outright. What is the cause of this?

Chamberino, N. M.

[This is very unusual. If any one has had a similar experience, or can offer a satisfactory explanation we should be glad to hear from him.—ED.]

ADVERTISING HONEY IN LOCAL PAPERS.

BY A. E. BERGQUIST.

When I first started, some eight years ago, I knew very little about bee-keeping; but after I had bought the first colony I began to study books, and subscribed for bee papers, and gained experience every year.

My first crop was 20 sections of comb honey; and, even as little as it was, it was about all that I could sell in our town of three grocery stores. I received $1 95 in trade. Honey was a drug on the market here, as people seemed to consider it a luxury. Whenever I got opportunity I told of its value, and finally I got one after another started until now I am not able to supply the demand

One time when I was in the office of our local paper I asked the editor if he would like to have some articles about honey and bees, and he said he would be glad if I would furnish him some, which I did. Just think what a lot of good advertising we bee-keepers can get for nothing but a little trouble, that otherwise would cost us thousands of dollars! And such advertising is even better than the ordinary kind, because articles among the reading-columns are more likely to be read, and will, in most cases, have a stronger influence on the readers.

I believe that if the bee-keepers would work together and furnish some good articles about honey to the editors of their papers they would be gladly accepted, even in the large cities.

Lindstrom, Minn.

BEE-KEEPING IN FLORIDA.

Some of the Difficulties.

BY E. G. BALDWIN.

Continued from last issue.

Ants, even in the North, are considered a nuisance. In Florida they constitute a real pest—not so much the small black ants as the big red fellows, the nocturnal ants, the so-called "bull-dog" ants; the latter are a thorn in the flesh for bee-men here. Honey-houses have been built and discarded; but the foe, like the political grafter, is ever present. He is sleepless. These ants frequent hollow stumps, rotting roots of trees, the decaying "boots" of cabbage-palmetto trees. Their strong jaws are like pincers, and they love honey as dearly as do the bears. More than that, they are fond of brood, and do not object to both at once. Their favorite method of attack seems to be as follows: They first secrete a portion of their forces under the alighting-board, the hive-body, or the bricks or stones of the hive-supports, even behind an old division-board, or under the cover, if it allows a space not accessible to the bees. These act as advance guards, constantly harassing and worrying the bees, and seem to keep the rest of the ant colony informed of affairs. After a period of guerrilla warfare with the colony selected for their operations, they select a favorable opportunity, bring up the reënforcements, and make a combined attack all along the line. They prefer a wing, but will take a leg or a thorax or a head, "catching as catch can." The bees at first resist bravely; but when a horde of invading ants assail them at once and persistently they soon give up and are doomed—that is, unless the bee-keeper comes in time to the rescue. Imagine nuclei exposed to such maurauders! The only defense bee-men now make is to keep all colonies Italians, boiling over with bees at all seasons, so far as possible, waging meantime a ceaseless war on all nests that can be found near or far, with hot water, kerosene, or bisulphide of carbon. Many report fair success in diminishing very materially the number of ants by such methods. Even the nuclei we must keep strong—nothing less than a three-frame nucleus sufficing for safety, and even these must be kept boiling over with bees. The entrances, of course, to all nuclei are made very small. Every once in a while, with all safeguards, some small colony will succumb,and the young virgin of the day before vanish with all her attendants, a prey to the merciless jaws of the ants. Some idea of the magnitude of the ant-pest can be obtained from the experience of Mr. S. S. Alderman, of Wewahitchka, Fla., who lost 125 colonies by them the past season. But Mr. W. S. Hart, of Hawks Park, tells me that the incessant warfare of the past twenty years is telling very hopefully on the number of the invaders.

We read of forest fires in Wisconsin and Michigan. Forest fires also do much damage here—not so fatal nor so dangerous, but damaging to a great degree in many portions, especially the southern parts, in the palmetto belt. The cattle-men, who almost own that part of the State, burn over the thickets of saw palmetto as often as it will burn. This is to give fresh green feed for their roaming herds. Fortunately such undergrowth will seldom become thick enough to burn much oftener than once in two years. Of course, it damages the crop only for that year, doing no lasting harm to the trees The saw palmetto is the only one hurt, because its trunk creeps along low on the ground. Mr. Shumard lost many hives and colonies one year from forest fires attacking an out-apiary, and says they were worse the past spring than he has ever known them to be. Mr. Rood tells the same thing for this year. Mr. Rood also says he can not keep more than an average of fifty or sixty hives in a place, because of the shortening of pasturage due to fires. All bee-men suffer, and complain of the burden, except in the far northwest, where forest fires do not come.

Furthermore, the months June, July, and August are the rainy season here. In sections where the sources yield during those months, the surplus is rendered very uncertain by the rains. If they are excessive, as in the past year, almost no surplus will be secured, the rain washing the nectar from the blossoms, and also allowing very little fair weather for the bees to fly. The honey always seems darker and stronger, too, in such a season. The blossoms of the palmetto are very much subject to blight if rains are too heavy. Were it not for this the cabbage palmetto would be a much surer crop.

The rainy season is a sore trial to the queen-breeder if the rains are too heavy—that is, if they fall for too large a portion of each day. Usually the rain falls for an hour or two, then clear weather follows, and all is well. In excessive rains, however, it is hard to get queens mated, and the colonies are dull and inactive; build few or small cells, and are unsatisfactory generally. At such times pollen is scarce, and bees absolutely refuse to breed. The dragon-fly, or mosquito-hawk, is a very serious menace to young queens on their nuptial flight. At such times the eager queen-breeder will search in vain in his nuclei for the laying queen he expected to find there. In some years these pests destroy at least 75 per cent of the virgins; in others they seem to affect the mating very little. Of course, the larger the apiary the smaller number, relatively, of mating virgins is lost. Two years ago the writer lost about every other queen from this cause; since then, hardly any. I have yet to communicate with a bee-keeper in this State who admits that he is free from the danger of these flies. Mr. Case tells me that he has lost as high as nine out of ten virgins from them. Toward nightfall they may be seen darting back and forth before the hives, and now and then darting this way or that to snap up some returning bee. By day their flight is high over the apiary. Their flight is exceedingly swift, and their wings and jaws are very strong. I know of no way to combat them, nor have I ever heard a method proposed.

It might seem almost ridiculous to say that bears are still troublesome in Florida; but the experience of Mr. S. S. Alderman, Wewahitchka, makes it necessary to mention them. Mr. Alderman lives near the dense swamps of West Florida. The bears live in these swamps, and are inaccessible. Mr. Alderman lost fourteen hives by bears one night last summer. Formerly they were bad on the East Coast; but of late years they have disappeared before advancing civilization, till now they seldom molest any of the hives in that section. In 1900 bears destroyed over $400 worth of bees along the Hillsborough River, East Coast, and wrought no little damage in 1904. The late Mr. Cornelius Longstreet, of Coronada, used to tell thrilling experiences that he had with this honey-loving "varmint." They have almost become a matter of merely historical interest in the annals of Florida bee-keeping.

De Land, Fla.

To be continued.

THE HAND SYSTEM OF SWARM CONTROL.

BY J. E. HAND.

On page 207 Mr. Crane calls the attention of the readers of GLEANINGS to what he evidently considers some of the objections to the Hand system. It is true that this system is not adapted for use with hives having a stationary bottom; but when we consider that there are comparatively few of this class of hives in use, and that such hives are no longer listed in any of the supply catalogs of this country, this certainly can not be regarded as a serious objection.

He assumes that all intelligent bee-keepers recommend *very* strong colonies early in the season. I hardly think Mr. C. would wish to go on record as saying that such men as G. M. Doolittle and E. D. Townsend are not intelligent bee-keepers, and yet if he will take the pains to inform himself he will find that neither of these men is in favor of such a practice, for the reason that such colonies will likely swarm before the main harvest, which, every well-informed bee-keeper should know, would result in disappointment and loss in honey production. The Hand system not only prevents the issuing of premature swarms, but it goes a step further and compels all colonies to swarm just when we want them to, regardless of whether they have made preparations or not. We can separate the bees from the brood by shifting them into a new hive in less time than would be required to make the weekly examination after the supers are in place.

Again, he assumes that the giving of a super of empty combs above a queen-excluder can be depended upon as a means of swarm control except prior to the main honey-flow, since such combs must be removed shortly after work has begun in the sections. While this, as well as providing shade and ventilation, will have a tendency to check and delay swarming, none of these things can be depended upon as a means of absolute swarm control. His third error, and perhaps the greatest one of all, is in magnifying the difficulty of finding the queen at the time of making the shift.

Now, I did not deem it necessary to explain that the bees could be shifted just as well without the queen if the frame of brood were given, after which any one should know there would be little difficulty in locating the queen. Three minutes' time is sufficient to place the top story down on the vacant side of the switch-board, and exchange the central comb for a comb of brood without looking for the queen, owing to the hives being so close together that the manipulation is performed without moving from one's tracks; and surely three minutes' time should be amply sufficient to locate and remove a queen after the bees have been practically all removed. When we consider that this slight manipulation, requiring less than six minutes' time, settles the swarming problem during an ordinary honey-flow, it seems to us there is little ground for a claim of excessive manipulation. It is true that bees may be shifted from one hive to another by exchanging heavy hives, shaking and brushing bees, etc., all of which entails a great amount of useless labor that is entirely out of proportion to the results gained It is equally true that swarming may be controlled by removing the queen,

cutting out queen-cells and a lot of other fussing that the busy honey-producer can not afford. I am pleased to note that Mr. C. speaks a good word for the part of the system that he has tried, and I feel confident that he will be equally pleased with the working of the switching equipment after giving it a trial.

Birmingham, O., April 4.

[If our correspondent will turn to page 207, and read over the second paragraph of Mr. Crane's article again, we believe he will see he has misread Mr. Crane. While he did use the phrase "early in the season," it is evident he had in mind the very practice Mr. Hand was advocating, for observe Mr. Crane says, "To secure this, he tells us that all colonies not strong enter the supers *at the beginning of the harvest*"—italicized words ours. From this it is plain that both men are talking about and advocating the same thing. In this connection it is perfectly true that there is such a thing as getting colonies too strong too early in the season. While this is not usually possible in most northern localities, Mr. Crane is too good a bee-keeper, if we may judge by his crops, to make this mistake.—ED.]

A GOOD OUTFIT FOR A BEGINNER.

BY E. D. TOWNSEND.

I don't care to extract any honey this year. I want my surplus put in sections. I would like to have you tell me what size hives to buy, also the kind, and what other supplies I am likely to need.
Ft. Dodge, Iowa. E. E. TOWNSEND.

I would recommend the ten-frame Langstroth hive, with Hoffman frames. Assuming that the five hives your bees are in are good enough for use, so you would not have to replace them, I would buy ten new hives. At first thought this would seem rather too many hives—that there would not be natural swarms enough to fill them the first season. But you must take into consideration that you are a beginner, and, as such, you will have a larger per cent of swarming, the first few years, than you will later, when you acquire the "knack" of getting honey instead of swarms. Then, if you have the "stuff" in you that is necessary to make a bee-keeper and that enthusiasm so apparent in a beginner, you will care more about getting swarms than honey, for a few years at least. We buy all of our hives in the flat to save freight and expense. The hives and supers are packed five in a crate; and to buy them otherwise, entails additional charges, etc. It is evident that five hives would not be enough to buy for an ordinary season's increase, so the advice to buy ten hives the first season, in your case.

Were I starting anew, as you are, I would adopt the new deep super, holding a plain section 4¼×4¼, and I would buy the 1⅜-inch-wide size, so that an extracting-frame will interchange with any row of sections, as "baits" to entice the bees into the sections. On account of brood and pollen being stored above if the extracting-combs are placed in the center of the super, and since we want the bees to begin work in the most neglected portion of the super first, to get best results in fancy-comb-honey production, I would recommend that an extracting-comb be placed at each outside of the super.

Then you will need sections and foundation. Be sure, in ordering your hives, to mention that the brood-frames should be pierced and wire included. We use and recommend, for brood-frames, full sheets of medium-brood foundation. It will take 14 lbs. of brood foundation for your ten hives.

You will also need 500 plain sections, 4¼×4¼×1⅜, and I would buy the better grade known as the "A" or No. 1. We use full sheets of extra-thin foundation in our sections, and it will take 5 lbs. to fill your 500 sections.

Remus, Mich.

GARDEN BEE-KEEPING IN ENGLAND.

BY A. H. BOWEN.

These lines are written from the garden town of England, nestling under the well-known Cotswold Hills, known by reputation to some of your readers, and visited, perhaps, by others. The past two summers have been very disappointing to bee-keepers, as the weather has been cold and stormy, with high winds, during the blooming of the principal flowers; and the resulting crops, though of good quality, have been very small. A good deal of feeding was necessary in the autumn; but I am pleased to say the majority of colonies have come through the winter in fine condition, and, with a favorable season, should give a good account of themselves.

Bee-keeping is carried on extensively in this district, there being several hundred colonies located at different places on the hills, amid acres of sainfoin and white clover; and with a system of swarm control adapted to the district we get practically no swarming—a decided advantage when apiaries are situated six to ten miles from home.

When working among bees I find the carbolic cloth a great help, and superior to smoke in many respects; for as my bees are of the native black race they are easier to control, and less irritated, than when smoke is used.

It would be interesting, if it were possible, for some of your thousand-colony beemen to come with me into one of the quaint old-fashioned Cotswold villages and see for themselves the half-dozen skeps of bees standing in the cottage garden, and have a chat with the old skeppist, a picturesque figure who is hard to convince that the modern hive will ever form such an ideal home as his own stout domes of twisted straw.

Cheltenham, England.

Heads of Grain

from Different Fields

How to Hang Foundation in the Hive; Does it Make any Difference How it is Hung?

In looking through the A B C and X Y Z book I notice that the natural comb is made by our little friends the bees with two vertical sides, thus: I have just bought some cut 4x5 foundation from a dealer, and it has been cut so that it lies in the sections having two horizontal sides, thus: and I am inclined to think that this will make a difference in my honey surplus. Will you kindly answer through your columns what you think in regard to this, as several of us are quite interested? INSPECTOR F.





[Most comb foundation is milled so that, when the sheets hang in the frame, two sides of the cells are vertical. The super foundation for 4¼ square sections, however, is used either way; that is, with two horizontal sides vertical or horizontal. The super foundation for 4x5 sections is usually cut so that the sheets are put into the sections with two sides vertical. Perhaps this that you bought had been cut down from a larger size, so that the cells happened to lie the other way around—that is, with two parallel sides horizontal. However, we are very sure that you need not be anxious as to the results, for, so far as we can see, it makes not the least difference, especially in the sections, which way the foundation hangs. One of our men once made an experiment that proved conclusively this very point. He equipped ten comb-honey supers with foundation so cut that there were two horizontal walls and ten other supers with the foundation cut in the ordinary way, the cells having two vertical walls. He made careful note of the results from the time the bees entered the supers until the honey was finished, and he found that there was not the slightest difference in the time when the bees began to draw out the foundation or in the time the work of sealing began.

The statement has been made that for *brood*-frames the foundation should always be cut or milled so that the cells have two vertical walls when the frame is in position in the hive, for the reason that the foundation would stretch less when so cut than if two cell walls were horizontal. Possibly this may be true; but an experiment that we performed recently *seems* to show that there is not much difference as to how it is hung. Two long wooden clamps were attached to two pieces of foundation, in one of which pieces two parallel walls were vertical; and in the other, two parallel walls were horizontal. The upper clamps were secured to the top of a window into which the sun was shining, and weights were attached to the lower clamp. Out of four trials the results were evenly divided; that is, twice the piece of foundation having vertical walls pulled apart first, and twice the other let go first. In each case the wax pulled apart at a point between the two clamps, showing that the clamps themselves had not weakened the foundation.

When bees build natural comb, in most cases they build it in such a way that there are two vertical cell walls; but we have seen it several times the other way. Therefore, it apparently makes no great difference to the bees; and if the results in the sections and in the artificial-stretching test are the same, we see no reason why any one should be concerned over this matter as to which way the foundation hangs in the hive.—ED.]

Gable Covers; the Right and Wrong Way to Make them.

Last October you published a short description of a hive-cover designed by me, p. 769. In your comment on the cover you said the boards would "check or split at the nails" if not covered with paper or other material. I wish to say that you are wrong in that statement. Possibly thin boards would crack in some climates; but I have quite a number of covers, the tops of which are nailed to end pieces in exactly the same manner, and there are but very few cracks. Most of my hives are double-walled, and all of their covers are nailed like that, and have no metal nor paper over them. In fact, I think your own double-walled hives (covers) are nailed that way. Do you cover them with paper or metal? If not, they must crack and split, according to your statement.

If boards ¾ inch thick are used, or even ⅝ inch, and the boards project over the ends but very little, or large nails are used, then the boards would be liable to split. But if half-inch boards are used, and allowed to project so that the nails are an inch from the end of the board, and small nails (the same as you use for the F cover) are used, you will find but very little splitting. Of course, any cover will split sometimes, owing to several causes. The boards may be ⅜ inch if allowed to project ½ inch more beyond the ends. But it would be cheaper to use several narrow boards, and cover them with paper, which was what I had in mind. Made in this way it is very much superior to your G cover, with which I have had lots of trouble. The only fault (?) is that one hive can not be set on top of another; but as it was designed for outdoor use entirely, that does not matter. I think an impartial investigation will prove what I say.

Mystic, Ct. ELMER E. WAITE.

[Our correspondent fails to take into consideration the fact that this is a big country, with a great variety of conditions. In one portion of the country, especially in the East, there is a large amount of humidity. In the arid regions we have extreme dryness. In other portions of the country it will be very wet during one season of the year, and very dry at another—so dry, indeed, that vegetation, even grass, is killed. A device that might give perfect satisfaction in one section of the country might give any thing but good results elsewhere. Mr. Waite does not take into consideration the fact that the experiences of a supply-manufacturer who *deals with every section of the country* should have vastly more weight than the experience of *one man in one locality*.

While it is true, as he points out, that we once used the same type of cover which we condemn, for our double-walled hives, it has been several years since we manufactured them. We have been using a flat roof for these hives, covered with metal or paper, as experience showed us that the former type of roof was very poorly suited for some portions of the United States. It is our policy now not to make any covers using thin boards that are not covered with metal, and that will not allow for the contraction and expansion of the boards. For that reason the roof-boards in all types of cover that we now make that are not covered with metal or paper are inserted in grooves cut in the end cleats. These end cleats are held in place by means of nails put close together near one edge of the roof-boards, leaving the other edge to come and go.

We found it necessary to adopt the same general scheme with our bottom-boards. While the principle has its objections, it is much more satisfactory than placing nails as our correspondent suggests. No, it is not true that making the boards longer so that they will project over more will prevent checking for all localities. It might and probably would do in Connecticut.—ED.]

Bees Dying with Plenty of Honey in the Combs.

I have ten colonies that were strong, but the past year they all died but one. There was plenty of honey in the hives, and but very few dead bees. The combs were very clean, and all the honey was sealed. In some of the hives the combs were stuck together with a substance resembling cotton, with a foul odor. If it is a disease, how can I get my hives in condition to fill them with bees again? A bee-keeper told me to put the hives, combs, and all with supers, and all tools, in a tight room, and burn sulphur. Would that leave the odor of sulphur so that the bees would not stay in the hives? A neighbor lost forty stands the past year, the same as I have.

Kankakee, Ill. L. L. STIRLING.

[There are so many reasons why bees might die in winter and still leave honey in the hive that we are not sure we can give you the real cause of the trouble you mention. We would say, however, that starvation may occur, even when there is honey in the combs; for, unless the cluster is large enough so that the bees can maintain the animal heat necessary in the hive to move across to other combs to

get the honey, they remain tightly clustered until they die from lack of food. It does not pay to attempt to winter weak colonies. All such should be united in the fall, so that there will be good large clusters of bees. Furthermore, the colonies in the fall should be headed by young queens, and there should be a good percentage of young bees in the hive. A large colony of very old bees will die almost invariably. Very old bees in the fall are not worth much, any way.

From the symptoms you give, we do not see any evidence of disease; but if bees are dying so rapidly in your locality it would be well for you to keep careful watch of the brood in the summer time, and to see that it is healthy. If you find the brood dying off rapidly you should investigate at once, and send a sample of it to Dr. E. F. Phillips, in charge of apiculture, Bureau of Entomology, Department of Agriculture, Washington, D. C., who will look it over and report to you, without charge, the cause of the trouble or disease, if such it is.

The substance resembling cotton that you mention is probably the web of bee-moth larvæ. You can give such combs to strong colonies, one at a time, to clean up; but you must be careful not to give more than one comb, or possibly two at the most, to any one colony. Good strong colonies of bees, especially if they are Italians, are rarely troubled by moths. We do not think that fumigating by means of burning sulphur would do any good, nor any harm either, for that matter.

To get a start again, perhaps you had better cut out the worst of the combs, melt them up for wax, and, after cleaning up the inside of the hives, scraping them, etc., put full sheets of comb foundation in the frames and put your new colonies or swarms that you buy into hives so equipped, reserving the best of the old combs that you keep over to be cleaned up later. If there has been any trouble with brood dying, however, in your community, we would not use the old combs again under any consideration, but would cut them out, melt them up for wax, and fill the frames with full sheets of comb foundation instead.—ED.]

Is Spring Dwindling Caused by the Loss of the Queen?

A good deal has been said in GLEANINGS about spring dwindling. While I am not an extensive bee-keeper, possibly my experience this spring may offer some suggestions as to the cause of dwindling. I had eight colonies last fall which were packed by a method described on page 207, April 1, 1910, with sealed covers, having 1½-inch bee-space above the frames. I placed the hives six inches apart on a platform eight inches above ground, ten inches from an out-building, the spaces between being packed with dry leaves, with a tar-paper roof to furnish protection. Nevertheless, I lost 50 per cent. Two colonies died from starvation, as there was no honey in either hive: the other two had at least 20 lbs. of honey left in the brood-chamber, but the dead bees were scattered all over the hive and throughout the open and empty cells. They lived until about two weeks ago. When I noticed they were dead, I took out the frames, and was very careful to make a thorough examination of the dead bees for the purpose of finding the queen, but without success in either hive. In the summer time, too, a colony without a queen will dwindle in three or four weeks until there are hardly any bees in the hive; therefore I fully believe that spring dwindling is, in a measure, due to the loss of the queen during winter time.

In regard to the bees dying as they did in the last two hives, I think it was due to lack of ventilation, as their entrances were contracted to ⅜x6 inches, while the other four which I had left had an entrance of ⅞x8 inches, and wintered perfectly with scarcely any loss. I have come to the conclusion that the colonies which were lost did not get air enough, and the bees scattered in the hive and then froze to death. Hereafter I will see that my hives have an opening of at least ¾x8 inches. Is an entrance of this size too large? and am I right in what I have said about spring dwindling?

FRANK LANGOHR.

Columbia City, Ind., April 3.

[A colony or colonies without queens are liable to die, either in the winter or in the spring. I do not think you will need to go much further than the queens to find the source of your trouble, in the case of the two colonies that survived along until spring, and then dwindled away. The fact that they had entrances more contracted than the others, we do not think had very much to do with the matter. Of course, when colonies die for want of stores we do not need to theorize about it one way or the other; but our experience has been that a colony will consume more stores, and sometimes starve to death, because of too wide open an entrance, or insufficient packing.

You speak of another condition—that your hives were put on a platform eight inches above the ground. If you had no slanting boards up from the ground to the entrances of the hives you would lose large numbers of bees in the spring that would fly close to the hive, and strike the ground, too chilled to fly any further, but not too chilled to crawl into the entrance providing they had a runway. It is all right to put hives up off the ground; but there should be some sort of runway from the ground to the hive.—ED.]

Transferring by Placing the Old Hive Above the New One, with a Queen-excluder Between.

When transferring, how would it do to place a new hive with combs or full sheets of foundation on the old stand, and shake the bees, including the queen, before the entrance, allowing them to run in; then place a queen-excluder over this new hive, and on top put the old hive? In five days look over the old combs above in the old hive, and cut out the queen-cells if any have been started. By this plan would not the old combs above be practically vacated after 21 days from the time the transferring was done?

Durand, Ill. M. LUCY FRITZ.

[When transferring you can put the old hive above a queen-excluder as you outline; and, although the queen will remain below if she is placed there on the new comb, the bees, if there is any honey coming in at the time, may store honey above. However, as transferring is usually done before the main honey-flow begins, there is not likely to be any great amount of honey placed above.—ED.]

Proper Time to Shake Swarms.

In regard to brushed or shaken swarms, there appears to be great diversity of opinion as to the proper time to perform the operation. One writer says, in italics, never do it "until there is evidence that the bees are making preparations to swarm." Another is no less emphatic in saying, "It is useless to undertake it after the bees get the swarming fever." Then it must naturally follow that the one or the other is in error, or it makes no difference whether it is done before or after the "fever."

Can you not, by getting the opinions, with the reasons, of several extensive bee-keepers, in some degree settle these differences for the benefit of the ever-recruiting army of novices? If these bee-keepers are widely scattered over the country we may get some idea from their replies whether the season, the climate, the location, or some other factor is responsible for their opinions.

Hoboken, N. J., Jan. 14. NOVICE.

[It is not at all strange that a beginner should be confused over these apparently paradoxical statements. Perhaps we can explain. It is true that there is no use in shaking until the development of certain conditions; as, for example, the starting of queen-cells and the whitening of the combs near the top, showing that the bees contemplate swarming after the cells are capped over. To shake before these evidences appear, is premature.

Again, it is generally useless to undertake shaking *after* the bees have got the *mania* for swarming. Your confusion arises over the meaning of the word "fever." When a colony is bent on swarming, has cells capped over, and virgins hatching, shaking probably will not do much good. It should take place when cells *begin* to start, and *not* after they are capped over and virgins are hatching out. In the first case there is no mania or fever—simply an *indication* of a mania or fever that will take place ten days after. Now, then, when that mania is on it is too late to do any thing but make a most radical change in conditions. Shaking as ordinarily practiced may be enough; but probably not.—ED.]

Our Homes

By A. I. ROOT

And God said unto Jonah, Doest thou well to be angry for the gourd? and he said, I do well to be angry, even unto death.—JONAH 4:9.

I have many times pondered and wondered in regard to the passage above, where even God himself, the great ruler of the universe, condescended to stand, for the time being at least, side by side one of his children —yes, and even remonstrate with the child who was angry. And Jonah undertook to defend himself, and even maintained that he "did well" to be angry. In a like manner Elijah, one whom God so greatly honored as to permit him (and almost him alone) to pass over death—even Elijah at one time became rebellious and contrary, and told Jehovah that he wished he might die. How much these biblical narrations impress us with the fact that humanity is much the same now as it was then!

A little over a week ago I got up before it was quite daylight on a Monday morning because I had a busy week before me. It was the week before I returned to my northern home, and my poultry, big and little, numbering something over 300, was to be disposed of or got out of the way for a six months' absence. First I felt a little worried for fear we could not catch the big ducks; but by Wesley's help we got the four safely into some porous sacks, such as we buy with the oats used for the poultry. Then came the task of putting my choice Buttercups, male and female, into some sacks. We have found by experience that these sacks answer very well for putting up fowls for moving short distances, or in the early morning when it is cool. We put four full-grown hens in a sack, then when tied tight at the top, and the sack spread out, they do very well, even in hot weather. Besides the old ducks and the Buttercups, there was a hen with 13 day-old ducklings to be delivered to a customer. We got them all put up nicely, and put them on the automobile so they could get plenty of air, and then I was ready to start. The hen with the 13 ducklings was placed in a shallow box, and a cylindrical poultry-netting cover was slipped over the box. At first the hen made quite a racket on being thus confined; but the noise of the automobile soon quieted her, and the ducklings settled down under her wings with their heads sticking out, and then we were off.

My automobile had at this time run between 500 and 600 miles, and had made almost no trouble; but on that morning, on climbing a sandy hill when I was in a hurry, it threatened to balk, and I barely succeeded in reaching the top of the hill. It acted so badly I thought perhaps the spark-plugs must need cleaning. Now, along with my poultry was a crate of eggs from the Sunday before. In order to get out the spark-plugs the eggs and ducklings would have to be removed. At the time I set them out I recognized that, with my bad memory, especially when I was disturbed or worried, I was very likely to leave something if I risked putting it out of the automobile. However, I decided that the crate of eggs would *have* to be placed on the ground for a minute or two. There was no other place for them, and I said, as I had said a hundred times before, "Why, I am sure I shall not be such an idiot as to forget to *put back* that crate of eggs." I cleaned the spark-plugs, and started on. In a little time a colored boy was waving his hand, and shouting about something. As my hearing is defective, as well as my memory, I could not make out what he said; but I was becoming impatient, and decided that I could not stop any way. When I got about half a mile further it came into my head that the boy was shouting to me that I had left my crate of eggs standing by the side of the road. I thought of turning around to go back after them, but the machine was still acting so badly I felt as if I *must* get to my destination if possible, and let out my ducks and chickens before the sun got hot. The machine kept acting worse and worse. It was losing power so it could only just "crawl." But I pushed on at a snail's pace until I was just about a mile from home and a mile from neighbor Abbott, where I was going. Then it refused to go another inch. I cranked it till my back ached and my hands were blistered in the frantic effort to get where I could let loose my charges. The sun was getting hot, the little ducks were beginning to murmur, but their mother, in a very motherlike way, quieted them as best she could. Her hen talk, translated, would be something like this: "Hush! hush! darlings. We shall get there pretty soon, I am sure. I know you are hungry and thirsty; but Mr. Root has been our good friend, and I think he is still. He will get us some food and water after a while if you will be patient."* It was during the Florida drouth I have been telling you about, with no water anywhere near, much less any means for getting it to the ducks. I piled them out on the sand in the sun in my frantic effort to repair the mischief, but finally decided I would have to foot it a mile further on and ask neighbor Abbott to hitch up his mule and get me to the repair shop and then get home with the ducks and chickens, as they were becoming very impatient in their respective bags and boxes. I did some tall walking that morning, and presented myself to Mrs. Abbott with the sweat coming from every pore, my hands so covered with automobile grease that I could not even wipe off the perspiration, and announced that I had not a minute to spare on account of my ducks, ducklings, and chickens. Friend Abbott hustled around with alacrity to get me out of my trouble. He pulled my machine to

*One of the poultry journals says young ducks suffer, if deprived of water to drink, even one-half hour.

the garage, and then went back after the poultry. The hen and the ducklings were taken along and delivered at their destination, much to their relief and mine. After a diagnosis of the machine the expert informed me that the principal trouble was with the coils. There was "cross-firing." I could hardly agree with him until the coils and vibrators were removed from the machine. Then with an extra set of batteries he sent a current through *one* of the pairs of coils alone. Well, it not only worked the vibrator belonging to that coil, but the vibrator belonging to the other coil also worked by spells. This working by spells fired the gas at the wrong moment, and threw every thing into a jumble, filling the valves and cylinders with unconsumed carbon, and making trouble generally all over. I asked him if he could not fix the machine so I could use it for the busy week that was before me. He said he knew of no possible remedy unless I could borrow a new set of coils that could be fitted to the machine. By the way, this may be a bad place to stop my story, but I want to moralize right here:

Cross-firing or short-circuiting with electrical apparatus is a bad thing. The trouble with the coils could not be repaired, because the maker had covered the whole thing with melted resin; and it could not be taken apart very well except by the manufacturer. Under the circumstances it *was* very unfortunate, and it occurred to me that we have this sort of "cross-firing" sometimes among humanity. Many of us have lamented that the Anti-saloon League and the Prohibition party should have wasted their time and energy by cross-firing (producing "explosions" at the wrong time and in the wrong direction), giving our enemies an advantage when it was of the *utmost* importance that we should all pull together and in the same direction. Sometimes in our bee conventions, where a hundred or more people are giving their precious time, some brother gets contrary or angry, as did Jonah and Elijah, and blocks the wheels of progress, stirs up others, and throws every thing out of joint just because his energy and zeal are out of *time* and out of *tune*. I hardly need remind you that even in religious meetings among churches and churchmembers this same spirit of ill-timed disagreement sometimes comes in. May God help us all to beware of getting out of tune, and not "keeping step" in our honest efforts to better things in this world of ours.

It was getting dinner-time. I had not had my nap just before dinner, and I could not get home without walking a mile or more through the hot sand and sunshine. I could have taken a foot-path on a diagonal were it not that my crate of eggs was still close beside the highway in the noonday sun, and had to be looked after. Do you wonder that I lost my usual good nature and got a little cross? The expert said he would, if I thought best, go over the machine very carefully after dinner, and see if it was possible to fix it so I could use it during the busy week that lay before me; but he had but very little hope without a new coil to take the place of the defective one. There was no help for it. I put off with rapid strides for my crate of eggs, if perchance no colored boy nor anybody else had meddled with it. By the way, let me remark that in and about Bradentown there is the greatest respect shown for other people's property of any place I have ever lived in. I have told you before that people there as a rule never lock their houses. Why, one evening when Mrs. Root and I left prayer-meeting we went to the baker's to get some bread. The baker himself also keeps a sort of restaurant. He and his wife had also gone to prayer-meeting. The front door was locked, but we found the back door open as usual, and I walked into the store and went behind the counter without any trouble, and meditated helping myself to the bread. I laughingly told them afterward that they went to meeting and left the back door unlocked. To my surprise my good friend Trueblood and his wife informed me they *never* locked that back door, and, furthermore, that they had never lost a nickel's worth by leaving their property in that shape. This, too, was on a busy street, and they kept the usual assortment of cakes, pies, etc., right in a showcase that is also unlocked. The secret of this is, dear friends, there has never been a saloon in Manatee County—at least that is one great secret of this. Another thing, the folks there are a church-going and Christian people.

I found my eggs, as a matter of course; but I had to carry them a quarter of a mile to find a place where I could put them in a neighbor's yard until later. When I got home I needed my sleep and I needed my dinner. In fact, I was late for both; but to save Mrs. Root's time I decided to have my nap *after* dinner. She had an excellent dinner, but I was in a bad frame of mind, and I fear I answered her kind questions in any thing but a Christianlike manner. Perhaps she did not remember it; but I *did* and *do*. I went upstairs and tried to take my accustomed nap on my nice soft bed right before the open window where there was a delicious cooling breeze, as there almost always is from across the Great Gulf in Florida; but I was so much disturbed by the machine that I could not sleep. And then I was disturbed by another thing. I was rebellious. I had planned a lot of things to be done during that busy forenoon, and had not *touched* them.

Here is something from the *Sunday School Times* that illustrates the point I wish to make:

> Dr. Alexander McLaren has illustrated it well when he says: "The consciousness of God's presence with us is a very delicate thing. It is like a very sensitive thermometer, which will drop when an iceberg is a league off over the sea. At bottom there is only one thing that separates a soul from God, and that is sin of some sort."

My rebellious spirit had cut me off from the consciousness of God's presence. It was something that had not happened for a

long time, and there was no use trying to evade it. I thought of that passage in the New Testament where it says, "If thou bring thy gift to the altar, and there remember est that thy brother hath aught against thee, leave there thy gift before the altar, and go thy way: first be reconciled to thy brother, and then come and offer thy gift."

Well, I had not had any trouble with any *brother* just then. It was with *my own* rebellious spirit, and I knew that before I could have peace, I would have to conquer it and put it down. I sprang out of my bed and fell on my knees, and the first thing that occurred to me was that wonderful prayer of David when he said, "Create in me a clean heart, O God, and renew a right spirit within me." The words brought some peace to my soul, and then I poured out my heart in a petition for peace and an obedient spirit; and as I prayed I remembered what my good old mother had sometimes said in regard to the troubles that lie before us. She would say, "Amos, I have been praying over this, and I know it will all come out right, and I thank God for the assurance." Some may think this sounds a little like superstition; but the great evangelist and preacher, Professor Fairchild, of Oberlin, tells us that at times after praying most earnestly for certain things it has seemed as if the Holy Spirit said, almost in plain words, "There, there, child, do not pray about it any more. You shall have what you ask for." Well, after my spirit was quieted in a humble way I prayed about the automobile and the busy week. I said that, if it was consistent with God's holy will, I hoped I still might have that machine, adding something like this: "Dear Father in heaven, I know from past experience that things that are impossible with men are always possible with thee. If it be consistent with thy holy will, and not displeasing in thy sight, may that bright young expert who is even now laboring with that machine, have grace and wisdom to drive the busy brain and fingers." After this prayer I had the feeling that the prayer was answered, or at least was going to be answered, before the sun went down. I went back to my bed and had a most peaceful and refreshing sleep; and, much to my surprise, I passed one of the happiest afternoons that I had had for a long time. Now, *this* I did not expect. I supposed, of course, I would have a burden to bear any way. My good neighbor Rood, with his big machine, took me back to town, taking up my basket of eggs on the way, and I worked with the mechanic until toward night. Every part of the machine had been overhauled. The carbon deposit in the cylinder that had stopped progress in the morning had been all carefully removed, and every thing was adjusted in the very best possible manner; and he said, with a bright look on his intelligent face, as he made the last adjustment, "I rather expect, Mr. Root, that after all this work we shall get *some* pretty good results." As the machine started off I swung my cap, and the machine did excellent service during the busy week that followed—better, perhaps, than ever before since I had had it, although it is true the current occasionally jumps across on to the neighboring coil and takes off the power, but never stops it. Of course, the manufacturers will make good the fault. When the machine first starts up on a cold morning there is considerable cross-firing; but after it gets a little warmed up to work it seems to run just as well as it ever did. It reminds me of the story of the Irishman who was always telling about the wonderful feats his brother performed during a certain war. Said brother had only one arm. But one day this Irishman, when he was telling his story to quite a little audience, forgot himself and said, "Why, Jimmie killed two of the enemy intoirely by just knocking of their heads together." When a bystander called his attention to the fact that Jimmie at that time had but one arm he added, "Yes, yes, that is true; but when Jimmie got a little warmed up in a fight he forgot *all about* his having only one arm."

Now, then, friends, in closing I wish to call your attention again to the extract from Dr. McLaren: "The consciousness of God's presence with us is a very delicate thing." Let us keep this in mind; and whatever temptation may assail us, let us carefully consider that, whatever we *say* or whatever we *do*, may in a very brief moment cut *off* this consciousness of God's presence that is worth more than any thing else in the world.

At one of our Bradentown prayer-meetings a few weeks ago a young student from Oberlin College led the exercises. He said that at one time his employer, in one of the great Chicago business houses, dismissed a faithful clerk without listening to the full particulars of *why* said clerk had disobeyed orders. He dismissed him with only three or four brief words; but he told a friend afterward he would have given *two thousand dollars* to be able to recall those words. He did try to apologize and recall them; but the faithful clerk had been instantly snapped up by another house who knew his sterling qualities, and it was too late. Shall we, like Jonah, when reproved say that we do well to be angry? or shall we remember that other beautiful text that tells us that "he that ruleth his own spirit is greater than he that taketh a city"?

Before the busy week I have told you about was finished, a rebuke and a reproof for my impatient mood on Monday morniny came from an unexpected direction. I was reviewing my periodicals while Mrs. Root lay sleeping on the lounge near by. For some little time I noticed her sleep was broken and troubled. Finally she sprang up with a vacant look, and I found she was feverish; and a little while later she was delirious. I ran hastily for our good neighbor, Mrs. Rood, and she pronounced it a sudden and acute attack of malarial fever. Her preparations were all made for the long

trip to Medina. Almost instantly conscience brought to mind my impatient spirit because the automobile "wouldn't go." Well, it *is* bad to have an automobile suddenly stranded; but, oh dear me! what does that amount to in comparison with having the busy and helpful wife lie helpless on a bed of sickness? As I went about the quiet house ministering to her wants, in sight of the familiar objects at every turn, that she handled so successfully and deftly, it cut my conscience like a knife, and I inwardly resolved that, so long as *Mrs. Root* was spared to be my helper, I would never again look cross nor feel cross because of the failure of something else. Some sixty years ago a little song called "Annie Laurie" all at once became all the go. Everybody seemed to be singing it. It was before the days of Gospel Hymns, and memory went back and held up before my inner consciousness the words "She's all the world to me." When I first heard it I was just getting acquainted with Mrs. Root. And in my boyish imagination she *was* then, pretty truthfully, "all the world to me." How is it now, after we have fought life's battles hand in hand for just about fifty years? Is she *still* "all the world to me"? Yes, a hundred times yes, and more so than my boyish imagination of long ago could then comprehend. Under Mrs. Rood's care and skillful directions she was far enough recovered to start the next week on the 48-hour journey home; and as we take up the threads of life again here in Medina I remember the closing words of that old song, especially when I am tempted to be impatient because every thing does not move as I wish, "She's all the world to me."

Poultry Department

By A. I. Root

MY INDIAN-RUNNER-DUCK STORY UP TO DATE.

To-day is April 6, and my one Indian Runner duck I have several times mentioned is still laying her egg a day, and she has done this now for almost if not quite *100 days* without a single break. I have read in the poultry journals of stories like this; but I fear I shall have to confess I never expected to own a fowl of any sort that could give a big white egg (perhaps I should say, rather, a bluish-green egg) for over three months, without a skip. What about the other of the two? you may ask. Well, after I had been scolding her for being lazy for some little time I one day saw the two ducks acting a little queer near some dried-up leaves and brush. A little later one duck was missing, and finally I caught a glimpse of her down under this mass of rubbish. Sure enough, she was on a nest, and evidently did not propose to get off for me or any one else. I finally got her off, but only after a real downright fight. I thought once she was going to chase me clear out of the lot, and I actually had to get a small stick or club in order to convince her that *I* and not *she* was boss of the ranch. Well, after we settled the matter about who was "running things" I made out to count the eggs and found eleven. You see I had been giving her a bad name while she was quietly attending to business and filling her well-secreted nest. Right here let me remark that a woman said in one of the poultry journals that Indian Runner ducks never sit. How is it, friends, you who know? After her racket about giving up her eggs, she got the pouts and didn't lay for a week or more, but she is again laying now.

As fast as I could get sitting hens, every egg was used for setting, and so far I have had splendid "luck" as the farmers' wives express it. Notwithstanding the caution to give a hen only ten or eleven *duck* eggs I have given ordinary hens thirteen or fourteen, and one hen came off this morning with thirteen bright and exceedingly lively ducklings. Another had 12, another 11, and one hen that had only 12 eggs hatched *every* egg. We now have 49 ducks, little and big, and I sold a brood of eleven "day-old ducklings" for 20 cts. each. We have not lost a duckling, except the two the alligator confiscated, and one that got out of the fold into the great canal, and one more that was gone in the night. You see, after they got a few weeks old they were so much taken up with that waterfall (over the alligator cave) that they just *wouldn't* go to bed at all. Ducks don't go to roost at sundown as chickens do, and they actually *wouldn't* go into their box with the mother hen, and so I tried leaving them out; but after one out of the flock of 20 "turned up missing" I fixed a sort of "corral," as they call it out west, and now when they see me coming, just about dark, with the "big stick," they hustle inside and stay until I get round about daylight (not much after 4 A.M. at this season) to let them out.

By the way, I have just received from the publisher a 50-cent book entitled "The Indian Runner Duck Book;" and while I have gone over the book with great interest I for one would like more space given to the real habits of the duck, and not so much in regard to where they came from, growing ducks of peculiar shade of feather (even *white* ducks) and ducks that lay only white eggs instead of eggs that are slightly tinted green or blue. Again, I have looked the book through without finding a sentence in regard to the Runners being non-sitters. Just this morning I decided to try if it would be safe to let our ducklings four or five weeks old go out in the creek with the old duck; but the minute the biggest drake saw the "youngsters" he gave the signal and the whole four old ducks went like a whirlwind for the poor little chaps, and before we could interfere the drake had one of the smallest by the neck and would have finished him in no time had we not been near by. I think I have read something about

old ducks or drakes being kept away from the ducklings; yet the new book has not a word of caution in regard to the matter. There is one thing I particularly commend in regard to this book. It does not advertise or even mention any thing the author has for sale. It is published by C. S. Vallentine, Ridgewood, N. J.

Later.—To-day is April 20, and I am once more back at my Medina home, and I want to say a little more in regard to the above duck story. I notice that the poultry-journals, or at least many of them, say that ducklings should not be allowed to go *into* water before they are several weeks old, or feathered out, or something of that sort. Now, this duck book I have mentioned does not say a word about it; and from what experience I have had in the past few weeks I am inclined to think it is a notion or a whim that "ducks" can not go into the "water" all they please, at any age. I put a hen with a brood of twenty ducklings down by the waterfall I have mentioned, and they were playing in the water and having a big time, not only from daybreak till dark, but long after dark, and by moonlight; and they were put in there, some of them, when less than a week old, and I could not discover any harm it did them. They had their bran mash right at the edge of the water where they could help themselves, so they never got hungry. Now, perhaps it is true that they might *fatten up* better without the water or so much water; but I do not believe they would make any better or stronger growth. After the big drake I have mentioned showed his hostility toward his own children, I moved the old ducks all away, and the twenty little fellows went out into the creek, and went up stream and down, but always came back in perfect safety. The first day I let them out they took their bearings much as bees do. They went away a few feet from their feeding-place, and came back again. After a little rest they started on a still longer "exploring" expedition; and before night they had ventured several rods away, both up and down, and across on the opposite bank, where they could feed on the green stuff. I do not believe there is any danger of Indian Runner ducks running off—that is, if they have perfect freedom to go and come without being frightened or annoyed by any of their natural enemies.

Now, there is still another thing that this duck book does not touch on. All my baby ducks are sold at 20 cts. apiece as fast as they are hatched, and orders are left ahead for ducks not yet out of the shell. Though all were hatched under hens, I had good luck in hatching said ducks just as I have mentioned, and not a duck died or was lost unless by accident. In fact, I should call them the easiest fowls to raise that I ever had any thing to do with—especially down in sunny Florida.

Now I am at a point where I want light. I sold ducks at different ages, from one day old to five or six weeks old, and every purchaser wanted instruction so as to know at the earliest possible moment *which* were drakes and which were ducks. Like the demand for pullets among the common fowls, everybody wanted ducks and not drakes. At what age can the sex be distinguished, and *how* are they to be distinguished? Surely the Indian Runner *book* ought to tell us something about it. My good friend Philip Bolei, whom I have mentioned before, said there are two ways of sorting out the drakes. First, the drakes have a tail that curves over, like the tail of a puppy-dog, for instance, while the tail of the duck sticks out straight. Secondly, the drakes, even at an early age, have a shrill voice, something like a hiss, compared with the quack of the ducks. This is very plainly perceptible with grown-up ducks; but I have not had a chance yet to decide at what age the voice changes. One more thing: Both of my mature ducks have blue bills while the two drakes have yellow bills. This is probably accidental. As there is just now a big craze in regard to Indian Runner ducks, I am sure there are many of our readers who can give me pointers. I know they are great layers, because I have one that has laid over one hundred eggs without missing a day; and, better still, almost every one of the 100 eggs that I put under a hen proved to be fertile. I think I have seen the statement in some of the poultry-journals that in many places ducklings, properly fatted, bring one dollar in the market for roasts, when only six weeks of age. I do know that they are of pretty good size when six weeks old; but I do not know how much they would be worth for roasting. Now, at ten cents apiece for eggs (and that is what I received for all I sold), and twenty cents each for ducks a day old, there is certainly money in the Indian Runner ducks. When it comes to supplying the market with eggs or ducks for food I do not yet know what the price will be nor what the profits will be. So far as the quality of the eggs is concerned, I could not tell a scrambled duck egg from that of a hen's egg. As to the quality of the meat, I have never yet had the courage to kill one of my Indian Runner ducks, so I can not answer at present.

There may be something in the whole realm of animated nature that is handsomer and prettier than a day-old duck; but if so, I have not yet found it—no, not even a "girl baby;"* and then their cute comical ways with their red shoes and grotesque yellow bills! After one brood was about a week old they and the mother hen were near some garden peas that were just peeping out of the ground. One of the ducklings wandered over to a row of peas and sampled a tender shoot. Another followed, and soon all of the thirteen were at work at them. I drove them back, hoping that they would forget the peas. Not much! I

*I am sure my feminine friends will excuse the above pleasantry.

Continued on page 25 advertising.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. ROOT, Assistant Editor — E. R. ROOT, Editor — A. L. BOYDEN, Advertising Manager
A. I. ROOT, Editor Home Department — J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX — MAY 15, 1911 — NO. 10

Editorial

STRAY STRAWS arrived too late for this issue.

THE HOUSE SERIES OF ARTICLES.

SEVERAL of the York Staters are asking why the S. D. House series of moving pictures, illustrating his methods of comb-honey production, have not been forthcoming. In the the first place, Mr. House has been sick; and in the second place, our columns have been crowded with two other moving-picture series. The House articles will begin with our next issue.

A FEW TRICKS OF THE TRADE IN OUR SERIES OF MOVING-PICTURE ARTICLES.

PARTICULAR attention is called to the method used by E. D. Townsend for getting bees off the combs for the purpose of extracting—see page 303. We have seen Mr. Townsend do this stunt. It certainly works. Try it.

And while you are about it, do not forget to see the very valuable moving-picture series by O. B. Metcalfe. Beginners and veterans should read both articles, as they are full of little tricks of the trade.

A BACKWARD SPRING; COLONIES WEAK AND A SCARCITY OF BROOD.

IN a recent trip through Central New York we found conditions there very satisfactory for a clover and basswood flow this coming season. It has been a backward spring for most of the Northern States. Clover, from the general information that has come to this office, will be a month late. While our bees are backward for this time of year—that is, lacking the necessary force of bees and brood—yet, assuming that they have probably a month yet in which to make up lost time, they will be ready for the clover flow when it does come.

MORE OUT-APIARIES AND FEWER BEES TO THE YARD.

WE find this spring that our Clark yard is storing honey, and making preparations to swarm while the home yard is barely holding its own. The Clark bees have been gathering honey from the hard maples; and now that fruit-bloom is just opening up, there will be something doing in that yard unless we look out. We have decided on the policy of scattering our bees in more yards.

One reason why the home yard has not done better is because it is overstocked, and because it is flanked on one side by a town of 3000 inhabitants, the area of which furnishes practically no nectar. The Clark yard, on the other hand, is located four miles from town and about a quarter of a mile from woods of hard maple on all sides.

It will certainly be a good policy for some bee-keepers to have more apiaries and less bees in each apiary. Where there is one yard that will support 200 colonies there are ten that will not support more than 50.

MORTALITY AMONG BEES IN SOUTHERN CALIFORNIA FROM 50 TO 80 PER CENT.

THE following letter, received from one of our correspondents in Redlands, Cal., will explain itself. It would seem from this, that if this condition is at all general there will not be a large crop of mountain sage:

> Believing conditions throughout the country should be reported through the columns of our leading bee-journals I wish to report for this district of California. What the conditions are elsewhere in this State I can not say; but here they are most deplorable, the mortality rate being not less than 50 per cent on an average, some apiaries going as high as 80 per cent. The oranges are in full bloom, with few bees to handle the immense flow that is on; the sage also is beginning to yield.
>
> It is generally conceded to be the result of a long dry summer and fall, with no breeding to keep up the stock of young bees, and the old stock dying before breeding could overcome the loss.
>
> Many colonies have died with quantities of stores, others from lack of stores when extracting was followed too closely and too late in the season.
>
> Redlands, Cal., April 25. P. C. CHADWICK.

We shall be glad to hear from any of our other California readers. Write at once, telling us of the conditions. If there is going to be a scarcity of California mountain sage, let us know at once.

It will not do any good to make conditions any worse than they are; for when the facts are actually known, the market will take such a slump that it will go below what it would have done had the facts been correctly stated in the first place. The honey market has come to be so sensitive that a false alarm does untold damage. While the price may be boosted temporarily, yet when the honey actually begins to pour into the Eastern market there is bound to be a fearful slump. If, on the other hand, the market is prepared in advance, it will adjust itself accordingly.

We have every reason to believe that Mr. Chadwick, our correspondent above, has given a true statement of the conditions as they actually exist in his locality.

HEAVIER AND STRONGER COMB HONEY SHIPPING-CASES WITH MORE CORRUGATED PAPER.

A LARGER shipping-case, with heavier ends to nail to, and large enough in dimensions to take in a sheet of corrugated paper, top and bottom, and cross-partitions of this material, or better, perhaps, cartons for each individual section, will cost only 8 cents more than the present standard shipping-cases of 24 lbs. capacity. If such a shipping-case will save only one section out of the entire 24, it will pay for itself, and leave 5 to 10 cents per case to spare to apply on more shipping-cases, or deposit that amount in the bank as a savings account. But carefully prepared statistics covering some large shipments of honey show, however, that the present breakage and leakage amount to about 20 per cent. At a wholesale rate of 15 cts. per lb., and counting the broken honey worth half price, this would mean to the producer an actual saving of 35 cts. for a 24-lb. case, or, on a crop of 10,000 lbs. it would mean a saving of $145.95, or enough to buy shipping-cases for another crop of 10,000 lbs. Why, then, should we bee-keepers continue the antiquated way of shipping our fancy product (fragile if any thing is fragile) in light shipping-cases, when the breakage amounts to so large an item?

As a matter of fact, there is another thing for us to consider. Would it not be wiser for us to go one step further and have no shipping-cases of, say, more than 12 sections? This would make the relative cost per section higher, but it would insure very much better delivery. If we must use the 24-lb. case we can make a very much stronger box by making it approach the form of a cube—that is to say, a double tier, 12 sections to the tier. There should be, then, three pieces of corrugated paper—one in the bottom of the case, one between the two tiers of sections, and one on top.

The advice is given to use carriers, and not without good reason. But many times, orders call for one or two cases at a time. What are we going to do? Ship the two cases by themselves? Of course we can take our present cases, find a larger box, and pack them in straw; but would it not be cheaper and far more satisfactory to make the shipping-cases right in the first place? With better cases, we could get some concessions from the railroad companies and possibly we could afford to have them shipped back to us as empties.

ITALIANS VS. OTHER RACES OF BEES FOR THE SOUTHLAND.

IF there is any one fact that was impressed on us during our recent trip south it was the fact that pure Italians—the most desirable race of bees, in our opinion, for most Northern localities in the United States, do not possess *all* the qualities needed in some localities. The South presents a great variety of not to say peculiar conditions, essentially different from those in the North,

One marked characteristic of the Italians is to breed up preparatory to the main honey-flow. Then when that is over they will cease brood-rearing This is a highly desirable trait in most northern localities. But in some southern localities that we visited, that *very characteristic* is a serious handicap in securing brood preparatory to another or the main harvest that will follow shortly after or perhaps in a few weeks. In several places in the South we ran into localities where there will be preliminary honey-flows, during which pure Italians would breed up enormously; and then, when the flow was over, they would stop breeding entirely. Apparently, from many centuries of environment they have become accustomed to making one grand spurt, and "wind" themselves in the race, to use a familiar figure.

Now, what some of our Southland bee-keepers desire is a strain of bees that will breed when they want them to. Said one bee-keeper, "We may have a preliminary flow that is extraordinarily strong. It is during such times that Italians will breed up well, and then stop altogether. Even stimulative feeding thereafter seems to lose its power over them." Well, it is coming to pass that some of our leading bee-keepers in the South have learned that a cross of leather colored Italians and Caucasians or Carniolans, both of which are more prolific breeders than Italians, make a very desirable strain—a strain that will not "wind" itself on the first preliminary honey-flow, even though it be a heavy one.

Mr. J. J. Wilder, of Cordele, Ga., who owns and operates 21 apiaries—9 in Florida and 16 in Georgia—has run across this condition in his localities, and has solved it by crossing his leather-colored Italians with Caucasians which he obtained from the government. Said he, "If the Bureau of Entomology had never done any thing else for the bee-keepers of the United States, it would have well served its purpose by introducing this desirable strain of bees."

Mr. A. B. Marchant—in fact, many of the bee-keepers along the Appalachicola River, Florida—had a preliminary honey-flow along in January and early in February of this year, that set their bees to breeding heavily; but in spite of all they could do to make them continue breeding to take care of their main honey-flow, yet to come from tupelo and ti-ti, the bees would not breed. All indications showed that there would be immense yields from tupelo; but when the writer left that region, it was feared there were not bees enough to gather it. When we explained this situation to Mr. Wilder he said he would overcome it by crossing leather-colored Italians with Caucasians.

Our readers will remember that our own personal experience with Caucasians in one of our northern apiaries was any thing but satisfactory; how they bred excessively out of season, and swarmed in spite of all we could do. They would build burr and brace combs, sticking every thing fast, and then

wind up by daubing every thing with bee-glue. It is easy to see, however, that these *very* qualities, undesirable for us here in the North, might serve an excellent purpose when held in restraint by a strain of bees having opposite tendencies.

This is a fruitful and important theme for discussion, and we shall be glad to hear, not only from our Southern but Western breeders who run up against the same problem.

AN IMPORTANT GOVERNMENT DECISION THAT INDIRECTLY FAVORS THE HONEY BUSINESS; SACCHARIN BARRED FROM FOODS AFTER JULY 1, 1911.

Two or three years ago we had considerable to say on the subject of saccharin—a product of coal tar, and hence poisonous as a sweetening for jellies, jams, beers, and soda waters. We explained to our readers time and time again, that any product of coal tar, when used in food, was injurious. The fact that it is 300 times sweeter than cane sugar makes it very cheap; and the manufacturer of sweet pickles, jams, and jellies, and the brewers, have been using large quantities of it in place of the more expensive sugar. We have been told that a large percentage of the soda-water fountains have been using the product.

We have been hoping for some years that there would be a government decision that would bar the use of saccharin; and now our dear old Uncle Sam has given a fair warning that on and after July 1 its use must be discontinued. This is what he says:

U. S. DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
Washington, D. C., April 28, 1911.

The Secretary of Agriculture has to-day issued a decision, based upon a finding of the Referee Board of Consulting Scientific Experts, which forbids the use of saccharin in food on and after July 1st next. The decision is under the Food and Drugs Act, and will prohibit the manufacture or sale in the District of Columbia or the Territories of foodstuffs containing saccharin, as well as interstate commerce in such foodstuffs. The finding of the Board is the second since its creation, and is regarded as very sweeping, inasmuch as the decision affects more than 30 different classes of foods. Some of the articles affected are soft drinks, sweet pickles, jellies, and jams, and, in some instances, beer.

The decision as promulgated is signed by the Secretary of the Treasury, the Secretary of Agriculture, and the Secretary of Commerce and Labor, in order that the regulations embodied in the decision may be put into effect. The decision follows:

"At the request of the Secretary of Agriculture, the Referee Board of Consulting Scientific Experts has conducted an investigation as to the effect on health of the use of saccharin. The investigation has been concluded, and the Referee Board reports that the continued use of saccharin for a long time in quantities over three-tenths of a gram per day is liable to impair digestion; and that the addition of saccharin as a substitute for cane sugar or other forms of sugar reduces the food value of the sweetened product, and hence lowers its quality.

"Saccharin has been used as a substitute for sugar in over thirty classes of foods in which sugar is commonly recognized as a normal and valuable ingredient. If the use of saccharin be continued it is evident that amounts of saccharin may readily be consumed which will, through continual use, produce digestive disturbances. In every food in which saccharin is used, some other sweetening agent known to be harmless to health can be substituted, and there is not even a pretense that saccharin is a necessity in the manufacture of food products. Under the Food and Drugs Act, articles of food are adulterated if they contain added poisonous or other added deleterious ingredients which may render them injurious to health. Articles of food are also adulterated within the meaning of the Act if substances have been mixed and packed with the foods so as to reduce or lower or injuriously affect their quality or strength. The findings of the Referee Board show that saccharin in food is such an added poisonous or other added deleterious ingredient as is contemplated by the Act, and also that the substitution of the saccharin for sugar in foods reduces and lowers their quality.

"The Secretary of Agriculture, therefore, will regard as adulterated, under the Food and Drugs Act, foods containing saccharin which, on and after July 1, 1911, are manufactured or offered for sale in the District of Columbia or the Territories, or shipped in interstate or foreign commerce, or offered for importation into the United States."

We regard this as one of the most important and far-reaching decisions that have been rendered by the general government for a long time. Dr. Wiley, of the Bureau of Chemistry, and the time-honored champion of pure food, has long opposed the use of saccharin. The fact that he is now supported by his associates, and by those higher up, is a matter of no little importance. It is going to mean a big boost to the bottled-honey business that has heretofore had to compete with saccharin-sweetened jellies and jams, and some glucosed products that could be sold for less money than honey. It will mean, too, that comb honey will also have a larger sale, although it has never belonged to the class of cheaper products.

In spite of the corruption in high places, in spite of the graft and wholesale bribery in some of our legislatures that have been revealed lately, the world is moving to higher and better things. It is moving, because graft will be no longer tolerated. The legislators who had a price for their votes will be relegated to the past. When that day comes, we shall expect that all the injurious patent medicines, as well as all medicines containing large percentages of alcohol, and all injurious food products—injurious because they contain preservatives and injurious flavorings—will be barred from the stomachs of our American people. The day is almost here now.

Later.—The morning papers are telling how a little 18-months-old baby was made very sick by eating some patent medicine thrown upon the porch. The police force are after the dispensers of this medicine thrown out so promiscuously for the purpose of advertising. The law ought to be so rigid that no headache medicine can be sold or given away except on the prescription of a regular physician.

THE STEWART METHOD FOR TREATING AMERICAN FOUL BROOD WEIGHED IN THE BALANCE AND FOUND WANTING.

IN the July 1st and 15th issues of this journal for last year, we published the Stewart method for treating American foul brood. In brief, Mr. Henry Stewart in those articles claimed that, by making diseased colonies very strong in a honey-flow, he

not only could cure the disease but *save all the combs*, no matter how badly they might have been infected. At the time we published the initial article we said in an introductory note:

> We are not so enthusiastic as to believe that Mr. Stewart's method of cure is going to revolutionize our methods of treatment for foul brood. So many things have looked good in the past, apparently were good, and turned out to be failures after all, that we confess that we are becoming more and more conservative.

And so it proved. Since that time considerable correspondence has arisen, some of which not only criticised Mr. Stewart, but the publishers of GLEANINGS, for giving out such a treatment that had not been more fully tested. Two State foul-brood inspectors, good friends of ours also, wrote us, expressing regret that the method had ever been given publicity, saying they felt they would be considerably handicapped in their work, for the reason that many careless and irresponsible persons, thinking they would be able to save the combs, would disregard their instructions to shake, and melt the combs and follow the Stewart plan instead; that they would make a mess of it, and keep infection in the locality indefinitely. We replied, saying that possibly we were wrong, but we believed it was the function of a trades journal to place a plan of this kind, that gave us hopes of saving combs, before the bee-keeping world, so that many expert bee-keepers could try it out; for we argued *if* there is even a *possibility* of saving the combs we ought not to turn it down without placing it before the public. However wise this policy may have been, reports since received from all over the country from persons who had tried the Stewart plan showed that it was a failure. In the mean time we began to get letters from some of Mr. Stewart's neighbors, informing us that, if we would investigate, we would find that his treatment was not an unqualified success even in his yards.

About this time we got in touch with one of the foul-brood inspectors for Illinois, Mr. J. E. Pyle, of Putnam. The latter wrote that he had visited Mr. Stewart and that he was given every opportunity to investigate his apiary, and treatment in particular. It is not necessary for us to go into details; but he came away satisfied that the treatment was not all that might be desired. We have also a statement from Mr. C. E. Bowen, of Linden, Ill., who was in Mr. Stewart's employ from April 1 to July, 1907. In this letter he says that he would not go so far as to say that the Stewart method was not a success; but that he and Mr. Stewart treated the bulk of the Stewart bees by the McEvoy method. He also went on to say that he tried the Stewart method among his own bees, but that it had been a complete failure in his locality. In another letter he says Mr. Stewart showed him some colonies that he was experimenting with, but that those colonies were in a worse condition when he left than when he first came.

These matters have all been referred to Mr. Stewart, who still seems to have unlimited faith in his treatment. He says that the reason why he used the McEvoy plan when Bowen was there was because the season was poor; that in order to make his plan work he must have a good honey-flow.

One or two facts have been presented that seem to indicate that Mr. Stewart had both American and European foul brood in his yard, although the evidence goes to show that the amount of European foul brood, if any, was very small. It is generally admitted that a strong colony in the midst of a honey-flow (two important factors in the Stewart system of treatment) will very often cure *European* foul brood; but so far no evidence in this country has been presented, excepting that from Mr. Stewart himself, showing that the plan has ever been a success with the *American* type of the disease. It is but fair to say, however, that Mr. Samuel Simmins, an English authority on bees, claims that it is possible for strong colonies to clean American foul-brood scales out of the combs; but it seems quite certain to us, (as we pointed out on page 58, of our issue for Feb. 1st) that his experience relates to the European type of the disease, which we are now reasonably sure is the foul brood often referred to by English writers.

Mr. Stewart, to prove his claims, says he is willing to establish a hospital yard where his method can be tested out before an impartial committee. But the verdict of some of our readers who have tried the plan and found it a failure is sufficient to convince us that the public had better let it alone.

We feel that Mr. Stewart has tried to be entirely fair and truthful; that certain diseased combs were cleared up of disease we can not deny; but it is our opinion that the said combs were affected with *European* foul brood and not the American type.

In this connection it is fair to state that a piece of infected comb sent from the Stewart yard to Dr. Phillips, of the Bureau of Entomology, Washington, D. C., was reported back as American foul brood; but this would not be positive evidence that the other disease might not also have been present. The fact that European foul brood is or was present in Northern Illinois, and that Prophetstown is also located in the northern part of the State, rather lends color to the belief that European foul brood was the disease that Mr. Stewart cured.

In this connection it was reported that a certain Mr. Stewart put in a protest against the passage of the Illinois foul-brood bill—a bill that would be more effective than the one on the statute-book; but we are convinced from the evidence in hand that Mr. *Henry* Stewart is not the Stewart who had any thing to do with it.

We have endeavored, as far as possible, to set forth all the facts gathered from our correspondents, covering a period of nearly six months. If we were to publish all the letters, the space of one whole issue of this journal would be taken up and then leave a lot more to be said.

Siftings

By J. E. CRANE, Middlebury, Vt.

Curious, but almost every year as the farmers begin to bring in maple sugar I have noticed an increased demand for honey.

That is a good point Mr. J. A. McGowan makes, page 136, March 1, that one or two days' neglect of little details may lose a season's crop.

That suggestion, page 122, March 1, about sweetening railroad men, is a good one. Not only do you get better handling of your honey, but their friendship and good will.

Mr. Byer's advice, page 125, March 1, not to let hogs run in a yard of bees, is good. But provided they are not too large, I like to have sheep in a yard to keep down the grass.

I don't think many of us, as we grow older, would care to go back and live our lives over again. But when I read F. Dundas Todd's "Bee-keeping as a Hobby" I think I should like to begin bee keeping all over again.

Page 61, Feb. 1, Mrs. Acklin tells of a runaway swarm in California, just before Christmas. We are not troubled with runaway swarms here in Vermont at that season. No such annoyances from August until May.

Pretty good proof on page 150, March 1, that bees will sting black spots or dark cloths more promptly than light ones. My only contention has been that they will sting something or some person they are accustomed to less than one they have rarely or never seen before.

Why is it that, among the many means found in magazines now, one never sees honey and warm biscuits mentioned for the tea-table? I wonder if they think such fare would be too rustic; or have those who planned these elaborate meals never heard of honey? More advertising needed.

Page 123, Chalon Fowls is said to have presented a paper at the Ohio State Convention in which he showed how to develop a trade in "honey butter." Will he or some one tell us what "honey butter" is? [We understand that Mr. Fowls was referring to granulated honey in brick form.—ED.]

Frank Hill calls attention, p. 116, Feb. 15, to the value of introducing a queen-cell into a colony to supersede the queen. I submitted the same question last summer to some very intelligent bee-keepers, and it was their opinion that, if the queen was a year old or more, it would prove a success. It is a very important matter, and I hope to test it this year.

The advice that Hermann Rauchfuss gives on page 127, March 1, that bee-keepers should raise their own queens, is good, not only because such queens will be likely to prove more valuable than those shipped from a distance, but because they can be raised during the swarming season more cheaply; and no bee-keeper should consider his profession complete until he can rear his own queens.

Dr. Miller inquires, p. 60, Feb. 1, whether he shall melt up his combs because they are old. Some way I feel that bees do better on combs two or three years old than on those which are very old, as old combs contain not only a good many imperfect cells, but some which have been worked over into drone cells, rendering them worthless for breeding purposes because they are filled with old pollen.

J. E. Hand, page 148, March 1, has a short article entitled "Instinct Always the Same." Now, here are two colonies in the same kind of hives, with the same number of combs, and, as nearly as we can judge, the same amount of brood and bees, and alike in all respects; even their instincts are the same; yet one will swarm while the other works on through the honey season without a thought of it. Why is it?

Mr. A. A. Byard, of West Chesterfield, N. Y., came up to our Vermont bee-keepers' convention, bringing samples of his new foundation-fastening machine. It works somewhat differently from the Daisy fastener, in that it deposits on the section all the wax it melts, fastening the foundation in more securely with the same pains taken, and no wax runs off on one's clothes or on the floor. He sold about twenty-five to Vermont bee-keepers during the convention. The one he left with us has given good satisfaction.

Mr. Townsend believes in having water near his bees in early spring, where they can get it without being chilled. He says, p. 138, 139, March 1, "Only half the advantages of outside protection for bees during the months of April and May have been told. It makes nearly the whole difference between failure and success in the surplus crop of honey." Alas! we forget how frail a thing a bee is, especially in cool weather. When partially chilled by taking in nearly its own weight of cold water, a very light breeze beats it to the ground. If we could measure these losses I believe most of us would be surprised.

Bee-keeping in the South-west

By LOUIS SCHOLL, New Braunfels, Texas

A REAL TREASURE.

A complete library of the best books on the subject of bee-keeping in all its branches is a real treasure to the bee-keeper. This is something that we have worked hard to procure for many years, and we rejoice in having secured so far nearly all the leading books on bee-keeping, and also back numbers for several years of most of the bee-journals. For the purpose of reference at any time, this is not only a great convenience but an advantage.

One of the latest acquisitions to our library, and one that has given us a great deal of pleasure, is GLEANINGS from the very beginning of its existence, nicely bound in book form. By comparing the first issue with those of to-day the progress which has been made is evident. We become aware that in this age we are enjoying a simpler bee-keeping than in the days of yore, and that our path has been made easier to travel by those veterans to whom we are indebted for the ways they have opened.

BEES AND POULTRY.

It may be interesting to our senior editor to hear that he is not the only poultry enthusiast connected with GLEANINGS, but that *we* are also "in the ring of poultry cranks." To tell the truth, keeping poultry works well with bee-keeping if the person so engaged understands the management of the combination. We have become entangled in these two lines of work for two reasons: First, because of the old saying, that a busy business man should have some kind of hobby on which to spend his spare time, and thus divert his mind from his cares. We have always suggested that there is no other side line like bee-keeping for busy men. But why have we never thought about a hobby for the busy business bee-keeper? It might be said that for him "more bees" would be a remedial measure; but would not that make his business life still more strenuous? For this reason we have made fancy poultry-keeping our hobby, and we like it immensely, as we get a lot of fun out of it.

The second reason has been the fact that, aside from the pleasure that we have gotten out of the hobby, we have found this new venture so remunerative that we have had to increase our poultry business to such an extent that it is really not a hobby any longer. The consequence is, we now have two businesses to look after, and will continue them as long as they work as well side by side as they have. Since most of the poultry work is early and late in the day, while the bee work comes in between these two periods, the combination works very nicely; and as long as we get our share of profits from both, as well as a lot of real pleasure, why should we not combine them? Of course, we are well aware of the fact that this is a time of specialty in all lines of work, and this is what we are trying to adhere to even now. Can we do it? We are trying to make a specialty, and strictly so, with our bees; at the same time we are trying to do the same with the chickens. Can we?

THE VALUE OF A GOOD ARMOR.

Time and again we have been in position to show that it pays in the long run to be well armored for extensive work in the apiary, especially if a great deal is to be accomplished. We have often had arguments presented to us to show that it is not so necessary to be protected absolutely by a good veil and by gloves. While all this advice may work very nicely with a few colonies of very gentle bees, we have not been able for many years to work our own apiaries in that manner. While we did not believe in wearing even a veil during the first eight years of our bee-keeping career, bearing many a painful sting unnecessarily, we do not now work in the apiary without gloves. The veils we have adopted are much more substantial than the flimsy makeshifts with which we were satisfied at first. These are now made of wire cloth, very much like the Alexander veil, but so that they can be worn with a hat — a thing that we must do here in the South. With such a veil, gloves on our hands, and every thing else bee-tight, we have stood our ground when "the other fellow" was retreating from a sudden onslaught. Of course, we realize that our bees are much more vicious than ordinarily. This is generally the case where they are handled in a hurried fashion. In this respect we believe they are very much like the Coggshall kind of which we used to read so much; and we venture the assertion that, where bees are handled by lightning operators to any extent, they are not the gentle kind that can be handled without veils and gloves.

It has been argued that slower manipulations should be practiced in preference to the rapid lightning methods of some of our most extensive bee-keepers; but we have found, after trying this, that, unless we got a more lightning-like move on us, we were not able to accomplish as much. And in our mind this is the only real business way of wholesale bee-keeping—a system whereby the maximum amount of work can be done in the shortest length of time, by which every cut-and-dried short-cut and labor-saving method can be put into play with good results.

Bee-keeping Not Such a Bad Business.

I took 4½ tons of extracted honey from 52 hives, spring count; sold all at 12 cents per lb. I have a good market in Ottawa City. I have 91 colonies in the cellar.

Yarm, Quebec, March 28. R. MCJANET.

Conversations with Doolittle

At Borodino

TOO MUCH POLLEN IN BROOD-COMBS.

A correspondent writes: "The combs in my hives are badly filled with pollen at a time when they should be filled with brood. Can I remove it? Why do bees store so much pollen and honey in the brood-combs just before the main honey harvest?"

In this locality two things generally incite the storing of too much pollen and honey in the brood-combs at the beginning of the season, or as soon as the bees become numerous and active during May and early in June. The first is, a poor queen; or, it would be better to say, one which does not lay enough eggs so that the increasing larvæ from those eggs will consume the pollen and honey as they come in from the fields. In other words, the old or field bees are too numerous for the laying capacity of the queen. The remedy in such a case is to change the queen for a younger and more prolific one. And this is a matter that should have been looked after during the latter part of the season before, for it is far better for a colony to have a prolific queen when spring opens than it is to try to introduce such a queen to take the place of a failing one in May or June. The change will generally consume a period of from five to ten days; and this, with the slowness of the failing queen earlier, sometimes makes such a difference in the number of bees at the time when they are most needed that there is a partial failure in the honey crop.

The other cause for the storing of too much pollen and honey in the brood-combs is, too large a hive or brood-chamber. Such a colony is in nearly the same condition as is the one having the failing queen in a smaller brood-chamber; for if the season opens with a large amount of comb unoccupied with brood, the bees will begin storing in the empty comb rather than enter the sections, either to build comb or to draw out foundation. Having once commenced to store honey and pollen in large quantities in the comb immediately surrounding the brood, the bees are very apt to continue doing it to the detriment of the honey crop.

But even with a good queen and a hive of the right dimensions to accommodate her prolificness it will often happen that she does not breed up to her full capacity when pollen is coming in very freely. This is something I have never been able to account for satisfactorily, although I have spent much time in making experiments for the purpose of trying to find out. We have an excess of pollen here from the hard maple, which comes between the willow and apple bloom, or at just the time I have always been the most anxious for an abundance of brood; for the bees from such brood are those which work to the best advantage in the clover harvest. During hard-maple bloom, if the weather is good, some colonies will fill combs almost solid with pollen, with more or less honey along the top-bars to the frames. Many times I have removed these and have put empty combs in their places, with the result that they were as full as the others in a few days without a single egg.

Having found that I did not gain much in this way, I next put in dummies in place of the frames taken out, in colonies strong enough for the sections. Thus, with a greater force of the bees above, what honey did come in was used for making a start in the sections, thereby removing the honey part of the pressure from the brood-combs, while at the same time a great gain was made toward a good crop later, in the sections.

Some years after this, I filled frames with brood foundation and took out those which contained honey and pollen, using these foundation-filled frames in place of those which had been removed. I discovered that, where honey enough was coming in from the fields to cause the bees to draw out this foundation, the queen would fill it with eggs before the cells seemed deep enough for much honey or pollen to be stored in them. I then had brood where I had had only honey and pollen before, when I used empty combs.

All observing apiarists know that, when queens are laying at their best, the bees give them food every few minutes. But at these times, when the combs are being crowded with pollen, I have rarely noticed the bees doing this. For this reason I have always felt that the fault lay with the bees rather than with the queen, and that, if any plan could be devised whereby they could be caused to feed the queen during an excess of pollen to the amount necessary for her greatest prolificness, or, in fact, at any time when an excess of eggs is desired, we would have the "key" to the situation, for this pollen and honey could be changed into brood at will. But the dummy (or foundation) plan, as given above, seems to be about the only thing in sight so far.

There is always something about drawing out foundation or the building of comb that sets the bees to feeding the queen more abundantly, and she in turn lays more than when no comb is built. This seems to be their instinct when building comb. Where combs can be drawn from foundation, or built from starters during the breeding season, they are usually filled with brood later; and where young brood is maturing rapidly much honey and pollen are used, thus keeping the combs from becoming overloaded, and assuring a lot of bees for the harvest.

But we are often more scared than hurt over this pollen matter; for in most places there comes a scarcity of pollen a week or so later, at which time the bees seem to become suddenly anxious for brood, so that combs apparently nearly spoiled because they were so full of pollen very soon assume a different appearance by being filled with brood; and by the time the harvest from clover is on, very little more pollen appears in the hive than is actually necessary.

General Correspondence

BETTER PACKING-CASES.

Why We Can Afford to Pay More for a Case that will Insure the Safe Arrival of Comb Honey; Paper Cases Not Affected by Water.

BY J. E. CRANE.

You say, Mr. Editor, on page 122, that at both the Cincinnati and Indianapolis conventions you emphasized the importance of larger and stronger shipping-cases—larger, to admit the use of corrugated-paper partitions, and stronger, to stand the rough usage they very often receive. Quite right you were, as such cases will prove a great improvement over many now in use; and while, to my mind, not the best, they will serve a most excellent purpose, and make an easy resting-place in the transition from a wooden to a complete paper case; for, if the truth must be told, it is an awful comedown to think of giving up those beautiful sandpapered white-basswood shipping-cases, with sliding covers, glass fronts, and all that, for a tan-colored paper box tied up with a string. I know, for I have had some experience right along these lines. Five years ago I sent quantities of honey to market in just such cases as you are now recommending; but, as I said, they are a great improvement over many of the cases sent out during the last few years. I think the improvements you suggest are, perhaps, about as much as bee-keepers as a whole will at present stand for; but when once the bee-keeping fraternity get aroused to the importance of this subject they will want something more satisfactory than even a wood and paper case.

I was much interested in Mr. Weber's statement, that paper cases had proved very satisfactory except that, when they get wet, they are likely to go to pieces, as they will not stand rain or wet. I used to worry about what might happen if paper cases should get wet; but I am not lying awake nights any more thinking about what might happen, for we have for the last two or three years had them made of water-proofed paper that will turn water like the back of a goose. Indeed, I have poured water on to such paper and let it stand for an hour, without its doing any serious harm; but it is better to keep both wooden and paper cases from getting wet; for, if they do, they seem to absorb dust like a sponge, and reach their destination in a most unattractive condition.

You speak of the extra cost of five cents per case. That means $5.00 per 100, or $50.00 per 1000, and will look pretty large to some bee-keepers; but isn't the honey worth one fourth of a cent a pound more if put up in such cases? A dealer in Boston told me a few weeks ago that, where they sent out a wooden case, they crated it in hay, and then charged ten cents for such packing. This is not a quarter cent, but half a cent a pound extra. One dealer told us some time ago he would rather pay two cents a pound, and get it unbroken, than to run the risk of breakage as usually shipped.

We have been in the habit of charging five cents extra for honey packed in paper cases where the risk of breakage was reduced to a minimum, and dealers have been willing to pay it, too, without a whimper. I do not think it requires any prophetic wisdom to see that honey put up so as to reach the retail merchant without breakage will, after a little, bring from one-half to one cent more per pound than in less carefully packed cases. If a retail merchant finds only one comb broken in a case of twenty sections it is likely to reduce his profits half a cent a pound on the whole case.

There is another matter you might have mentioned in this connection to advantage; and that is, that better packing of honey will increase the sale and demand for it—I am not sure but as much as the campaign of advertising, so much talked about of late. A large per cent of goods is sold these days by agents, or drummers. It is comparatively easy for the drummer of a large wholesale grocery house to sell one or more cases of honey with a large bill of other groceries; but when the honey is received in a broken condition he is up against a good deal of a proposition when he tries to sell another case to the same dealer. A friend was telling me recently of being in a store in the east part of this State, some time ago. He saw a case of honey, and was looking it over when the proprietor observed, "You see, I have a case of honey."

"I was noticing it," said my friend.

"Well, you see the condition it is in."

"Yes, I see."

"Well," said the proprietor, "we could sell a large amount of honey if we could only get it in good condition; but it is no use."

Now, defective packing is not alone the fault of bee-keepers. It appears to be a national fault or disgrace, or both. Our consular reports are constantly talking of the necessity of better packing, and yet the shiftless ways continue. Only the other day I picked up the *New England Grocer*, and noted what it had to say along this line, which is somewhat humiliating. "The Germans and English, especially the Germans, lead us in trade in South America, where we should have it all, or nearly all. The people of those countries, especially in South America and the countries of Africa, admit that American goods and American manufactures are superior, but they can not buy them, many times, when they would like to, because the Americans will not pack their goods as the customs of the countries demand, and to suit the different conditions of transportation. Americans are not careful in packing their goods. They do not regard the conditions of shipment and the conditions of transportation in foreign

countries, where things are primitive, or, at least, primitive with things here, as seriously as they should."

Middlebury, Vt.

WHAT HAPPENS WHEN THE QUEEN WITH A SWARM IS KILLED.

BY DR. C. C. MILLER.

An Indiana correspondent writes: "If a swarm is about to issue, and I place a queen-trap in front of the hive, and catch the queen and kill her, will the swarm go back to the old hive and do as well as they did before they swarmed? Have you ever had such a case in all your experience?"

I never caught a queen in a trap and killed her, but I have had practically the same thing a number of times. My queens are clipped; and when a swarm with a clipped queen issues, it sometimes happens that the queen fails to return to the hive, and then we have the same thing as if I had caught and killed the queen.

Generally the swarm will circle about for some time, and then return to the hive. Sometimes, however, the swarm will settle on a tree or other object, and remain clustered, may be three minutes, may be fifteen minutes, before returning.

In a large apiary, at a time when a good deal of swarming is going on, there are sometimes unpleasant variations of the program. Suppose No. 25 has swarmed, and the swarm has returned to its hive. Just at this time No. 41 swarms. After circling about a little while, the swarm from No. 41 discovers its queenless condition; but, hearing the roaring made by the bees at No. 25, it enters No. 25 and peaceably unites there. This does not occur very often, and there is no great loss, for all the bees are yet in the apiary; but still one would rather each swarm would stay where it properly belongs.

As to conditions in the hive after the return of the swarm, of course they are not the same as before. The colony is queenless, with a number of queen-cells present. I don't know how much difference there is in the matter of industry, but I think not such a great deal. Somewhere in the neighborhood of eight days from the time the swarm issued, the first virgin is ready to issue with a swarm. In rare cases the stoppage of the honey-flow a few days before this time drives out all thought of swarming, and all the other virgins are killed in their cradles.

For a day or so before the young queen issues with the swarm, she spends her time scurrying about and piping. When all is still in the evening, put your ear to the hive and you will plainly hear her. Next morning, before the swarm has time to issue, go to the hive and destroy *all* queen-cells—no need to find the free virgin; for if she was piping she is all right, and that ends all swarming and leaves the colony in fine condition for work.

SECTIONS CAPPED DARK WHEN PRODUCED NEAR OLD BROOD-COMBS.

From far-off Australia comes this letter:

Dr. Miller:—I have read your "Forty Years Among the Bees," and GLEANINGS for about eight years, and I am rather surprised to find how generally dirty black brood-combs are used in producing comb honey. In most of the plans for dealing with swarming, the old combs are retained (in fact, I remember what good capital you consider brood-combs perfectly built—all worker-cells). In any case, where colonies do not swarm, or are prevented, the supers are given over the old brood-nest. In my limited experience in producing comb honey I have found it impossible to get nice clean sections above dark brood-combs, either with an excluder or without. The bees always seal the lower part of the sections perceptibly darker, owing to the proximity to the dark brood-combs. No doubt they mix some of the brood-cappings in when sealing the sections. I can manage to get clean sections by hiving, or shaking swarms on starters or foundation (or *new* combs of sealed honey from the previous season, *a la* Doolittle). Of course, in these cases the bees have nothing but clean wax to cap the comb with; but even then after several generations of brood have been reared the combs darken, and the sections also are not capped quite as white as at first.

A point that may have some bearing on the subject is that our honey-flow from eucalyptus gums lasts for several months, and is not often *very* heavy, so that bees may be more inclined to appropriate available wax than to secrete all fresh for capping. My hives are Danzenbaker, and so the brood comes very near the sections, being often right up to the top-bars of the brood-combs. During an extraordinarily good flow from "stringy-bark" gum (season before last), I noticed that the sections were very clean, even though it was dark honey, and at the latter end of the season.

I take off sections as soon as they are sealed, so that if any are dirty it is not on account of age.

What I should like to know is, how you manage in America (and yourself particularly) to get clean sections built over old brood-combs. In your book I do not find that you advise giving the bees a clean start each season. What do you think of the plan of shaving brood-combs down to the foundation? The bees accept them readily, and build them into new combs very nicely.

Hahndorf, So. Australia. L. W. DARBY.

I'm not sure I know enough to help you out, but I shall be glad to tell all I know on the subject. You are quite right in supposing my sections are produced over old black combs. No brood-comb is ever discarded on account of age. You are also right in thinking that proximity to the black combs favors darker sections. And in that, according to my first thought, was the secret of your trouble. That is, I thought the distance was too small from brood-comb to section. To be sure, my brood, as well as yours, in the height of the season, comes clean up to the top-bar (although I use Langstroth combs), but still a bee must travel 1¼ inches to get from the top of a brood-comb to the bottom of the comb in a section; for the top-bars of my brood-combs are ⅞ thick. But, as I read on, that theory was knocked out, for you say that you have the trouble still with excluders.

There may be something in your suggestion as to the slow yield; but I sometimes have slow yields, and I never noticed much difference as to whiteness in a slow yield. Yet there may be some.

There is just one guess left me that may possibly work—possibly, and possibly not. That guess is that you allow the sections to be *finished* close to the block combs. I

don't. It matters little how close to black combs the sections may be before the sealing begins. Years ago, when I used wide frames, I practiced putting a brood-frame in the super between the frames of sections, as a bait to start work in the sections. It was effective, only if I didn't remove the brood-comb before sealing began on the sections, the sections would be black enough. I do not remember that there was any trouble with the cell-walls, and am inclined to think that it is only after the work of sealing begins that the bees add scraps from the other combs.

So the matter of distance cuts an important figure; and if I should leave a super of sections next the brood to be sealed I should expect the sealing to be darkened. But a super is practically never left so close as that. The bees must travel at least 5¾ inches to get from the brood-comb to the comb in the section. Oftener the distance is 10 to 15 inches, and it may be 2 feet or more.

Perhaps I ought to explain that, when the first super is half filled, it is raised up and an empty one put under it; and as each super is added, the others are raised; so that in a few cases seven supers will be on at a time before the upper ones are ready to take off. In a rapid flow the lower super may be raised before it is half filled, possibly even when only a fair start has been made; and in a poor flow it may be more than half filled. But even if the bees should begin sealing before the super is raised, that beginning will not be at the bottom of the section, but at the top, at least three or four inches above the black comb.

If, now, your practice is the same as to raising supers, then I don't know what the trouble is.

Marengo, Ill.

EXTRACTED HONEY.

The Reason why Consumers Know Nothing About it.

BY E. G. HAND.

If you have not already closed the lid on the discussion which was opened in GLEANINGS a few weeks ago, page 3, Jan. 1, regarding a name for extracted honey, I should like to offer an observation and a suggestion —not a suggestion of a name, but something more to the point.

In your last article on the subject, p. 85, Feb. 15, you remark, with just a suspicion of resignation which may be read between the lines, that the public have learned to call honey removed from the comb "strained" honey, and that there seems to be no way of getting them to call it any thing else. My observation is that the reason the great consuming public call it strained honey is because they have been doing so rightly for — how many thousand years is it? And they have been doing so wrongly for only about fifty years, and have not discovered their mistake yet, simply because they have never been *told*, or have never been shown the difference. In other words, the advent of the honey-extractor has not been properly advertised.

Instead of so many bee-handling stunts at the fairs and elsewhere—demonstrations which are, after all, more spectacular than educative — my suggestion is that exhibitions be given of the handling, extracting, and canning or bottling of honey. A few years of this procedure, coupled with a certain amount of newspaper and magazine advertising, would soon teach the public to be up-to-date in the names they call honey. If we just sit quietly back and wait, it will take as long for people to unlearn the "strained" idea as it did for them to learn it. If we want them to *know*, we must tell them. I go to the big fairs, and see men making various kinds of biscuits and puffed cereals, and other kinds of food products. I watch them make boots and shoes, carpets, and even heavy machinery. In the "honey-building" I observe an abandoned extractor, and a few people outside the railing looking at it and wondering what it is for, while its owner is trying to sell a five-cent bottle of honey to another crowd at the other end of the railing.

We have it all in our own hands. What are we going to do about it?

Cobalt, Ont.

GRANULATION OF BULK COMB HONEY.

No Trouble from this Source in the South.

BY W. C. MOLLETT.

On p. 163, March 15, Mr. J. E. Crane says it would be impossible for him to handle bulk comb honey on account of granulation. I have also noticed that some bee-keepers in the North object to it on the score of cleanliness. While these may be valid reasons against it in the North, they are not applicable to this locality, nor, so far as I know, to other parts of the South.

As to granulation here, there is really little if any difference; for almost all the honey secured will keep about a year before granulating. In local markets here, granulated honey sells as well as any.

As to cleanliness, I can see no objection, as I can handle bulk comb honey as easily as sections. This depends almost altogether upon the person who handles it. I once bought a can of extracted honey from a Northern bee-keeper. It contained dead bees, insects, and other sediment, and was not fit to use. Of course, this was an exception; but I never will buy again of *that* man.

As to price, I have no trouble in selling all the honey I can secure, at from 12½ to 15 cents per pound in bulk; and I am of the opinion that the bees will store a third more

honey in frames than they will in sections. I can sell bulk comb honey more easily here than that in sections, as most people would rather have it at the same price. Extracted honey does not sell well in this locality, on account of the belief that it is adulterated with glucose and other substances. This was the case before the pure-food law was passed, and on this account it will take a long time to overcome the prejudice against it. As long as bulk comb honey sells at practically the same price as that in sections, I prefer to produce it, as I think it would cost at least five cents more per pound in sections. This difference of opinion as to bulk comb honey seems to be just a matter of custom. I can see no reason why it is not just as delicious and just as clean when handled carefully as section honey, and I am glad that most of the people of the South are of the same opinion. Of course, we all want to sell honey in the handiest and most profitable way, and it would be absurd to think that honey-producers of the North could dispose of their product in bulk until the opinion of the consumer changes.

There is no question in my mind as to the fact that the price of honey is too low; and I attribute this to the idea which seems to be generally diffused, that honey is adulterated with glucose and other syrups, and even that comb honey is manufactured. I also think that first-class honey, such as that from white clover, etc., should bring 25 cents per pound, and that the time is not far distant when it will. The prices of honey are far lower in proportion to cost of production than any other kind of food-supply. If the present pure-food law had been passed ten years sooner, I am sure that the price of honey would have been much better now than it is. However, we can only wait and hope for better prices in the future.

Stonecoal, W. Va.

HANDLING BEES.

Advice to Beginners All Right.

BY I. HOPKINS.

The recommendation to "give a few puffs of smoke, then wait a couple of minutes for the bees to fill themselves with honey when you may handle them without being stung," and which Dr. Miller condemns in the following words: "That's the sort of foolish advice still too often given, even in books" (see GLEANINGS for Nov. 15, p. 714), moves me to say that the doctor is entirely wrong in condemning it, for the advice slightly modified is excellent for those for whom it was intended, and the books containing such advice are to be commended.

Further on the doctor says, "A practical bee-keeper hasn't time to wait for any thing of the kind." True; but the advice is not intended for "practical" (experienced) bee-keepers, but for beginners, who may, for instance, have to transfer their bees from common boxes to frame hives, unaided, except by such instructions as they can obtain from text-books.

I have been present on many occasions when novices were undertaking their first transferring; and in order to give them assurance through the avoidance of stings, I have shown them, in the first instance, so far as this is possible, that, by giving a few puffs of smoke and then waiting about *one* minute before giving the bees another puff, they can turn the box of bees upside down with safety, a few seconds later, and then transfer by drumming or in any other manner decided upon. The doctor knows as well as any one that "bees filled with honey seldom volunteer an attack." Let a novice come out successfully from his first manipulation and he will, as a rule, go about the second one with all the confidence imaginable; and if he is made of good bee-keeping stuff he will soon do as the doctor or other "practical" bee-keepers do.

Auckland, New Zealand.

A NATIONAL HONEY-SELLING ORGANIZATION.

The Lack of a Uniform Grade and Quality a Great Objection.

BY J. M. DONALDSON.

The ideas expressed in Mr. Cavanagh's article, p. 146, March 1, are, without doubt, a move in the right direction; but, like other writers on this subject, he has overlooked one of the stumbling-blocks. He points to the fact that packers of other foods are reaping a harvest by advertising. We must take into consideration the fact that syrup, corn, peas, canned soups, breakfast foods, and, in fact, almost every thing in the food line, has just what honey lacks—that is, uniformity. We have clover, buckwheat, basswood, sage, mangrove, and many other different flavors. Again, in density, flavor, and ripeness, honey from different sources will give two or three grades, depending on the skill of the producer. The success of any article depends on quality and uniformity. When the housewife buys a package of food that suits her and the family she usually asks for the same brand of goods. Now, suppose she buys a package containing clover honey, which the family likes; but when she gets the next package, and it contains buckwheat or some other strongly flavored honey, how long will that family patronize our industry? If a central station were established, the honey should be graded according to quality, flavor, and color. In this way customers would get the same grade and quality at all times.

I do not claim to be an advertising man, but just an ordinary bee-keeper who has always marketed his own crop. However, I once worked in a bottling-house that handled carloads of honey each year. I mention this in order to show why I think one

of the plans would be a failure. On p. 147 Mr. Cavanagh states that sales would be made from the office, and orders shipped direct from members' apiaries. That looks well on paper; but is it practical? While I was working in the bottling-house a sample of honey came in which was good in every respect; but when the shipment came the honey was packed in old milk-cans that had long since passed their days of usefulness, and, to cap the climax, they were tied up in fertilizer-sacks which still contained enough of that product to make their original use apparent to all who came near them.

Just one more case. A bee-keeper had been successful in procuring a crop of fine honey. It was bought from a sample. One sixty-pound can was emptied in the heating kettle along with some two or three hundred pounds. We soon noticed a very strong odor. Investigation revealed the fact that the honey had been carelessly handled, being put in a can containing linseed oil. The result was, that about three hundred pounds of honey was ruined, and bottling had to be suspended until the kettle was emptied and thoroughly cleaned. Besides these two cases I have seen honey come in that was so sour it was hardly fit to use. Such cases as these grind hard, even on men who understand handling honey; but consider the effect they would have on the housewife, grocer, or druggist.

On page 147 Mr. Cavanagh says further, "They are paying now in the city an average of 20 to 25 cents per pound for extracted honey, but we can market it for less by direct means." If he can do this, I believe that he has the key to the situation; but from personal experience I doubt it. He will have rent, insurance, fuel, taxes, carting, and numerous other bills. His honey for table use will have to be put up in a suitable package (and the trade demands an expensive one), in such a way that it will not granulate, which requires experience and costs money; and with the present wholesale prices I do not think that many packers are crowding John D. or Andy, even if they do get from 20 to 25 cts. per lb. It is not the packer or dealer who gets this price, but the retailer. The producer selling to the dealer in a large way makes one shipment and receives the cash. Thus the commission can be divided between the dealer and producer.

Personally I think every bee-keeper who can should work up a home trade. He should use the best grade of honey put up in a neat attractive package, and should personally conduct a house-to-house canvass. Those who have neither time nor inclination for marketing in that way should devote their energies to producing a better grade of honey, and sell direct to the distributor who can blend, and discard honey not suitable, thus putting out a uniform grade. Good honey does not need to go begging.

Moorestown, N. J., March 23.

BEE-KEEPING FOR BEGINNERS; ILLUSTRATED.

The Use of Bee-escapes not Advisable if Queen-excluders have Not been Used over the Brood-chambers; How to Free the Combs from Bees without Shaking them Off.

BY E. D. TOWNSEND.

In our outyards we can not use bee-escape boards, for these do not work well except when queen-excluders have been used; and as we have always managed to do without these latter we have to get along without the escape-boards; for if there is any brood above the brood-chambers the bees do not desert it and go down through the escape to the combs below. On this account we have to depend upon other methods of freeing the combs of bees — a system not without its advantages, for no elaborate arrangement is needed for reheating the honey before extracting, as is necessary if the escapes are used.

It has been our experience that, if the bees are shaken from combs into an empty hive set on top of the brood-chamber or on the ground in front of the entrance, so the young bees that can not fly may run in, some of the combs are cracked so that there is more or less dripping of honey. This drip and the exposing of the combs causes robbers to be numerous. Sometimes during a dearth of honey (and all our honey is extracted during the period when no honey is coming in), robbers are so bad that we have to stop extracting for the time being until things quiet down. After a few such experiences we made an effort to improve our method of freeing the combs from bees. With the help of the engravings I will try to explain how most of this work is done without exposing the combs to the robbers to any great extent.

In the last issue I described our method of opening hives and removing covers, etc.; so in this present article I will begin with the cover removed, and give each step in detail until the combs are freed from bees and placed on the wheelbarrow. The use of a wheelbarrow in a bee-yard will be a part of my next article.

If the reader will turn to Fig. 1 he will notice that the operator is shown with the smoker in both hands. This is the only instance where we use both hands for the bellows of the smoker, and here both hands are needed when smoking the greater part of the bees down from an upper story. As explained in my former article, the wind is taken advantage of, for the smoker is so placed that the smoke is blown over the tops of the frames, as shown. When the honey is nearly all sealed over as it should be at extracting time (and as it will be if proper methods are followed during the honey-flow to give enough room but not too much room for the storage of the honey), it is no trouble to smoke the bees down below. Then this upper story is quickly removed to the wheelbarrow, and covered



Fig. 1.—Smoking the bees down from the upper super. Fig. 2.—Loosening the lowest super and smoking the bees down from the top of the brood-chamber. Fig. 3.—Sliding one comb after another to the side of the hive to brush off the bees.

with a robber cloth. If one is slow in getting this upper story removed after the bees are smoked, especially if the colony is of the nervous kind, many of the bees will rush back on the combs again.

Extracted-honey producers during the progress of the flow usually lift up the nearly filled super and place the empty one underneath. When this method is followed, the partly filled super is at the bottom at the close of the honey-flow. It is almost impossible to smoke the bees out of a story of honey if the combs are unsealed, or even though only partly so; and if such a super is being handled, or if for any reason the bees do not run down readily, we proceed as follows:

As shown in Fig. 2, the super next the brood-nest, which is the one that usually contains the unsealed honey, if any, as explained above, is pried loose from the brood-chamber in order to break loose any brace-combs that may have been built between the upper combs and the brood-combs below. A little smoke is blown in as shown, and then this super let down again on the brood-chamber in its usual position. Smoke is used until the bees on the lower third of the combs, at least, have run down below, and then a comb from one side of the super is removed as shown in Fig. 3. If robbers are bad, this comb, after the remaining bees are shaken off, is placed in the empty super provided for the purpose; but if there are no robbers about, the remaining bees need not be shaken from this first comb removed, but it may be merely set outside the hive-body, the bees left on it protecting the honey from robbers. A little smoke is blown in the place made vacant by the removal of the one comb; and with a long brush, as shown in Fig. 4, the bees are brushed from the side of the hive and also from the side of the next comb. Now this next comb is pried loose and slid over to the side of the hive, Fig. 5, and then the two sides of the combs thus spread apart are swept clean of bees. The comb at the side of the hive is then removed to the empty super, the third comb slid to the side, and so on across the hive. This work should be done quite quickly or else the sides of the combs first freed of bees will be covered with those that may run back. As soon as all the combs are removed, and the super freed from bees, it should be lifted off the hive at once, it having been previously loosened, as explained, and placed on the wheelbarrow, Fig. 6, before any of the bees below have a chance to return.

If the first comb removed is set outside of the hive as in Fig. 3, as mentioned, the remaining bees should now be shaken from this comb as in Fig. 7, and the comb placed in the super in the wheelbarrow with the rest.

At first thought all this seems like a slow and laborious method of removing combs to extract; but the most honey one man ever removed in one day in our yards (3000 pounds) was removed by this plan. Of course, we carried quite a number of bees into the extracting-room with this 3000 pounds of honey—perhaps as many as would be found in two natural swarms; but none of these bees were allowed to escape from the extracting-room during the day, but were carried out at night after they had clustered near the windows where we could get them. If there are bee-escapes above the windows they should be closed until toward night; and then, after most of the bees have been carried out, the escapes may be opened and the remaining bees smoked so that almost all of them will go outside.

Remus, Mich.

LOADING AND UNLOADING POWER HONEY-EXTRACTORS,

How Systematic Handling of Combs Saves Time.

BY O. B. METCALFE.

There are some bee-keepers just now who are contemplating the purchase of a power-driven extracting-outfit. My advice is that, if one has as many as 300 colonies of bees run for extracted honey, he should get a power-driven outfit, especially if all the colonies are in one yard. I know of some bee-keepers who are hesitating about getting an engine, because they feel that they are not mechanics enough. All such I would urge to get one by all means. It is great fun. I do not know of any thing I enjoy more than making my gasoline-engine get up and go when it does not want to.

Fig. 1 of the series of moving pictures shows a young man, Mr. N. C. Wayne, who worked with us last season, in the act of lifting two frames from the frame-box with his left hand. His next move is to take one of these frames by the middle of the top-bar with his right hand prior to putting them both into the baskets at once, as shown in Fig. 2. In order thus to load the extractor as quickly as possible, the uncappers must put the combs in the comb-box with the top-bars all turned one way; and the ratchet which holds the power on or lets it off should be set at the notch which will just keep the extractor turning slowly. Small hoppers on the comb-baskets in the extractor would help greatly in doing very rapid work. I believe that a hopper-shaped guide on the top of each basket in an eight-frame extractor would increase the amount a fast man could extract by about 200 lbs. per hour when working his best.

Fig. 3 shows Mr. Wayne unloading the extractor. The comb he holds in his right hand was previously taken out with his left hand and transferred to the right. In this operation the operator should never take his eyes from the work of his left hand. The power can be put on one notch further or so as to run the extractor about as fast again as when loading the extractor; and the left hand must have nothing to do but to lift the combs straight up as the baskets pass.



Fig. 4.—Brushing the bees from the outside comb and from the side of the hive. Fig. 5.—Brushing them from one side of two combs. Fig. 6.—Transferring the beeless combs to the wheelbarrow. Fig. 7.—Shaking the bees off the last comb.

The operator will soon learn to receive the combs in his right hand and toss them in a fairly regular pile behind without looking around. (Some might not want to have their fine combs treated that way; but no breakage occurs from this practice). I think that one skillful man, by this method, can unload three extractors while a man who takes out a frame at a time and places it in the super, then moves up his extractor and gets out another, is unloading one.

In Fig. 4 the operator is seen in the act of picking up four frames at once to place them in the super, as in Fig. 5. In Fig. 6 he is reaching back for three more to make out a super of seven frames. This placing of the frames in the super is done just after the extractor has been filled and started up. Any rearranging of hive-bodies, or stacking of supers with empty combs, can be done after the extractor has been reversed.

Mesilla Park, N. M.



HOW COMBS SHOULD BE HANDLED WHEN LOADING AND UNLOADING A POWER HONEY-EXTRACTOR.

AN AMATEUR'S FIRST YEAR.

BY R. J. RULIFFSON.

For several years I felt that I had latent somewhere in my system those germs which, if given proper culture, would produce a distressing case of bee fever; and during the summer of 1909 these same germs began to multiply so rapidly that, on the 12th of August of that year, I bought a five-frame nucleus of Italian bees with a select tested queen. This locality is an exceptionally good one for flowers, flowering shrubs, clover, linden, and for locust and sweet clover.

The nucleus arrived with apparently no loss of bees in transit, and was duly installed at sunset on the day of its arrival. This was about the last of the honey-flow from basswood here; but sweet clover came on in great profusion, and by Sept. 20, or thereabout, these bees had drawn out the foundation in the remaining five frames, and had become a full-sized colony.



R J. RULIFFSON'S SWARM SHAKEN ON THE ALIGHTING-BOARD OF THE NEW HIVE.

The fall was an unusually dry and hot one; but I could have secured a small amount of surplus from buckwheat and aster. However, I let the bees fill their hive to overflowing; in fact, they went so far as to build many bridges of wax between the brood-frames that they filled with honey. Late in October I built a cover out of ⅞ matched boards to slip down over the hive for winter protection. I did not know enough to provide a chaff cover, as I think I would now do; but over the frames was a piece of oil-cloth, and over that the regular cover. This constituted the only protection afforded the colony; but during the winter and spring I found less than fifty dead bees; and these represented nearly all there were, as their hive at all times was as clean as a dining-table.

On March 10 a neighbor (a florist) complained to me that the bees were ruining the lilac, genista, rambler rose, and other flowers which he was holding back for Easter trade. I went over to his greenhouses with him, and found bees in such numbers that they made the rambler blossoms look like a balled queen. There were quantities of black and hybrid bees there also; but as I lived next door, my bees were charged with all the damage. Later in the day, after the sun had gone down, my neighbor began to cool off to such an extent that he was perfectly agreeable to an arrangement whereby my bees could be closed in until Easter. I accordingly put my bees in the cellar. During the period of confinement there were warm days when I believe I felt worse than the bees in their mad attempt to get out after pollen; but I managed to relieve temporarily their desire to get through the wire netting by sprinkling water on it. The Saturday before Easter, I put them out on the old stand, at which time there were pussy-willows in bloom, and these, with the soft maples, were sufficient to keep the bees out of the greenhouse.

On one of the nice warm days in April I decided to clip the queen. There was very little choice in surgical instruments, as I had nothing between my wife's manicure scissors and the ax, so I chose the former with its curved blades, and, taking the smoker (I do not use veil or gloves at any time), I started in on this very uncertain undertaking. I discovered the queen on one of the center frames, and at each attempt to get hold of her I failed. Finally, however, I got her between my thumb and index finger. I do not believe my first trip in an airship could be half as nerve-racking as the fear that I would squeeze her too tight and permanently injure her. At the same time, I wanted to clip off enough of the wing-bow and yet not cut too close to the body. I finally decided that I would cut off only the



FIG. 1.—W. H. HARBER, ROCHESTER, N. Y.
Mr. Harber works nights on a newspaper press and spends what time he has in the daytime with his bees.

bow part of the wing, which I did, and I felt relieved when I saw her scamper off as she was put back on the brood-frame. The hive was literally alive with bees, and packed with brood and honey.

On May 16, at about 11:30 A.M. I received a phone message that the bees were going away, and to come at once. My office is within 200 feet of the house, and I am convinced that I did not take more than ten steps to get there. I had previously given careful and frequent instructions to those at home what to do in case of swarming; but the excitement had been too great, and I found the queen was in a neighbor's wife's hands trying to get out between her fingers, where she (the queen) had been shifted from the hands of my wife to allow her to bring out the new hive. I actually believe that, had I not arrived as I did, they would have put the ash-box on the old location instead of the new hive. I was not as cool as an ice-chest, but I took advantage of the demoralization and put things aright. The swarm clustered low; and to hasten the return of them to the hive we shook the bees into an apron and dumped them in front of the new hive, and then released the queen. They were all in at 1 P.M.

Just nine days later I examined the swarm and found every one of the ten full sheets of foundation drawn out so that one could hardly get a lead-pencil between. Owing to unfavorable weather conditions it was not until June 10 that I put on an extracting-super to bait the bees above. I left it on for three days, at the end of which period the bees had built out all the foundation nearly two-thirds, and had stored some honey. I then raised the extracting-super and placed a super of section boxes beneath. One day later I put a bee-escape board between and then removed the extracting-super. By the 24th of June it became necessary to put on the second super, as the first one was entirely filled, including the outside row, and three or four rows of cells in each section were capped.

The old hive, the second day after the swarm issued, was divided into two five-frame nuclei, the frames being so arranged that each nucleus had five or six queen-cells and an equal share of brood and stores. This

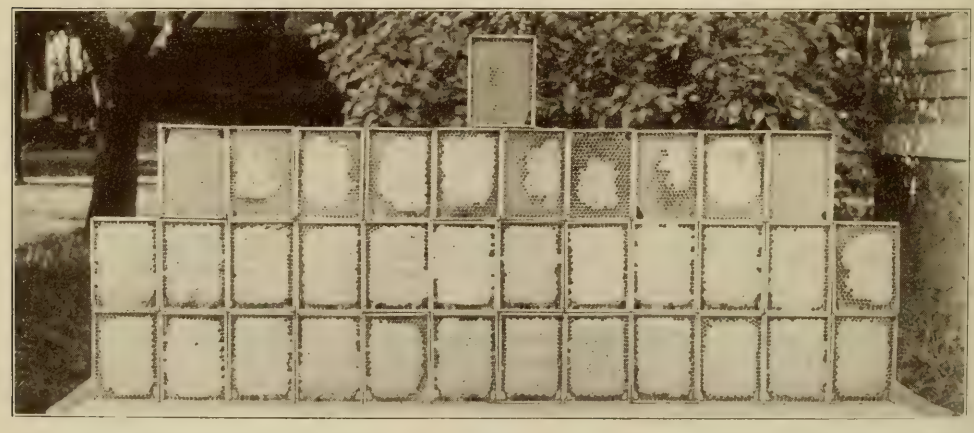


FIG. 3.—COMB HONEY PRODUCED IN ONE MONTH BY A SWARM HIVED ON COMB FOUNDATION.



FIG. 2.—W. H. HARBER CAGING HIS QUEEN-CELLS.

division was made for increase, and also prevented after-swarming. On the 24th of June these nuclei were carefully examined, and in each the five additional full sheets of foundation had been fully drawn out and filled with brood, and both hives were as strong as full colonies, each queen rivaling her mother in color, size, and prolificness. Both colonies were ready for supers at the last end of the clover-honey flow, with basswood and sweet clover following.

My knowledge of nature has increased fourfold since keeping bees, because my interest is drawn toward those plants which furnish the existence for those creatures that are born, not for evil, but for good.

Rochester, N. Y.

A BUSINESS MAN'S METHOD OF REARING QUEENS.

BY W. H. HARBER.

In my experience with queen-rearing I have used a combination of different ideas together with some plans of my own, which, so far as I am concerned at least, bring satisfactory results.

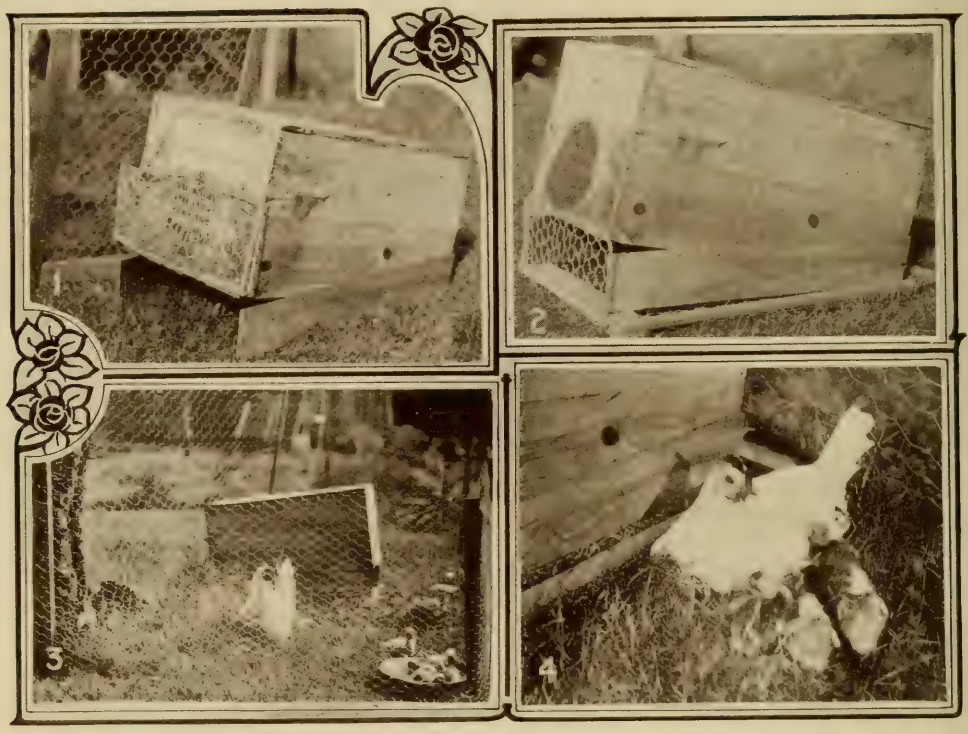
I use the artificial queen-cell cups, made by dipping a round stick in melted wax and grafting the larvæ into them, and rarely pay any attention to royal jelly or unsealed brood in the queen-rearing colony. My favorite plan is to dequeen the colony, and, after the brood is well capped, cut out the cells that have been started and insert my grafted cells. A colony thus prepared, having lots of young bees, will start from 15 to 30 cells, which cells, as shown in Fig. 2, are caged at the end of five days, and another set of grafted cells given. About three such groups of grafted cells is about all that a colony will stand successfully. I then divide up the colony into mating nuclei.

I do not make use of the very largest colonies for queen-rearing, as I prefer those moderate in strength. I select five or six combs of brood from strong colonies in order to provide young bees that will not be likely to swarm; and after the brood is nearly all hatched I start my queen-cells. I always get fine large cells that produce the very best queens.

Fig. 3 shows the honey produced in one month's time by a swarm hived on shallow frames June 22. The shallow frames were filled with full sheets of foundation, and on July 22 the super appeared full, so I placed a shallow extracting-super under it. The bees immediately stopped work in the sections, so I removed them, as the honey-flow had become very light, and I wanted the bees to store enough for winter.

The unsealed sections were practically full of honey; and if the flow had lasted just a little longer they would have been entirely finished.

Rochester, N. Y.



A. I. ROOT'S "SIMPLICITY" HEN'S NEST, BROODER COOP, AND COLONY-HOUSE; ALSO A GLIMPSE OF HIS DUCKLINGS AND THEIR MOTHER. SEE POULTRY DEPARTMENT.

BEE-KEEPING IN FLORIDA.

Some of the Difficulties.

BY E. G. BALDWIN.

Continued from last issue.

Of course, robbing and moth-millers are two nuisances that annoy even the best of bee-men, north as well as south. The difference is this: Here our summers are about twice as long as in the North, and we therefore have twice as much chance to suffer from these two difficulties. The danger from robbing, and moth alike, is largely remediable by careful handling of honey and combs. Only the careless bee-keeper need suffer very extensively; but a little negligence will tell far more quickly and more disastrously here than north. It is *impossible* to keep empty combs out of the hives for two weeks, in warm weather, in Florida, without adequate protection. Such protection is best found in tight tiers of hives with an empty hive-body on top, all joints wrapped with felt or paper, and the top super holding a pint of exposed bisulphide of carbon—the hives, of course, to be filled with empty combs, and a hive-cover over all. The bisulphide must be repeated every two weeks for the first month; then, if kept tightly closed, once a month will suffice. But woe betide the apiarist who forgets his removed combs for a month or two immediately after taking off. I have never seen anywhere else such tremendous onslaughts on combs and even frames as are here made by the moth when combs are left exposed. A careless bee-man near me a year ago extracted ten hive-bodies of full-depth frames, and, when done, set the whole lot inside the honey-shed, and—forgot them! When I went to the lot, in the following spring, the sight of the interiors was appalling. Not only was every comb eaten to a frazzle; not only every frame bored and punctured to a depth of an inch in many instances by the gnawing larvæ in their efforts to locate in a safe place with their cocoon-spinning, but the inside surface of every hive-body was layered half an inch deep with cocoons—a literal layer of them, tough and heavy as leather, so that the sheets of them could be peeled off, with effort, like a piece of rawhide. This is no exaggeration. I had seen the work of moth-millers, but this was beyond any thing I had even dreamed was possible from those soft, shy little millers that flit away from your hand in such a timorous, retiring way! Truly they love darkness because their deeds are evil. So difficult is it to keep empty combs off the hives that I have tried to keep them on the colonies as long as possible and remove them only when cold weather in early winter comes on. I am now trying the

plan of leaving them on, in extra bodies or supers, all winter; but *under* the hive-bodies containing the queen, and brood (if any). In the spring the position will be reversed.

FOUL BROOD.

With the long array of pests to assail the dauntless bee-man here, there is one thing for which he can be devoutly thankful. I refer to the absence of foul brood. There is no foul brood in Florida now, nor has there ever been to any extent. I base this assertion on State-wide inquiry, travel, and examination. Several years ago a little touch of it crept over the Alabama line, in West Florida, that has since disappeared entirely.

About twelve years ago there was a scare of it in the Hillsborough and Indian River districts, on the East Coast, that soon disappeared in and of itself. It may not have been genuine foul brood. The disease was not so well defined and known then as now, thanks to our excellent bee journals and manuals—yes, and our Federal and State aid. Not many years ago also, it was feared that it had made its appearance on the southwest coast. But none of the specimens sent to Washington showed unmistakable proofs of the disease—no clear case of it. Dr. Phillips, of the Bureau of Entomology, in speaking of it in a conversation had with him at the recent State meeting of Pennsylvania bee-keepers, in Philadelphia, said he could not say there was any case of the disease in Florida. I do not know how to account for its absence unless it be that fewer queens and bees, relatively, are shipped *into* the State than north, and more, relatively, are shipped *out* of the State. However, this is only a conjecture. The fact is, all the same, one to be thankful for.

One can not close an account of the difficulties of bee-men here without some allusion to the high tariffs levied on all transportation within the State. Formerly rates were atrocious. Ten years ago railroad rates were five cents a mile for a first-class ticket. Freight was almost prohibitive in price. The service a decade ago was also very poor. I read in a copy of *The Irrigator* for Jan., 1895, this telling notice from the pen of Mr. W. S. Hart:

"Transportation charges from Jacksonville to the North are quite reasonable; but further south in the State they are mostly excessive. *It is hoped that this drawback will soon be remedied.*" (Italics mine.) And in a penciled note, under the above, dated Jan. 14, 1898, he adds: "It has been to some extent."

To-day, thirteen years after the above was printed, conditions are greatly improved, though there is still room for vast betterment. Only three trunk lines reach down into the heart of the peninsula; but all the coasts, and large portions of the near-coast lands, are accessible by water through the many streams, rivers, and bays that lie a short distance inland. The St. Johns River brings all towns along its course in easy reach of New York, Philadelphia, and Boston, with reasonable freight rates. By it one can ship to either place named, from the central part of Florida, for the following schedule of prices (all-water route):

1st class, $1.38 per cwt.; 2d class, 89 cts. per cwt.; 3d class, 76 cts. per cwt.; 4th class, 59 cts. per cwt.; 5th class, 47 cts. per cwt.; 6th class, 38 cts. per cwt.

By rail, all the way, rates are somewhat higher. Express is still high. The rate for not over 50 lbs. from DeLand to Philadelphia is $2.50; not over 20 lbs. is $1.40, etc. A freight-car from DeLand to Punta Gorda (both in Florida) about 275 miles, costs today $114, though a car from Kansas to this place costs only $145.00 The further south the more costly, seems to be the general rule. But already the two-cent fare for first-class tickets is in vogue over Florida by purchase of non-interchangeable 1000-mile tickets. Freight rates are feeling the tug of popular sentiment and railroad commission's efforts. It can safely be said that, in Central Florida, exorbitant rates need be the dread of no one henceforth.

After a careful weighing of all the difficulties that hedge in the path of apicultural achievement in Florida, I wonder if the readers of GLEANINGS will think that "any Tom, Dick, or Harry" could make a *success* of bee-keeping here just because it is a warm climate.

De Land, Fla.

To be continued.

SORGHUM VS. REFINED SUGAR FOR BEES.

Molasses Safe if Soda is Added.

BY JOHN W. LOWRY.

In GLEANINGS for March 15, page 185, Mr. J. R. Bryant, of North Carolina, wants information on feeding molasses to bees. I want to say for the benefit of others, as well as for Mr. Bryant, that I have been feeding home-made molasses—that is, sorghum, and also the "Louisiana" cane syrup, for twenty years, without any bad results, and that without the addition of sugar. I do not feed molasses in preference to sugar syrup. I use it as a matter of economy when I happen to have a surplus of it on hand. I consider syrup made of granulated sugar the best manufactured bee-food extant.

In feeding this molasses I always reboil, take off the scum, or strain; and while still hot I add one teaspoonful of baking soda for every quart of molasses. The reboiling and soda destroy all acidity or sourness, and make the molasses perfectly safe; and it can be fed to the bees at any time of the year. I have fed molasses treated in this way to bees in the fall for winter stores, and they wintered well. But I have seen large numbers of bees die as a result of the use of sour molasses.

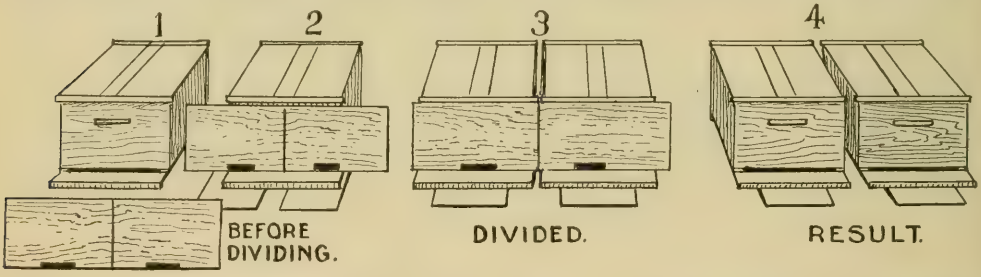
Buenavista, Texas.

Heads of Grain
from Different Fields

A Simple Plan for Dividing in the Spring.

For a few years I have been dabbling in bee-keeping, and have succeeded in getting some very large yields of comb honey. My yield last summer was the largest I have ever had, and averaged 160 lbs. per colony from eight colonies, spring count. I divide my colonies as early in the season as the strength of the colony will permit, and for the past four years my largest yields have come from my early divisions. A Banat-Italian cross gave me last year 250 4 x 5 x 1½ sections, 70 4 x 5 x 1⅞ sections, and stored 70 lbs. in telescope covers, after I thought the honey-flow was over, and had removed all supers. These divisions swarmed, and from the one spring count I had the above-mentioned honey crop, and from colonies with plenty of honey for winter.

For some time the problem of dividing bees equally, or, rather, of keeping them equally divided, presented the great barrier to this way of making increase. One year when I divided I left half



of the colonies divided on the old stand, loaded the others on a wagon, took them about three miles from home, then in a few days returned them. This plan to keep bees from deserting nuclei I saw in GLEANINGS. This plan worked fairly well, but was altogether too much bother; and, even when brought back to the yard, many of the bees would return to the old stand. But I have solved the problem, and can now divide and keep them equally divided without removing from the yard or even keeping them closed for a few days. The accompanying sketch will explain the plan better than I can tell it.

The detachable board, having the appearance of two hive-ends, and having in it two entrances, should be placed on the hive early enough so that, by the time the colony is ready to divide, the bees will be using each entrance in about equal numbers.

Clifton, Ill. W. W. HOWARD.

[The plan you propose looks as if it might work. It might be used later in the season for colonies in pairs.—ED.]

A Swarm that Built Some Comb on a Limb; Damp Cellars; how to Make them Dry and Habitable for Bees.

Two years ago I found a swarm of bees on a limb of a small tree. They had built one piece of comb about 10 by 14 inches. I hived the bees in a box hive, which they filled half full of comb; then the bees all left. Can you tell me the cause of bees building comb on limbs? Do you think they were queenless?

Will a damp cellar hurt bees? I have a cellar that is damp; the combs are moldy this spring. Will the bees clean the combs? The thermometer at times stood at 30°. I have thought of ceiling the cellar 6 inches from the wall, and filling with sawdust. I should like to know if that would take up the dampness and make the cellar warmer.

Livingstonville, N. Y. D. A. SAWDY.

[Occasionally we find instances where a swarm of bees alighting on a limb of a tree will build comb, especially so if they remain there for 24 hours or more. Generally the comb will be no larger than a man's hand. In a very few instances swarms have been known to build three or four combs—in fact, make a general start in house-keeping; but if they are located in a northern State they will die out during winter from exposure.

We can assign no reason why bees build comb on a limb except on the theory that the swarm having come forth unexpectedly did not send out scouts. Not knowing where to go they stay where they alight. A general *furore* of swarming on the part of other bees in the same yard sometimes induces some colonies to swarm, even though they have made no preparations for it. In such cases a swarm might remain on a limb for two or three days. During that interval they may build a little comb; for unless the swarm is starved out it will take considerable honey, and this honey induces a secretion of wax scales, furnishing the bees plenty of material with which to construct comb.

There is no reason to suppose the bees you refer to were queenless. They swarmed out of the box hive in which you put them, probably, for want of stores. If there was no honey coming in they would soon run short of stores.

A cellar may be damp from two or three causes. First, there may be poor drainage; second, insufficient ventilation; third, too low a temperature. In some cases dampness is due to a combination of all three In the cellar mentioned the temperature was too low, and it is apparent that there was a lack of ventilation. Lining the cellar on the inside, as you describe, would help only as it would shut out the outside cold, and so raise the temperature. The higher the temperature the more moisture that will be held in the air.

If your cellar drainage is good, and the cellar is then too damp, provide ventilation either by opening the windows or by using a small stove (do not use oil-stoves). Connect the stovepipe to a chimney-flue, and build a light slow fire. In doing so be careful not to raise the temperature higher than 50° F. The stove will raise the temperature, and at the same time draw off the excess of moisture. In your case the 30° temperature with dampness was very bad, and you probably would not be able to winter bees successfully in such a cellar until you raised the temperature and removed the excess of moisture. Dampness is not necessarily bad if the temperature is high enough, but low temperature and dampness are either fatal to the colony or leave it so weak from dysentery as to make it practically worthless.—ED.]

Putting Empty Supers Under or Above Partly Filled Sections; Putting on Partly Filled Sections to Supply Stores in Spring

I have read several articles in favor of putting supers under one already on. I tried this in 1909, and every time the bees would work in the empty super and leave unfinished the one partly filled. So in 1910 I tried putting the empty one on top, and it worked very well, for the bees finished the lower one and then went on top; and when the top one was about half full I reversed them, putting an escape between. Of course, sometimes there were a few sections that were not quite finished; but I always put them in the next super.

For spring, would it be a good plan to use early a plenty of rye or pea meal for pollen, and then put on supers having 12 sections filled with honey and 12 empty, so as to be sure that the bees would have plenty of stores? If they should need the sections

of honey it would do no harm, for they would fill the empty sections, and then all could be taken off again. I have not yet tried this, but desire to know how it would work.

Goodland, Ind., Feb. 8. JO. NAFZIGER.

[The question of putting an empty super above or below one partly filled depends entirely on conditions; as, for example, the strength of the colony, the strength of the honey-flow, and whether the season is well on or near its close. In some cases it is better to put the empties on top. Unless the colony is very strong and the honey-flow good, extra supers should be put above rather than below; and even if the colony is strong it is better to put the empty on top when the season is near its close. At the beginning of a strong flow, and with a powerful colony, we advise putting the empty under the half-filled super already on the hive.

We would not advise your scheme of putting on supers in the spring with half the sections filled with honey and the other half empty. Better by far give the necessary stores by inserting frames of sealed honey or by feeding. By your plan the empty sections will become badly soiled before the bees get ready to put honey in them during the honey-flow. There is no objection to feeding back from sections that are partly filled or otherwise undesirable, of the previous season.—ED.]

Does the Presence of Comb Interfere with the Introduction of a Queen?

After reading your article, p. 49, Jan. 15, 1910, entitled "Shipping Bees in Pound Packages Without Combs," it occurred to me that you probably had forgotten the teachings of Swarthmore when you said, page 52, that it is the absence of queen brood and *comb* that causes the bees to accept a strange queen—italics mine.

Some years ago I introduced a number of queens, or, rather, made increase by shaking bees into a prepared hive that contained at least one comb of honey but no brood, shutting them up for six hours, then running a laying queen into the hive. While I tried only about a dozen I didn't lose any; and if I remember correctly I took all the bees from one hive to make each new swarm, or, in other words, there was no mixing of bees from different colonies.

One of the first colonies I found this way swarmed out the day I set it out. After that, when setting them out after the queens had been in the hives for 48 hours I gave each one a frame of young brood and had no more trouble with their swarming out. So I think your article is misleading in placing as much stress on the absence of *comb* as of queen and brood.

Erma, N. J., April 1. F. H. FOSTER.

[It is our opinion, based on experience covering many years of practical work in putting up bees by the pound, that the absence of combs as well as of brood is an important factor in the introduction of queens. When bees are put into a wire-cloth cage or box without brood, comb, or queen their colony spirit is utterly broken. Their condition is so hopeless and forlorn—that is to say, so abnormal—that they "do not care whether school keeps or not." Now, then, if those same bees be given a comb or combs, even though there is no brood in them, their condition begins to approach the normal, and the colony spirit begins to show evidence of asserting itself. While we have no doubt that you could introduce queens to bees that were queenless but had broodless combs, yet that fact on a small scale would not prove that the presence or absence of comb was an unimportant factor. Do not lose sight of the fact that the chances for successful introduction as described in GLEANINGS, p. 49 of last year, are very greatly enhanced by making the conditions surrounding the bees as nearly abnormal as possible.—ED.]

The Care of Newly Hatched Queens.

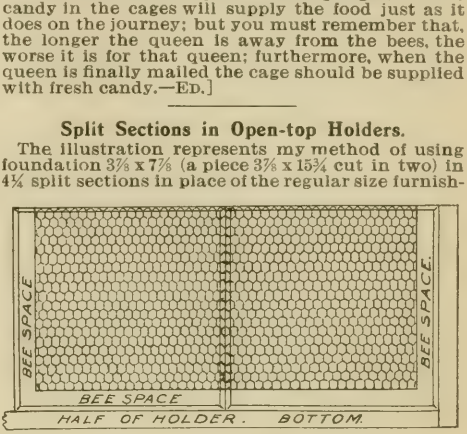
What shall I do with queens from the time they are first hatched until I need them? I shall have seven more queens than I shall have places for, very soon, but shall need them later. How shall I keep them? How long can they be kept from the colony?

Bakersfield, Cal., April 7. R. L. MOBLEY.

[We are afraid you will find it a difficult matter to keep extra queens on hand that you have no use for unless you form nuclei, and you will have to have pretty good-sized nuclei too. Queens kept in cages inside a hive are often not well cared for; and queens kept for too long a time in very small nuclei are liable to swarm out if there is not enough cell room for eggs. You could keep surplus queens a few days in the regular mailing-cages, for the candy in the cages will supply the food just as it does on the journey; but you must remember that, the longer the queen is away from the bees, the worse it is for that queen; furthermore, when the queen is finally mailed the cage should be supplied with fresh candy.—ED.]

Split Sections in Open-top Holders.

The illustration represents my method of using foundation 3⅞ x 7⅞ (a piece 3⅞ x 15¾ cut in two) in 4¼ split sections in place of the regular size furnish-



ed for the same. I have no buckling; there is less gnawing by the bees; a saving in foundation, and, if desired, the sections may be split on only two sides, thereby leaving them stronger. I use the ordinary open-top section-holders with solid bottoms.

I first place the sections and fences in position in the super. I use the extra-thin super foundation, and there is plenty of friction to hold it in place till all are firmly keyed up with springs or otherwise. If using sections split on only two sides it might be necessary to leave the foundation projecting a little on top, and touch the edge with a warm iron.



For years I have fed my colonies successfully by pouring syrup in at the entrance with the flat funnel shown. I tip up the fronts of the hives so the syrup will not run out; and, as all my bottom-boards are paraffined, there is no leakage.

DELLON D. SMITH.

Wyoming, N. Y.

[Pouring syrup into the bottom-board after the front end of the hive is lifted up a little is perfectly feasible provided the bottom-boards are old enough to be covered over with bee-glue; otherwise the syrup will leak and cause robbing. Before using bottom-boards as feeders it would be well to inspect them carefully; and any that show any place where they might leak should be closed up with a mixture of beeswax and rosin.—ED.]

Why did the Swarm Return to the Old Hive?

Being a GLEANINGS reader I take the liberty of asking a question. Why do bees swarm and return to the hive whence they came? Monday afternoon (May 1) I had a swarm come forth, and, after circling a while, it settled on the old stand and entered. To-day, May 3, this swarm did the same thing. How do you account for these strange proceedings?

Cornerstone, Ark. S. W. BOSWELL, JR.

[The probabilities are that the queen was not able to follow the swarm, either because her wings were defective or because they had been clipped. As a general thing a swarm will not return to its old hive if the queen is with them.—ED.]

Florida Drouths.

I should like to tell Mr. E. R. Root that some three years ago on the Pinellas Peninsula we had a drouth which lasted about ten months; also that, in a long and varied experience, I have never seen a worse country for a poor white workingman than Florida.

Ruskin, Fla. H. J. NEWMAN.

Our Homes

By A. I. ROOT

Righteousness exalteth a nation: but sin is a reproach to any people.—PROV. 14:34.

May God be praised for Ray Stannard Baker; and may he be praised again that this man who has not been afraid to rebuke sin in high places has turned his attention to the study of the liquor-traffic. We clip the following from the *Union Signal* of April 27:

In his study of the liquor-traffic in a modern American city, entitled "The Thin Crust of Civilization," appearing in *The American Magazine*, Ray Stannard Baker thus characterizes the folly and the futility of our American civilization in its treatment of the saloon evil. While he uses as the subject of his study the town of Newark, Ohio, where was perpetrated last July the awful tragedy involving the death of Carl Etherington in an effort to enforce the law, he well says that, in thus describing Newark, he has described also the typical American town—indeed, has described the essential characteristics of our modern prosperous, intelligent, materialistic American civilization.

Below is a quotation from his talk, taken from the *American Magazine:*

THE THIN CRUST OF CIVILIZATION.

In 1908, just before the local-option election, Newark had over eighty saloons. Think of it—in a town of less than 25,000 people! In other words, it had one saloon for every sixty or seventy adult men.

Think further what this meant to Newark. With the best intentions in the world, but with a plentiful lack of imagination, the people of Ohio had sought to check the evils of the saloon, which they had begun to see so clearly around them, by the easy money method—by taxation. Each saloon was forced to pay $1000 into the public funds.

What was the result? Why, it made the poor devils of saloon-keepers scratch harder than ever; for a saloon-keeper is a human being who has to eat three meals a day, wear clothes, and often support a family and a home.

Think, then, what his problem was. First, he had to sell enough beer and whisky in a year to pay the $1000 tax; after that he had to sell enough more to pay his rent and his other taxes, if any. He had to pay the inevitable and often enormous profits to the big brewers who stood behind him—all this before he could make a penny for himself. Is it any wonder that he had to push his business? Is it any wonder that he began to break laws right and left in order to increase his sales? A man must live!

It became necessary, then, for saloon-keepers at all hazards to stimulate trade. They must not only keep all the old drinkers and induce them to buy more liquor and become more drunken, but they must get in plenty of fresh young clients—fresh young boys from the schools and factories.

DRUNKEN SCHOOLBOYS.

"You have no idea," wrote Supt. Simpkins, of the Newark schools, on Nov. 30, 1908, just before the local-option election, "How difficult it is to raise a girl or boy in Newark! At every turn, day or night, he faces one of the eighty saloons. Great signs stretch across whole buildings, or shine out in electric lights from the roofs. Is it any wonder he is caught? Only a few nights ago I saw schoolboys drunk behind one of the school buildings. . . . . If I dared tell you all I know of some of the doings of the young men in this city, some of them yet in school, you would not believe me."

What a farce it all is! Spend thousands yearly in schools, boast about enlightenment, and turn boys and girls loose for amusement in a town infested with eighty saloons and thirty or forty houses of prostitution! There were half a dozen or more schools in Newark, sixteen churches, one feebly supported Young Men's Christian Association building, no playgrounds, no library building at all, and—*eighty saloons* occupying the best business sites in town, and working day and night!

When I saw those young boys in jail (the young fellows who participated in the Newark tragedy) I thought to myself that they were as truly the victims of the civic and moral indifference of Newark as was young Etherington last July. What earthly chance had they? A little smattering of learning in the school, and this sort of immoral teaching in the greater school of life!

Were these boys, then, to blame? Or was the town to blame? the business men who supported the lawless saloons and helped elect the lawless mayors? the preachers who placed profits above humanity—were not these to blame?

I wish the whole United States of America could read the above again and again. I wish especially that the fathers and mothers would read it; and last, but not least, the people generally who vote on the question of wet or dry. How is it possible that, with facts like the above before our American people, any voter, no matter how stupid, should vote to have the open saloon?

And now, friends, if you will excuse the sudden "jolt," I want to talk about something else. I have sometimes felt that most of us, if not all of us, especially during the last few days, are getting into a habit of severe criticism. We criticise the grafters, we criticise the government of the United States, and we criticise the Postoffice Department; and perhaps this is all right; but in our vehement criticisms let us not forget the good and *commendable* things that our government is doing. I suppose what I am going to talk about now should come under the head of High-pressure Gardening, or, perhaps, "High-pressure *Farming*." Ray Stannard Baker, in the above, has put in a tremendous plea for the boys and girls of America—for the "fresh young boys from the schools and factories," as he terms it. And now I want to call your attention to a most glorious work that has been conducted and carried on by our government while many of us knew but little or nothing about it. I allude to the "Corn Clubs," or "Boys' Demonstration Work." For some reason or other, I do not know just why, the work seems to have been started about 1904 in some of our *Southern States*. In 1909, 10,543 boys were enrolled. In 1910 (last summer), the number had increased to 46,225. Each boy had an acre of ground. The general government not only furnished him printed instructions clear up to date for growing corn, but experts in that line were sent around *among* the boys. If you write to the Department of Agriculture you can get a bulletin, or two bulletins, describing this work. One of these gives a picture of a class of boys out in the cornfield, with a teacher in the midst of them. That picture alone is an object-lesson. Oh, what a contrast when you come to look in the bright faces of these pure young boys, attired in their farming clothes, with the beautiful green corn as a background! By the way, I wonder if there is any other plant in the world that makes a more rapid growth than Indian corn when all the environments are favorable to its growth. Last July, when I took that trip from Ohio to Florida and back

again I told you how pained I was to see the hundreds and *thousands* of *poor* cornfields with only here and there a good one. Well, these boys (thank God there are already between forty and fifty thousand of them) are going to redeem the cornfields. They are not only, through God's providence, going to make two blades of grass grow where only one blade grew before, but they are going to grow ten bushels of corn, and in some cases toward a hundred, where only one bushel grew before; or, if you choose, where nothing of *any* value grew before. They are outstripping their fathers, with their acres of corn grown under the government instruction, and startling not only neighbors, but people for miles around. They are showing the possibilities of "high-pressure" agriculture. Kind Uncle Samuel is offering these bright boys prizes—a prize to every one who produces 75 bushels or more of corn on his acre. On page 32 of the bulletin I have mentioned is a table. Our government offered, among other prizes, a free trip to Washington, D. C., and back again, all expenses paid. Fifteen boys from as many States took in this trip; and the table I have mentioned gives you briefly some of the particulars in regard to their great corn yields. The lowest was 83¾ bushels per acre, while the highest was (now do not say you do not believe it) 228¾ bushels. Jerry Moore, of Winona, S. C., was the boy who did this. The table tells us the ground was plowed about a foot deep. The kind of corn planted was called the Prolific. The distance between the rows was 3½ feet, and the stalks in the rows were 6 inches apart. There were 24,000 stalks on the acre. It was cultivated 11 times—twice as many times as most of the other boys cultivated theirs. Joseph Stone, of Center, Ga., raised over 100 bushels on yellow clay soil, and he was only 11 years of age. John Williams, of Tuscaloosa, Ala., made 83¾ bushels on his acre, on land that yielded only 12 bushels to the acre four years ago. When these 15 boys visited the White House, President Taft gave them a little talk, and I am going to copy it.

WHAT THE PRESIDENT SAID, AND WHAT THE BOYS SAID.

President Taft singled out one of the smallest boys during the visit at the White House, and asked him if he selected the best acre on his father's farm. The boy replied that he did not. The next question was, "Will you take another acre next year?" The boy replied, "I have already selected it and plowed it." The President then asked, "Do you think you can do as well next year?" The reply was prompt, "I think I can do better." These answers, in such a presence, were excellent for a 12-year-old boy who had not been far from home before.

Below is what Secretary Wilson said to the 15 boys when they visited his office:

A visit was also made to the office of the Secretary of Agriculture, where the visitors were received with marked courtesy; their photographs were taken; large, attractive diplomas bearing the seal of the Department and the signature of the Secretary were awarded, and Secretary Wilson made them an address. The Secretary said, in substance, that, while the whole world knew of the South, that her people had made records for statesmanship, for bravery, and for great industrial progress, it had not known that boys under 16 years of age could accomplish such great feats in production as was evidenced by the boys present on that occasion.

He attributed the great increase in the production of corn in the South during 1910, in considerable measure, to the boys' corn-club work; and he emphasized the great importance of the corn crop to feed the rapidly increasing millions of this country, and especially to produce the meats necessary for the sustenance of the people.

He predicted that the South would not only supply the home demand for meat, but would become an exporter of meats and live stock.

He congratulated the boys on their excellent work, and stated that it was a great achievement for our common country, and that the publication of the results would induce many people to move into the Southern States. They had always admired the climate, and now they would find that the soil is very productive for the cereals.

He laid great stress upon the importance of keeping domestic animals, and especially of the best grade, and the production of milk, butter, and cheese.

He advised the boys not to stop with achievement in corn, but to let that be the first great step toward obtaining an education in scientific agriculture.

He emphasized the importance of industry and economy, and said that the boy who obeyed his father and mother, did the chores, and was faithful in the little things about his home was the boy that the world would depend upon to achieve greater things in later life.

He charged the boys that the world is watching their work and waiting for them; that there are plenty of openings for boys who do such splendid things.

He then called for the diplomas, and made appropriate remarks as he presented the diploma to the boy representing each State. The whole occasion was very instructive and impressive.

Now, friends, while it is true that saloons are flourishing right in the very heart and center of the government of our nation, and are at this very moment, so far as I know, permitted to flourish, it is also true that a wonderful work is being inaugurated and carried on by the public money of our nation in teaching the boys to love the farms and to keep away from the saloons; and, God helping us, these death-traps for our boys and girls, that have been running so long, will *soon* be things of the past, especially if you and I do our whole duty and hold out to the end. May God help us; and may he grant, also, that we of this United States of America, from the humblest farmer's boy clear up to the President of the United States, may recognize and ponder and consider that beautiful text we started out with—"Righteousness exalteth a nation; but sin is a reproach to any people." I heartily wish that each and every one of you who is interested, either in growing corn or growing *boys*, or *both*, would send to the Secretary of Agriculture for these two pamphlets on "boys' demonstration work."

After copying his notes, my stenographer, Mr. W. P. Root (Stenog), suggests the following paraphrase of my text as not irrelevant nor irreverent:

Corn johnnycake exalteth a nation; but corn whisky is a reproach to any people.—I. CORNTHIANS, 1:1.

I just now notice that the *Ohio Farmer* for May 6 gives quite an extended letter from this same Jerry Moore, giving full particulars in regard to the way he secured this enormous crop of corn.

It would seem from this letter that the boys of our nation are not only destined to outstrip their fathers, but they are already

teaching the fathers how to do better work to such an extent that it has been suggested that the entire corn crop of the South has been greatly increased by this "boys' corn club." Truly, as we have it in the scriptures, "A little child shall lead them." This wonderful advance in corn-growing reminds us of what Phil Sheridan is reported to have said at the close of our civil war—"The South ought to raise less hell and more cotton." This advice seems to have been followed, although it now seems to be *corn* along with old King Cotton. And may the Lord be praised, too, that this corn is not to be used for the purpose of making whisky.

In closing this corn talk let me remind you that our principal experiment stations are warning our farmers that, for some reason or other not yet apparent, the quality of the average seed corn is poorer this spring than ever before. Indeed, some of it saved on the most approved methods—that is, methods that used to be considered the best—give a germination of only about 40 per cent. Our own seed corn was kept over winter in our slatted bushel boxes hanging under the steam-pipes; and from tests we made in the greenhouse, every kernel seems to germinate perfectly.

ROTTEN EGGS AND—OTHER THINGS.

We take pleasure in copying from *Up-to-Date Farming* a little sermon. See what you think of it:

There have been several instances of the seizure of bad eggs in transit from the seller to the purchaser, and their confiscation by the national authorities. One case of this kind, growing out of the seizure of a large quantity of bad eggs in transit from St. Louis, Mo., to Peoria, Ill., was taken to the Supreme Court of the United States, where a decision was rendered in favor of the authorities, and fully justifying the seizure and confiscation of the bad eggs. Justice McKenna, in rendering the decision, said:

"The power of confiscation is certainly appropriate to the right to bar them (bad eggs) from interstate commerce, and complete the purpose, which is not to prevent merely the physical movement of adulterated articles, but the use of them, or, rather, to prevent trade in them between the States by denying to them the facilities of interstate commerce. All articles, compound or single, not intended for consumption by the producer, are designed for sale; and because they are, it is the concern of the law to have them pure."

Now, these bad eggs were seized and destroyed by the authorities of the government because their use would be harmful to the people, and the public can not but approve the decision sustaining it, and thank the Supreme Court for having rendered it. But there are other articles as harmful as bad eggs, and that the people of localities, and even States, have declared by majority vote that they will not have within their borders, but that are shipped therein with impunity, and such shipments are upheld by the government. We refer to intoxicating liquors. If the shipment of rotten eggs from one State to another can be prohibited, and such shipments confiscated and destroyed for the protection of the people, like shipments of intoxicating liquors may certainly be prohibited on precisely the same grounds, particularly where the people themselves have declared against such articles because of their harmful nature. But there is not the financial and political power behind rotten eggs that there is behind intoxicating liquors.

After reading the above I gave it a most hearty amen; and I want to add, may God be praised that our agricultural periodicals are having the conscience and courage to come out so plainly against a traffic that is a thousand times worse than rotten eggs or any thing else that is "rotten." Will other periodicals pass it along?

Poultry Department

By A. I. ROOT

MY SIMPLICITY HEN'S-NEST, BROODER, AND POULTRY-HOUSE.

Now you may not believe it, friends, but during the past winter I have made still *another* "great discovery." If it does not entirely revolutionize poultry-keeping, I am sure it will, if you put it in practice, "revolutionize" the habit of paying three or four dollars for a brooder or chicken-coop, or fifteen or twenty dollars or more for a portable colony-house or poultry-house. We will commence first with what I think I will call my "simplicity" hen's nest. To commence with, I do not like a nest in the roosting-house; and, for that matter, in a warm climate like that of Southern Florida I prefer to have it out in the open—not in any house at all. Having a nest in the barn or in the granary or other building where you keep your feed may do very well; but if the nests are to be used for hatching chickens as well as for laying eggs, I much prefer them outdoors away from the rest of the poultry as much as possible, and off by themselves. During the spring, summer, and fall months here in the North the arrangements I am about to describe will be found just as useful as down in Florida. After studying over the matter a good deal I prefer a nest in a shallow box. The size of the box depends upon the breed of fowls. For the common Leghorns I would have them about 12×15, and the sides about 5 inches high. For hatching chickens in the summer, for several reasons I prefer a box without top or bottom; but if you are likely to wish to carry the box to some different place, letting the hen, eggs, and all remain, you had better have a bottom in the box. Besides, a bottom of some sort adds to the strength of the box unless the corners are nailed very securely. Now, there is nothing new in having a hen lay eggs or hatch chickens in a shallow box. By the way, I would have the box shallow to prevent the hen breaking her eggs when she jumps into it. Well, this box with its nest needs some sort of protection or covering for several reasons. First, the average hen of any breed greatly prefers privacy. She should also be protected from the weather. While most of us have secured excellent hatches with hens out in bushes or fence-corners, unprotected from heavy rains, it is not always the case. In December I had a hen with 18 eggs nearly ready to hatch out in the bushes during a rain of about four inches. The ground was flooded, and the nest must have been pretty well soaked with water for several hours. She gave a hatch

of only about 50 per cent, when I had been getting 90 to 95 almost all winter. Had the nest been on a piece of rising ground instead of being on a dead level it would doubtless have turned out better. Well, in order to give the necessary privacy and protection we will get a good tight grocery box. These can be had at almost any country store or grocery. If you arrange beforehand for the boxes you can have them saved with the covers as well as the rest of the box. Now from the cover select two pieces wide enough so that, when nailed to the box as shown in Figs. 1 and 2 (see page 308) it will leave an opening or doorway sufficient for the hen to go in easily, and long enough so she can step over into the nest-box already described. The two boards, say 6 inches wide, are nailed at the back end of the box, flush with the top of the box. This is quickly done; and if you should wish to use the box at some future time, it is an easy matter to pull off these boards and use the box for some other purpose. I would suggest, however, right here, that you not only nail these boards on very securely, but that you clinch the nails for handling it and carrying it about; unless well nailed the box may come to pieces. Now, if there are no rats, polecats, nor possoms prowling about, your nest is completed. If, however, you have had a sitting hen and nest of chickens taken by these night prowlers, you will see why some protection is needed, such as is shown in cut No. 2. It is simply four pieces of lath nailed so as to make a frame just the size of our box as it stands on the ground. We put it on this frame covered with inch netting. I now arrange the door to be shut down nights, as shown in Fig. 2. You simply take a piece of galvanized wire and bend it in the shape of a letter U; cover it with some netting by twisting the ends of the wire netting around the large galvanized wire. Let the end of this large wire project two or three inches. This projection pushes down into the soft ground when you wish to close up the coop for the night; and I do not know of any surer way to protect your sitting hen, and hens with chickens, than to shut them up nights and let them out in the morning. This is some trouble, but I am sure it pays one to see his chickens, big and little, at least *twice* every day. With laying hens, when going out to gather the eggs we make at least three trips every day. This door to our hen's-nest is hinged to the box by driving a poultry-netting staple near each corner. When you want to open up a coop to let the hen or chickens out, just raise it up so as to release the wires that stick in the ground, and swing the door up against the top of the box, catching it over the head of a small nail. With this arrangement your poultry is not only secure during the night, but you can pick up the whole thing, poultry-netting, frame, and all, and carry the chickens anywhere; and if you buy a *large* box, the whole thing, hen and all, can be carried about.

There is a simpler way of protecting the sitting hen or hen with chicks; but on some accounts I do not like it as well. In moving the hen and chickens about, however, for different purposes, this other plan has some important advantages. It is lighter to handle, and there is less danger of the bottom getting off so as to let the chickens out. This second plan is as follows: Tack your poultry-netting with the proper staples right directly to the bottom of the coop or brooder, and have said strip of poultry-netting long enough to turn up and form the door. The spring of the netting will allow the door to open and close. When shut up for the night it is simply raised up and hooked to a couple of nails. When you let the chicks out in the morning, lay a brick across the outer edge of the netting to hold it down. This answers the purpose nicely; but if you have a sitting hen inside it is not so convenient to take charge of her. Neither is it as handy to clean out the litter and put in fresh; but if you have the whole arrangement set up on four half-bricks your poultry-house will clean itself, for the droppings will all go down through the netting. This latter arrangement is all right for hot weather. When cool, of course it should be set down on the ground, or covered with coarse litter that does not readily rattle down through the meshes of the netting.

By the way, this same arrangement makes an excellent fireless brooder. All you have to do is to take a box of the proper size for your number of chickens—25, 50, or even 100. If they are put in the box right from the incubator, cover the wire cloth well with clover chaff, and then tack a piece of burlap so as to drop down just over the backs of the chickens. With this sort of arrangement it is a convenience to have the roof removable. Nail on it a couple of cleats and simply drop it down in place. I forgot to say in the proper place that the raising-up of one end of the box gives the roof a proper slant to shed the rain. In case the boards composing the bottom of the box are not sufficiently tight, it is an easy matter to cover the whole roof with something. Neponset answers nicely, and still leaves the whole apparatus very light to carry about. Now, this box I have described answers very well for a hen and chickens even if she has fifteen or twenty, for, say, two or three weeks. Pretty soon, when there comes a warm night, you will find they need some more ventilation; and this is easily arranged by putting a block, or, a little later on, a brick under each of the front corners, raising up the wire cloth, frame and all; and if more air is still needed, put a half-brick under each of the four corners. Now, when the chicks are weaned, and want still more air, make the cover movable if it has not been done already, and block up, say, one inch all around, according to the weather and the number of chickens. After they are weaned let them still occupy their old home nights, but put in some strips of lath for them to roost on.

These strips of lath should be put on something like a little ladder that can be slipped inside of the box, resting on blocks nailed in at each corner. When people come to see your chickens you can take them out just after nightfall, raise up the cover, and see the little chaps sitting on their roosts as regular and handsome as peas in a pod. Of course they *still* keep growing, and when you find they are crowded nights, and want to stay out in the yard instead of going home, a still larger box should be fitted out in just the same way. Of course, this box will need a movable cover and some roosts a little further apart. In carrying the chickens along, from those one day old to hens ready to lay, you will want about three sizes of these simplicity poultry-houses. When I left my Florida home we had four incubator hatches in houses of this sort. The oldest were hatched in December, then January, February, and March. When I turned them over to a neighbor we just lifted up the boxes, chickens and all, after dark, and set them into his wagon. One horse easily pulled the four coops, containing about 100 chickens, the largest of them being fully half grown. I should have mentioned in the proper place, that, where you want to set a hen and protect her from being intruded on by other hens, you can make a little dooryard of one-inch poultry-netting to fasten over the doorway of the nest-box. This can be made of four lath frames like the one shown under the nest-box. Put in some wheat and corn, and a can of water wired to the frame so it can not be upset, and the hen will take care of herself very well. This same doorway of netting will keep off meddlesome cats, where you do not want to have small chickens run outside until they are a little older. The two pictures, 3 and 4, show a hen that hatched out a brood of ducks with the same arrangement.

Now, the great feature of my invention in the above is the extreme cheapness with which you can furnish convenient brooder or colony houses for a great number of chicks. If you look into the poultry-keepers' catalogs you will find that they want three or four dollars or more for an arrangement that offers no more advantages than the one I have described. You can get boxes for a few cents at almost any country store, especially if you engage them ahead, and a few minutes' work with a bundle of lath and some one-inch netting will complete the outfit.

By the way, I think I had better add right here, that, unless your boxes are very strong, you had better have corner posts, right where the door is hinged. Let this run up into the corner of the box where it can be nailed securely, then put in a little piece of lath between the corner stake and the outer board, and nail the whole securely with clinch nails. By using a large-sized box you can keep half a dozen laying hens on a small piece of ground, and yet your poultry-house all complete should not cost you more than a dollar. If you can buy good-sized boxes you might fit out a very good-looking poultry-house for half a dozen laying hens at considerably less than one dollar; and a complete Philo coop costs from twenty to twenty-five dollars. I do not mean to find any fault with his prices, and it may be well enough for you to have one of his finished houses on hand; but as your flock increases, and you begin to need more room, such a colony coop as I have mapped out will be a great convenience indeed. When I went back to my place last fall I found that my brother, J. H. Root, had made use of several coops like the above in order to furnish accommodations for the rapidly growing stock; and the credit of the idea belongs largely to him.

In describing the above I failed to mention that, with the larger sizes of houses or boxes for half-grown chickens, by having the roofs, roosts and bottoms so they will all three be removable (when it becomes necessary to move this poultry-house to some other location), you can just stand inside of the house, grasping the sides, and carry it where you choose, very easily, without needing a horse nor even an assistant to take hold of one end. This arrangement makes it an easy matter for a man (or woman too, for that matter) to care for the chickens, even to the extent of moving the houses, without calling for outside help. This idea is not original with myself. I found it either in one of the poultry-journals or agricultural papers; but I can not recall where, just now, so as to give proper credit.

"HANDSOME IS THAT HANDSOME DOES."

When I first got back to Florida my Buttercup rooster had improved in looks so much that I, in a piece of pleasantry, said I valued him at $25.00. And, by the way, a couple of roosters from the same hatch that were left here in Ohio did not anywhere approach him in size and beauty — that is, in my estimation — indicating, at least so it seemed to me, that poultry wintered in Florida, or, perhaps we should say, Buttercup Leghorns and breeds from a southern climate, develop ever so much better in the South than they do here in the cold North. This may be in this case, however, owing to the fact that my original Buttercups were hatched some time in July or August. Well, after my Buttercup rooster had been admired by multitudes of people, a gentleman who was pretty well posted on scoring fowls declared that said rooster did not come up to the "standard" *at all*. One of my young Buttercups that I had offered for a dollar he said was well worth ten or fifteen dollars; and this only indicates what I have told you before, that I am not at all versed in scoring fowls. But even if this is true I think I will transfer my $25.00 valuation to that Indian Runner duck that laid over 100 eggs without a miss. When you come to talk about beauty I have several times remarked to visitors, when my flock of four

was sailing gracefully in salt water, that, notwithstanding all that had been said about the beauty of swans, I preferred a flock of Indian Runner ducks, especially where there is one in the flock that has a record of 100 eggs without a miss. "Handsome is that handsome does," you know; and my pet duck comes in on both scores—utility and beauty. By the way, I had forgotten all along to mention that this duck came from the best pen of our old friend Kent Jennings, who, I am glad to notice, has a brief advertisement in this issue.

THE INDIAN RUNNER DUCK AND THE VALENTINE DUCK-BOOK.

Dear Brother Root:—I hope you will not take it amiss if I say that I feel that you have treated me about as you did the duck to which you gave "a bad name while she was quietly attending to business."

My chief "business" in writing "The Indian Runner Duck Book" was to clear up the much-muddled history of the Indian Runner, *and* to preserve the white-egg duck for the farmers. The *American Standard*, in affirming that the true duck is worthless, bade fair to push that duck entirely out of the country. All breeders know that changing the type of any bird is likely to destroy its most valued points, and this is peculiarly true of the Indian Runner. The original heavy-laying Runner laid a white egg. Our markets often discriminate in favor of the white egg, even against the light brown one. Much more would this be the case against a green one; and as to taking too much space on this point, it was *the one point where farmers needed warning.* It was, in fact, the foundation of the whole matter; and I have had *many* letters from farmers telling me how long they had looked for just such a book, and how exactly it just met their needs.

If you will pardon me for so saying, it seems to me that you, who know so little about ducks—on your own showing—and who, on your own showing, believe the facts only when you have proven them (as to the good laying, for instance), have hardly reached the point where you can logically set up your opinion or your experience against that of the men who raise perhaps 20,000 or 30,000 a season. These are the men who say ducklings should not get wet while downy. If you will look in the right place you will find that my book also says that they should have water so that they can not get wet in it. Young ducklings chill very easily, and wet down adds greatly to the danger of such fatalities.

Another point where, it seems to me, you fail to "play fair" is this: In the very number of your journal where my advertisement appears (a journal which has a good reputation), you charge me, who have also, I believe, a good reputation, with writing a book less valuable than it should be. You do this because you ignore the point of view from which it was written—that of the farmer who must sell market eggs; and you do it in the very number wherein my advertisement of the book appears.

We published this book ourselves, not offering it to any outside publisher at all. It cost quite a bit of money. We are paying you for advertising. We can not tell all we know in a fifty-cent book. We hope to get out a larger edition late in the year, which will tell all the things you want to know.

Finally, I feel that if you would be just, you will publish this letter in the same department wherein your comment appeared. C. S. VALENTINE.

Ridgewood, N. J., May 5.

My good friend, very likely you are right about white eggs instead of eggs having a green or bluish tint; that is, if they sell better in the market we had better have ducks that produce the white eggs; but in regard to the color of the feathers or the markings, I *do* think the poultry business all through lays too much stress on this unimportant matter. We have had the same thing in bee culture, as you may know. For years everybody wanted yellow queens and light-colored bees; but when they found that these same light-yellow bees did not produce the honey, most bee-keepers went back to the leather-colored or still darker bees, even if they were not so handsome. It is the honey we are after, with bees, and eggs that will bring a good price in the market with ducks. Of course, it *is* worth something to have them "good-looking" also, if this latter is not pushed too far. Your remarks about ducklings getting wet suggest that very likely it would do more harm up here in the North than down in Florida, where the weather is always warm, and always plenty of sunshine. In regard to changing my opinion or my report because you had an advertisement in our journal, I shall have to plead guilty, although my communication was written in Florida without my knowing you had sent us an advertisement. But I prefer to have it distinctly understood that my opinion and write-up on the Indian Runner ducks, Buckeye incubators or any thing else, are given to the public without any consideration whatever, whether the thing is advertised in our journarl or is not advertised; and if my remarks hinder the sale of your book or that of the goods of any other person, you can have the money back if you wish.

You have not, in the above, mentioned the matter of telling the sex of ducks. When you get out another edition of your book, if you will make it a little plainer about letting them go into the water, and also tell us how to distinguish the ducks from the drakes, I shall be very glad indeed to notice it,

And how about the Indian Runner ducks being non-sitters? Do they never sit at all? or do the older ducks occasionally want to sit, like our Leghorn hens and other non-sitting breeds?

BERMUDA GRASS FOR CHICKENS AND OTHER FARM STOCK IN THE SOUTH.

In deciding how to furnish our chickens with green food at the least expense I very soon struck on Bermuda grass; but many of the neighbors cautioned me about letting it get a foothold on my place, as it is a terrible pest to the market-gardener. It runs over ground and under ground; and it is, perhaps, the most persistent grower of any grass or any other plant in the South. It got through the cement floor in my automobile-house, and came out between the boards as high as my head. Where I first commenced feeding the chickens it is a perfect mat, making a soft carpet in some places almost a foot thick. The chickens keep eating it from daylight till dark; but, no matter how many there are in that yard, they do not seem to be able to keep it down. It was started in this particular yard by putting little bits of sod about as far apart as you would plant corn. But we were obliged to take the chickens off for one summer to

give it a chance. I tried starting it in other yards without moving the chickens away; but they kept biting off every green shoot as fast as it appeared, and it was not a success. Before coming away this spring our chickens were all removed from our five acres; and I suppose Wesley is now busy planting Bermuda sod all through the yard, on which the chickens can run next winter.

My attention was called to this matter of Bermuda grass by a government bulletin entitled "Suggestions for Setting Permanent Pastures, with Bermuda Grass as the Basis." If you are interested in the matter it will pay you to send for it. Address the Bureau of Plant Industry, Washington, D. C.

By the way, it would seem that Bermuda grass is something like our northern sweet clover, which has been only recently appreciated. See the following extract from the bulletin mentioned:

BERMUDA GRASS.

Bermuda grass is, without question, the most useful of the pasture grasses for all southern States. It is nutritious, a persistent grower, and delights in the hot sunny exposure of an open field. It will stand unlimited grazing by stock, holds up during severe drouth, and grows continuously until a killing frost occurs in the fall. It will do well on almost any type of soil, but is especially adapted to sandy loams and the hill lands throughout the South. On fertile lands it makes a rapid growth, attaining a height sufficient for mowing, and may be cut several times during the season. The hay from Bermuda grass has been found fully equal in food value to the best timothy. On washed soils, or on lands that are broken and would soon wash off under cultivation, no other plant has been found so valuable either for checking the erosion already made or for preventing it on sandy hill lands. Its value for preventing washes and holding lands may be illustrated from the fact that all railroads take particular care to get it set thoroughly on new embankments as soon as they are made. The same use is made of it on all new levées and other embankments where washing is likely to occur.

I do not know how far north Bermuda grass will stand freezing and thawing; but it seems to flourish finely through Mississippi and other southern States.

Health Notes

By A. I. ROOT

WELL-RIPENED HONEY, ETC.

Well, friends, although I have not had any thing to say in regard to honey for a long time, I want to take it up once more. Of late I have been rejoicing that I could eat good well-ripened honey twice a day, for breakfast and dinner, without any inconvenience. I am still eating apples, and nothing else, for supper. By the way, down in Florida, after the apples were gone that I carried from our Medina orchard, I paid *40 cents a dozen* for Oregon Ganoes. That is at the rate of 3 for a dime, as you will notice. Well, these apples are so large and fine—no wormy ones, no imperfections—that two big Ganoes make a very fair meal; and two apples costing six or seven cents is not a very expensive supper after all. When I got back here to Medina I thought that apples would be cheaper of course; but here they are getting *a nickel apiece* for these same Oregon Ganoes. By the way, where in this whole wide world is there a better chance to make money than by growing nice apples for a nickel apiece? Why, with the miles and miles of hills and mountains through Georgia, Tennessee, and Kentucky, why don't somebody take hold of it and cover these hills with apple-orchards? It is a burning shame that apples should be a dollar a peck, or even more, when they bring only a dollar a barrel or a little more during the fall and early winter. Where are our cold-storage people? Now to get back to the honey.

Just as soon as I reached the Home of the Honey-bees, Mrs. Root dispatched me for some nice well-ripened honey. I got a jarful in the honey-room where they put up little pieces of comb honey for the Pullman Car Co. Well, this honey (alfalfa), while it is as clear as crystal (*amber* crystal) it is so thick we can turn over a jarful or a tumblerful without spilling a drop. In fact, it has to be cut out of the jar with a knife—that is, during cold weather. Now, this thick honey is ever so much more wholesome, as I have proved repeatedly, and I think most people will call it ever so much more delicious, and would cheerfully pay *double price* for good well-ripened honey like this. And now comes a point that has never occurred to me before. It would make a tremendous saving in freight when shipping honey if all the useless water were evaporated out of it—yes, *worse* than useless. Thin honey, if it does not spoil by becoming sour on the surface, deteriorates to a certain extent, especially in hot weather. The thick, well-ripened honey suffers no such deterioration. It has been stated before in these columns and other bee-journals that, when candied honey is permitted to drain so as to get rid of every thing that will run out, the quality is greatly improved. That which drains off it can be used for vinegar, or sold to bakers for making honey-cakes; and if the remaining candied honey has been well drained and dried out before it is melted up, being careful about overheating, it will be very much like the thick honey we are now using on our table every day. When I questioned our people in our honey department they said they were selling this very thick alfalfa at the same price as the other. I entered a protest. Let us, each and all, get to work and produce gilt-edged honey, and then insist on having a *gilt-edged* price for it.

OF INTEREST TO BEE-KEEPERS WHO OPERATE AUTOMOBILES.

Automobile Dealer and Repairer is the name of a monthly journal said to be the only publication in the world especially devoted to the practical side of motoring. Bee-keepers who own and operate automobiles, or any of our readers who may be interested in this subject, should send to the Motor Vehicle Publishing Co., 24 Murray St., New York, for a sample copy. The yearly subscription price is $1.00; which may be sent direct or through the publishers of GLEANINGS.

Gleanings in Bee Culture

Published by The A. I. Root Company, Medina, Ohio

H. H. Root, Assistant Editor
A. I. Root, Editor Home Department
E. R. Root, Editor
A. L. Boyden, Advertising Manager
J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX JUNE 1, 1911 NO. 10

Editorial

INCLOSING STAMPS WHEN WRITING.

Sometimes our friends forget, when they write to some of the correspondents of Gleanings, asking for further information, to inclose a stamp. One man in particular said he recently had answered upward of a hundred letters, and in not one case was a stamp inclosed. We know this is thoughtlessness on the part of our readers; but when a correspondent takes the time to sit down and write a private letter he ought to be reimbursed to the extent of a stamp if nothing more. Our correspondents need not inclose stamps in writing to us, however.

A PAINFUL INJURY; PROMINENT BEE-KEEPER LOSES THREE FINGERS IN A MACHINE.

We have received a letter from G. W. Haines, of Mayfield, N. Y., written with his left hand, in which he explains that he caught his right hand in a cutter-head and lost three fingers just below the second joint, and his little finger at the first joint. He says that he will have time now to read bee-journals.

Mr. Haines built a capping-melter that he used with good success last season. We have an engraving which we will use in an early issue to illustrate the plan.

LOCATING A BEE-YARD; THE ADVANTAGE OF HAVING HIVES IN PAIRS.

Some bee-keepers will move some of their bees to pastures new. Before they do so we wish to suggest a caution. Locate the yard at least 200 feet from any common highway, and an equal distance from any line fence, or from any cultivated field. A meadow is not so bad as a cornfield, because the plowing and the sowing will be done at a time when bees are not flying much. It is only when the hay is cut that there is any danger of the horses being stung; but in the cornfield the conditions are much worse because of the necessity of frequent cultivation, bringing sweaty horses with their switching tails into the flight of the bees. When a honey-flow is on, bees are almost sure to offer attack.

For the best results in brood-rearing we would locate the apiary out in the open rather than in a dense shade. Small bushes or trees, not over 10 ft. high, afford excellent protection; but usually the right kind of shrubbery can not be found; and hence during the height of the season, when the weather is hot, we advise shade-boards. We will have some illustrations showing the various types that may be used to advantage later on.

It will also be found to be highly desirable to locate the hives in pairs. If one colony is a little weak, its brood can be given to the hive next to it, when the weak hive and all can be removed, throwing its little strength over to the other colony. When doing this care, should be exercised in the selection of a queen. We would advise caging the one that is the better at the time of uniting; then allow her to eat her way out, or, rather, allow the bees "to eat her out" in the usual way through a plug of candy.

But it is in the fall of the year or early spring that the scheme of having hives in pairs offers particular advantages, for then it is so easy to unite; for it is infinitely better to have one good strong colony than two halfway affairs.

THE HONEY OUTLOOK FOR 1911.

In the Northern and Central States occupying that portion of the country known as the "clover belt" the prospects are exceedingly bright. Many reports are coming in that show that fruit-bloom was the best for years. The weather was cold or chilly up to about the first of May; then it finally warmed up and fruit-trees as well as the maples opened up in all their glory. Prior to that time the backward spring had put the bees in bad condition; but, so far as we can ascertain, fruit-bloom more than made up for lost time. The season looks favorable for a clover-flow.

The bee-keepers of Texas have been having a remarkably good season; but as Texas usually markets her own crop within her own borders, her seasons, good or bad, do not usually affect the Northern markets.

The prospects in California were exceed-

ingly bright early in the season; but the weather turned bad after the copious rains, so that the mountain-sage honey fell far short of expectation. Whether there will be any of this honey in the Eastern markets we can not say; but it is safe to assume that the amount will not be large. We have not been advised as to the prospect in the alfalfa regions of the West; but as nearly as we can gather from our general correspondence, the spring has not been unfavorable, and we may expect a fair yield from alfalfa.

Florida, one of the principal honey States, will fall far short of her usual production. The splendid tupelo regions that yield thousands of barrels of fine table honey in other years will have only about one-fourth of a crop. In the palmetto regions the crop will be light. We have not yet been advised as to what mangrove will do.

As to prices that will rule during the coming season, it is yet a little early to offer a prediction. But the failure of California and Florida, both of which ship enormous quantities of honey to the Eastern markets, will have a tendency to stiffen prices. Even if the crop from white clover is large this year, the demand for it is so great that it will be impossible for it to glut the market, and it may therefore be expected that prices will be firm. If there is a large crop of white clover in the Eastern regions it will have a tendency to depress slightly the price of alfalfa; but we have no fears along that line, for clover is reported killed out in a number of localities last winter.

THE FINE TYPE USED IN OUR "HEADS OF GRAIN;" QUESTIONS AND ANSWERS IN GLEANINGS.

EVERY now and then complaint comes in to the effect that the type used in our Heads of Grain department is too fine for our subscribers to read readily; and the question is often asked why not use a larger face, like that used in the main part of the journal.

Our question-and-answer department, as appears in the Heads of Grain, is a very important part of our journal. Indeed, we believe we could better afford to cut out the general articles, and even our illustrations, rather than omit this. Then why don't we put it on a level with other matter, by putting this matter in what printers call "eight point" rather than six point?

Our Heads of Grain are important because they help solve many little problems that come before the bee-keeper. But what is one man's difficulty is not another's; therefore the question-and-answer department, valuable as it is, is used more as a reference, like a dictionary, than any thing else in GLEANINGS. The reader will notice that we use strong black headlines at the top of each letter in Heads of Grain. The purpose of this is to enable the reader to pick out the question or item that helps him to solve a like difficulty that confronts him. For example, one man will skip every thing relating to robbing, wintering, and feeding; but he is eager to get hold of any scrap of information that explains why his bees do not rear brood as they should, or why they do not go into his supers. The result will be that he will read, perhaps, a small part of the matter in Heads of Grain and skip all the rest. The other fellow does not care any thing about the question of bees going into supers or breeding up, but he wants to know why his bees died during the preceding winter, and so he skips every thing that the first man sought. Heads of Grain covers a very large field, and consequently a great variety of subjects. In order to accommodate all our readers with their individual problems we are obliged to condense the text itself as far as we can. If we were to use eight-point type, with the same number of pages, the amount of matter given would be reduced at the rate of from 16 pages to 9, or, about 43 per cent. In other words, we could get in only a little over a half of the questions and answers that we do now.

Our regular articles require *consecutive* reading and careful thought; and therefore it follows that, when the eyes have to be held to the page continuously on any class of matter, large type should be used to relieve the strain on the eyes. But when the Heads of Grain pages are consulted, to pick out here and there a short item, it is not a hard strain on the eyes if those eyes have to stand the strain only two or three minutes.

TWO IMPORTANT FOUL-BROOD BULLETINS FOR FREE DISTRIBUTION.

THE Bureau of Entomology of the United States Department of Agriculture has just issued for free distribution two important bulletins by Dr. E. F. Phillips, in Charge of Apiculture. The first, Farmers' Bulletin No. 442, entitled "Bees and Bee Diseases," takes up the whole subject in a brief but comprehensive way. It discusses the nature of diseases, names of diseases, symptoms, methods of spreading, precautionary measures, treatment, inspection of apiaries, and the diseases of adult bees. A most excellent photograph showing the work of the larger wax-moth on a comb is shown on page 6. Various illustrations show just how to differentiate between American and European foul brood. These drawings are particularly valuable to the bee-keeper unfamiliar with one or both diseases, and we hope to secure the loan of them so they may be presented in these columns.

Taking it all in all, this bulletin is the most up-to-date and reliable of any thing on the subject of bee diseases that has ever been issued; and when we consider, on a conservative estimate made by Dr. Phillips, that the loss to bee-keepers from disease alone reaches *a million dollars annually*, or five per cent of the entire crop of the honey produced in the United States, it would seem that every bee-keeper in the land ought to secure a copy of this bulletin. Write to the Secretary of Agriculture, and ask for Bulletin 442, by Dr. Phillips.

The other bulletin, No. 138, entitled "Oc-

currence of Bee Diseases in the United States," can likewise be secured by addressing the Secretary of Agriculture, free of cost. The object of this publication, in the language of the author, is "to present the data on this subject acquired by the Bureau previous to March 1, 1911. It is not claimed that the work has been completed, for this is, obviously, not the case. . . The Bureau makes it its policy not to give the name of the person sending samples of bee diseases. The records are made only by counties; and it is believed that no bee-keeper will consider this a betrayal of confidence."

For some years the Bureau has been gathering information, and filing the same in a card index that shows where foul brood has been located; that is, in what counties and States. Some of these data showing where disease exists by counties are contained in the before-mentioned bulletin. The list will be valuable to the one who is thinking of buying bees from a particular locality or going into a locality to embark in business. It is best that one should know where the diseases are located, or at least be placed in position where he can secure the information.

As Dr. Phillips intimates, it does not necessarily follow that because Adams or Butler Co. in any State has disease that the disease necessarily exists in *every* apiary in those counties.

Perhaps there are some bee-keepers living in some counties which they suppose contain no disease. It may be worth while for them, if they don't positively know, to send for this bulletin. They may be surprised to know that disease is within a few miles of them.

In this connection the Bureau of Entomology will be glad to examine infected samples of foul brood, free of charge. Don't send them to Medina.

FOUL-BROOD LEGISLATION.

THE foul-brood bill, passed by both Houses of the Pennsylvania legislature, as previously announced, was signed by the Governor.

The Michigan foul-brood bill passed both Houses, but was vetoed by Governor Osborn, April 24. The Michigan bill provided for an appropriation of $1500 per annum, and this, according to newspaper reports, did not coincide with Governor Osborn's economy plan. Either the Governor was misinformed as to the importance of the bee-keeping industry in Michigan or else acted on the theory that bills requiring appropriations should be vetoed to conserve the funds of the State. But the Michigan bee-keepers are not going to give up. We understand they propose to go at the thing again with renewed vigor when the next General Assembly convenes.

Tennessee has just passed an efficient foul-brood law. J. M. Buchanan, of Franklin, says especial thanks are due to A. Gibbs, President of the Tennessee Bee-keepers' Association, and also to the Representative from Williamson Co. Mr. Buchanan is too modest to give himself any credit; but if we are not very much mistaken he was very active in securing this needed legislation.

Minnesota is another State that has recently enacted an efficient foul-brood law. This was approved April 20, and will compare favorably with any law in force in any State. A good start has already been made looking toward a chair of apiculture at the Minnesota Agricultural Experiment Station.

So the good work is going on in all of our important honey-producing States. While Michigan and Illinois did not succeed in getting such foul-brood laws as they desired, it should not be understood that there is no bee-disease legislation of any sort in either of those States. Michigan and Illinois both have foul-brood laws; but because they are defective it was thought best to enact new measures.

Illinois, unfortunately, has one or two persons who style themselves bee-keepers who have opposed foul-brood legislation of any sort in their State, for the last two or three sessions. What their motives have been we do not know. It is hard enough to get legislators to see the necessity of protecting our industry from the ravages of disease; worse still, when any one who is a bee-keeper goes before those law-makers and represents that there is no need of such laws—that the only people who want them are the supply-manufacturers and dealers, and the publishers of bee journals. The silly argument has been advanced that these laws require the burning of thousands of hives; therefore the manufacturer of bee-supplies would sell thousands of *new* hives. The fact is, no law of any State requires the burning of hives except in some very extreme cases. Intelligent treatment, using the old hives, melting up the combs, is all that is required.

But two or three malcontents can not long stop legislation. So many States now have foul-brood laws that it will be comparatively easy to get other States to fall into line by the mere force of example. It is a powerful argument to put up to a State without a foul-brood law, that 27 States have passed such laws. When bee-keepers act unitedly, and make sure that the governor, as well as the members of the General Assembly, is properly informed, they are usually successful.

THE following list from J. L. Byer, of foul-brood inspectors in Ontario, came too late for insertion in his regular department, so we give it place here:

J. S. Schrank, Port Elgin.
D. Chalmers, Poole.
John Artley, Blantyre.
W. A. Chrysler, Chatham.
James Newton, Thamesford.
James Armstrong, Cheapside.
Arthur Adamson, Erindale.
Henry Johnson, Craighurst.
Homer Burk, Highland Creek.
W. Scott, Wooler.
Alex Dickson, Lancaster.
I. B. Checkley, Linden Bank.
Herbert Doherty, Long Bay.
Morley Pettit, Guelph.
R. C. Fretz, O. A. C. Guelph.
G. L. Jarvis, O. A. C. Guelph.
F. E. Millen, O. A. C. Guelph.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

A CEMENT BEE-STAND is advertised in *Schweiz. Bztg.* with a little trench around the edge. Oil or water in this trench bars out ants. Why not?

AN AVERAGE SAMPLE of honey contains .003 per cent of formic acid. That means that in 333 parts of honey there will be one part of formic acid.

E. M. GIBSON, page 275, you're right; it's easier to stand by a hive on a bench than to stoop to one on the ground. But isn't it still easier to sit by one on the ground?

GEO. W. RICH, p. 254, I suspect that you will find your two queens will live in peace if the old one is old enough—not otherwise. But I'm afraid you'll find that two queens will not prevent swarming.

F. GREINER, it may be remembered, vigorously opposed the use of full sheets of foundation in sections. Now he frankly says, *B.-Vater*, page 104, that he has gone over to the enemy's camp, and for a couple of years has used full sheets.

A RIM OF HONEY above the brood in deep frames is considered a bad thing, page 238. Now, how deep must frames be to have that trouble? I don't have that trouble with Langstroth frames. [We have had it in Medina.—ED.]

TWO DOZEN postoffices in the United States are named after the bee. There are 9 named Bee; 2, Beecreek; 2, Beehive; and one each, Beebranch, Beecamp, Beecaves, Beegum, Beehouse, Beelick, Beelog, Beespring, Beesvill, Beetown, Beeville.

A. G. WHITE, your plan, p. 258, will work well if you put one frame of brood with the queen in lower story filled out with foundation, with excluder over the lower story. It's the plan given years ago by G. W. Demaree, only I don't know that he put any brood below.

"AGAIN, it is generally useless to undertake shaking *after* the bees have got the *mania* for swarming," page 283. I wonder, now. [Don't you remember the reports that showed that, after bees are well under way to swarm, it is almost useless to shake?—ED.]

E. D. TOWNSEND, page 277, puffs a little smoke in the hive-entrance as a preliminary step. I supposed every one did so; but leading writers in the *British Bee Journal* do not do so, and raise the question whether it is a common practice. How is it on this side? [While we think the practice is all right, the practice is not common on this side of the line.—ED.]

A. T. ATWATER uses three horizontal wires in his brood-frame, and reinforces the part where most of the sag occurs with two splints four or five inches long, or for light brood foundation four splints five inches long. "This not only prevents sag, but is a very valuable reinforcement in extracting." He fastens in the splints before putting the foundation in the frame, pressing down two splints at a time with a flat block worked by a lever.—*Review*, 105.

INSTRUCTIONS for using bottom starters are oftener wrong than right. As the bottom starter is my baby, I'd like to see it used right. Sometimes the instruction is to leave a space of ½ inch or 1 inch between top and bottom starters. That's a saving of foundation and a double loss in honey, also a hindrance to the work of the bees. If the space between starters is small, the bees join the two together the first thing they do. Cut the starters of such size that the two together shall be ⅛ inch less than the space to be filled. Then when put in with a hot plate the space between the two will be ¼ inch. The depth of the bottom starter is nearly always given too small. Even so reliable a book as the A B C and X Y Z says ¼ or ⅜ inch. It should never be less than ⅝. My assistant is an expert at putting in foundation, and she says it is twice as much trouble to put in a ½-inch starter as to put in a ⅝. Besides, the bees are likely to gnaw down too small a starter. If I were using extra thin foundation, I would still use thin for the bottom starter, and stick to the ⅝. [The matter has been marked for correction in our next edition of the A B C. —ED.]

FORMIC ACID, how does it get into the honey? Some have thought through the blood of the bee; others in some way through the comb; and even the foolish idea that the bees dropped it into the cells from their stings has not been without its advocates. In *Leipz. Bztg.*, 51, Dr. Rudolf Reidenbach gives an exceedingly interesting series of experiments which seem to prove conclusively to the lay mind that the formic acid is formed *by the oxidation of the sugar in the honey*. Dr. von Planta had found no formic acid in freshly stored honey, and as much as .0045 per cent in sealed honey in old comb. But it did not occur to him that the honey itself was the original source of the acid. Dr. Reidenbach reasoned something after this fashion: "If the acid is generated in the honey, exposure to the air outside the hive ought to produce it." So he made honey slightly alkaline, exposed it in a thin layer on a plate, and obtained .0063 per cent of formic acid! After distillation he repeated the experiment three times, and in the four series obtained a total of .0241 per cent of formic acid from the same mass of honey. So it would seem that honey makes formic acid simply by rusting! Formic acid is such an important element in honey that it will be watched with interest whether others confirm Dr. Reidenbach's conclusions.

Bee-keeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

As soon as any bee-keeper writes of his location, it seems to be a foregone conclusion on the part of his neighbors that he is booming the country, and that the district will soon be overstocked by in-rushing bee-keepers. While some places are surely overstocked, considering the country as a whole far more is lost from slipshod methods. Mr. Gibson makes one point, page 274, May 1, that is well to keep in mind, and that is, that it is very desirable to have at least a few really up-to-date bee-keepers near enough so that sales of honey may be made by the carload every year. It is well to have neighbor bee-men, but we don't want them too close.

Mr. Fouch mentions, page 278, May 1, having many queens balled when hiving swarms. I have noticed the same thing to a limited extent. Early last September it seemed as though a hive could hardly be opened without the bees immediately balling the queen. No honey was coming in, and it was at the end of a season devoid of a honey-flow. One day four queens in succession were balled, and the mood for this kind of performance seemed to be so general that work with the bees was discontinued for the day. This, however, was the most noticeable instance of balling which attracted my attention during the fall. It looks as though there might be some conditions affecting this that we do not yet understand.

Mr. Southworth says, page 268, May 1, that all the honey his association puts out goes through a clarifying and refining process which removes all the pollen grains and ferment germs. I can see how heating would remove ferment germs, whatever they are; but it certainly takes a fine strainer to take out the pollen grains. How are we to test honey to knew its source if the pollen grains have been separated from it? I do not know what advantage there would be in removing them from honey, any way, unless they were so thick as to affect the taste of it; and I never saw any thing of that kind here. I shall await further enlightenment from Mr. Southworth with interest.

FAILURE OF THE COLORADO FOUL-BROOD BILL.

Our foul-brood bill did not go through the legislature for a number of reasons. The principal one, no doubt, was that we could not have one or more men camping at the capitol all the time, interesting the legislators in the need of its passage. We did not get any of the senators nor representatives really interested in the bill. Another reason was the fact that this was the most useless session ever held. Mayor Speer, of Denver, wanted to be United States Senator; the Denver machine tried to elect him, and the opposition prevented his election. Consequently the energies of the session were expended in the fight, though they did find time to appropriate $600,000 more than the State's income. One-third of the bills introduced called for appropriations. We shall have to try again.

I have had considerable to say about shipping-cases; and as Mr. Crane has expressed surprise, p. 239, April 15, that the subject of corrugated shipping-cases has not been discussed more, I will give some of the reasons why I do not think they will gain an extensive hold here in the West.

The majority of Colorado bee-keepers (and I believe also the majority of Western bee-keepers) have adopted the double-tier wood shipping-case with glass front as their standard. The trade that we supply want honey in this case, and will pay more for it. Having admitted that honey will ship better in the corrugated case in local shipments, it still remains that probably not over a tenth of Colorado's comb-honey crop ever goes to market other than in car lots, and double-tier wood cases handle easier, pack better, and ship as well in car lots as any case made. The double-tier case, when filled with alfalfa comb honey, is the handsomest one that is on the market. I make this statement without a doubt in my own mind. Looks help sell honey, and this will help to keep the double-tier case in the front window.

Then cost is a mighty consideration. The double-tier glass-front cases with two-inch glass cost us 16½ cents each here, and I get them nailed together for one cent each by neighbor boys. Now, if Mr. Crane could supply the corrugated case for the same money would we change? Not until the buyers demand it. They are the ones to be interested, for they have to stand the blame in breakage when reshipping, for we ship in car lots. Will comb honey go as well in corrugated cases, uncrated, as will double-tier wood cases sent in carrier crates? If it will, then we shall see the more general use of the corrugated crate where local shipments of comb honey are the rule. I do not expect to see the corrugated case supplant the wood case here unless it is cheaper or unless our market conditions change.

There is one more objection to the corrugated-paper case, and that is, that the partitions make it difficult to remove the sections of honey. Grocers' clerks have trouble enough with the ordinary wood case in taking out the sections, and I fear many a finger and thumb find their way into the comb of fancy honey when the section sticks tighter than usual. What are the advantages of the corrugated case where honey is not shipped other than in car lots?

Bee-keeping in Southern California

Mrs. H. G. Acklin, Glendora, Cal.

I never realized before what a job it is to paint bee-hives, especially when the hardware man furnishes inside paint for that purpose.

It was almost a disaster to bee-keepers in the orange districts that the cool and cloudy weather during the middle and latter part of April lasted so long. Trees were in full bloom, but the bees were able to work only part of the time.

According to the editorial, April 15, p. 236, Congress has given an extra $5000 to the bee-keeping industry of our country, making a total of $15,000 for this year. Now, if our State legislatures could only see our interests through those same spectacles, what a load would be lifted from the minds of bee-keepers!

I see by an editorial in the April 15th issue, p. 233, that the next annual meeting of the National will be held at Minneapolis, Minn. That city is a twin to my old home, St. Paul, and I can assure a rousing good time to all who go. Besides, it will give an opportunity to visit the Minnesota State Fair, which is one of the greatest institutions in the United States. I hope many bee-keepers will plan to be present.

A statement was made at one of our club meetings that bee-keepers are often deceived by local commission men and honey-brokers sending out representatives to our apiaries to offer big prices for honey early in the season. When the genuine buyer does come, bee-keepers hold their honey at the price they have been offered, which the buyer will not give, and the honey is left on their hands. Later these same brokers get the honey at a greatly reduced price. I give this for what it is worth, hoping it may put bee-keepers on their guard against such swindlers.

Mr. Albert Dodge, formerly of New Hampshire, has located in Pasadena, and has started keeping bees. The energy and enthusiasm he puts into it indicate success, provided the seasons are favorable. Some weeks ago we visited him at Pasadena, and he took us all around in his touring-car. We went first to the upper end of the Arroyo Seco, where Mr. Blake has an apiary. Further down this same arroyo are the famous Busch Gardens, a spot beautified to the highest degree. Mr. Blake's apiary of 120 colonies is protected on all sides from the wind, and it was summer time down there, while on the bluff the air was cold and raw. He commenced stimulative feeding the first of January, and consequently his bees were sending out a large force of workers, and he had had many swarms. I wondered, though, whether they would not get chilled when they reached the higher ground. This apiary is run for comb honey.

From there we went over to Mr. Dodge's Lavina Ranch apiary, west of Altadena, where he has 52 colonies. This is a beautiful spot, affording such a fine view of Mt. Lowe that it seems very near. This apiary is run for extracted honey, and has a new honey-house screened in. The whole place looked so tidy that I felt sure it would be a pleasure to work there. We circled around in many directions before we covered the five miles intervening between this and the Kinneloa apiary, east of Altadena. Altadena is between Pasadena and the mountains. We actually rode along Millionaire Drive, but my sensations were no different than when on any other road, as I was interested in the corners which we turned sharply at right angles. We went over some of the good roads which our county is building, and up hills where I thought the auto might balk, but it didn't.

We finally reached the apiary intact. Here we found 177 colonies run for extracted honey, and an abundance of supers and every thing to work with. This, too, is a fine spot, but the outlook is more toward vineyards and orchards than mountains, although the mountains are not distant. The bees are in a cosy little canyon, while the honey-house and other buildings are near the entrance. Mr. Dodge had been doing stimulative feeding, but did not commence until March, so his bees were not swarming. There is considerable black sage and other mountain flora near his apiaries, as well as fruit-orchards and vineyards.

Mr. Dodge uses a feeder which he makes himself, which is similar to the Doolittle feeder, and wherever he places it in a hive he has a small hole in the cover through which he pours the syrup through a funnel. When not in use, the opening is closed with a cork. By this method the colony need not be disturbed nor robbing started.

Mr. Dodge has worked out a very plausible theory by which queen-rearing can be carried on without the usual amount of work; but as his paper explaining the whole scheme will appear later in the *Cultivator* I will not enlarge upon it at this time. He uses only one wire with full sheets of foundation in extracting-frames, and runs hot wax along that after it is imbedded. He also uses narrow top-bars, as he likes finger space when manipulating combs.

Bottom Ventilation Prevented Swarming.

This season I tried, with good success, bottom ventilation to stop swarming. As soon as the bees began to hang out I put blocks, about ¼ inch thick, under the hives. By the next day all of the bees had gone back into the hive; then, just as soon as they began to fly again, I put on a super in order to give them plenty of room. The plan is so simple that more bee-keepers ought to try it.

Sacramento, Cal. Fred Jacinto.

NOTES FROM CANADA

J. L. Byer, Mt. Joy, Ont.

The season here in York Co. is about two weeks later than last year. At this date, May 12, wild plums are just opening, and for the past three days yellow willows have been in bloom. While there is an abundance of nectar in the plum-trees, the wind has blown a gale for two days in succession. To-day I tried to do some queen-clipping, but gave it up in disgust at noon, as no headway could be made when the wind was strong enough to blow the bees off the combs. Aside from that they seemed irritable. (Who could blame them when nectar was abundant and the weather warm, but a thirty-mile breeze blowing to buffet them about?) In one case a colony balled its queen.

Dr. Miller, in commenting on the migratory bee-keeping practiced by H. C. Ahlers, p. 196, April 1, says, "Strenuous, but 32,500 pounds." It must have been strenuous work to do all that moving, and I think Mr. Ahlers earned every pound of the 32,500. From 180 colonies, that would mean about 180 pounds per colony; but last season a man in Eastern Ontario produced from that number of bees 46,800 pounds, or 260 pounds per colony, and, in addition, he increased about 75 per cent without moving a colony out of the yard. Of this amount, 160 pounds per colony was very choice clover honey. Of course, this was somewhat extraordinary for Ontario, and a yield that probably will not be duplicated for some time.

In that trouble between the buyer and seller of bees as chronicled on p. 205, April 1, my sympathy is entirely with the purchaser. Any man who has kept bees should have enough "horse sense" to know better than to attempt to ship bees a long distance on combs drawn from starters, but not fully completed. Such combs, without any wires in them, are too fragile to use in moving bees in hot weather, even if never trusted to the tender mercies of express handlers. Again, what is more exasperating than to wait for weeks to get an answer from a man to whom you have sent money for bees or queens? While attending the Wellington Co. meeting this spring the question was raised as to why it is so much harder to introduce queens from some breeders than from others. Mr. Pettit said he had found, as a rule, that those queens are more easily introduced which are received from men who put the stock up in neat cages and in good shape, and who promptly answer all letters, than those from bee-keepers who send out slouchy parcels, and who are slow in replying to letters of inquiry. The moral is obvious, and "a word to the wise is sufficient."

While at the Wellington Co. meeting we had the pleasure of calling on Mr. Pettit at the Agricultural College, and of having a pleasant visit with him. He is certainly the right man in the right place, and we believe that he will be successful in the work he is outlining for bee-keepers. He is doing a lot of conscientious work; and the short course in bee-keeping mentioned on page 193, April 1, can not fail to be helpful in spreading a lot of useful knowledge. At the college the students have an apicultural club, and, through Mr. Pettit's assistance, different speakers have been obtained through the winter months to come to address them. Among the men who have addressed the class are Mr. Sibbald, who spoke on the essentials of bee-keeping; Mr. Miller, who gave an illustrated address on the Heddon hive, and Mr. Hurley, who spoke on bee-journalism. All of these men are thoroughly qualified to handle the subjects mentioned; and first-hand information of a nature of this kind is very helpful to the students in connection with the theoretical training received in the lecture-room. Judging from present developments we surmise that, in a few years, Ontario will have an apicultural station second to none on the continent. Certainly it will not be the provincial apiarist's fault if this is not the case.

From reports received to date I would judge that the bees have wintered well, as a rule, throughout Ontario and Quebec. In most sections clover has also come out well; but I regret to say that a few counties report the clover badly injured — in some localities about all of it being ruined. Naturally, I am sorry that my own district is among the unfortunate ones in this respect, as fully half of the alsike is a failure. However, it might be worse; for wherever the clover was seeded on fall wheat it wintered well owing to the long stubble protecting it. As there was a large acreage of fall wheat last year, some alsike went into winter quarters protected by the long stubble, and, as a result, I think that we have about 100 acres left within reach of each apiary.

The counties of York, Ontario, and Victoria seem to be affected the worst; and from north, east, and west of these counties have come reports of good wintering of the clover and wheat. Lack of snow explains the difference, as with us what little snow we had left early in March; and then for over a month we had dry cold windy weather with freezing by night and thawing by day. In many cases the clover died without being heaved out of the ground—a very unusual occurrence with alsike clover, although more frequently true of the red variety. In many cases, even the alfalfa was killed, although the roots extended into the ground for a great depth. Continued exposure seemed to cause the crown of the plant to die; and when the warm weather finally came, the top of the plants seemed to be rotten, and in many cases they have not cast forth a sprout.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York

DIAGNOSING.

"What is meant by diagnosing the inside of a bee-hive? When you examine a colony carefully from the outside is it to determine whether the bees are diseased?"

"Not generally, although one experienced would be quite apt to recognize it if that colony had a disease peculiar to bees."

"Is it essential that the person making the diagnosis be skilled?"

"Certainly. A banker could neither diagnose the human body nor a colony of bees within a hive. One should have some idea of what to expect when he opens a hive, in order to judge properly whether every thing is as it should be.

"As much of our literature on bees does not mention this subject, the desired knowledge has to be gained through a series of observations covering one, two, or more years. And perhaps this is wisest, after all; for in no two hives will exactly the same conditions be found. Again, what is observed to-day will be different from what was found in the same hive when it was last looked over. In fact, after many years of observation it may not be the easiest thing for the best of apiarists to give in words any thing like a definite answer to the question, 'What ought a person to find inside a bee-hive?'

"But if you so desire I will attempt in a general way to tell you what you may expect to find in a hive containing a colony of bees. If they have been left to do as they please after having been hived as a swarm, there will be drone comb in different places amounting to from one-tenth to one-fourth of the contents of the hive. If the apiarist has given frames of foundation, or has controlled comb-building, there may be only a few cells scattered here and there, amounting possibly to between three and six square inches. In this locality these drone-cells are not likely to contain brood except during May, June, July, and August. After the honey harvest they may contain honey. As a rule they never contain pollen."

"I have read that drone-comb cells are so large that it takes only four to measure an inch; then how is it possible to diagnose any thing from the outside as to how much comb having cells of this size is to be found?"

"You can tell nothing about it from the outside except during the months mentioned. Suppose you stand in front of a populous colony for an hour in June, about one o'clock in the afternoon. If the hive has one-fourth of the comb in cells of drone size, the rush and roar of the drones going and coming from the entrance will make you think there is a swarm in the air; while if the apiarist has excluded them, or if the bees had a very vigorous queen at the time of comb-building, and so made only a few inches of drone comb, only one or two drones will be seen going from the entrance during the time there were hundreds in the other case. You yourself would not try to diagnose for drones in the fall or early spring. You would do it at the right time; and if you saw them by the thousand going from the entrance of any hive you would be sure of a superabundance of drone comb.

"We will talk next about the worker brood. The queen in a colony wintered on its summer stand will often begin laying eggs in worker-cells in January, and generally in February. If the colony is wintered in a cellar giving the best results, it is not likely to have brood started much, if at all, before being brought outside. The queen begins by laying a few eggs daily, in a compact form, right in the center of the cluster of bees, no matter in what part of the hive it may be, filling a space in one comb on either side about as large as a silver dollar. Brood will soon be found in three combs; that in the first having increased in size to a circle from five to six inches in diameter, while in the other two it will not measure more than two or three inches. Soon she will be laying 300 to 400 eggs daily, which will give brood to about one frame solid full, if it is all together. By May she will be laying from 1000 to 1500 eggs daily, if the season is favorable —the latter figure being as high as some queens ever reach. But such a queen I would not consider fit for any thing but supersedure as soon as it could be done profitably. From the 25th of May to the 10th of June the queen should be at her best, when she will lay from 3000 to 4000 eggs daily; and, if so, where a ten-frame Langstroth hive is used, eight of the combs will be nearly solid with brood, while quite a little brood will be scattered about in the two outside frames, generally considerably mixed with the pollen and honey. Now, with an inferior queen you will see no large force of bees going in and out at the entrance, and their work in the super will be under the average. On the other hand, three weeks later, if you should pass in front of the colony having the queen that could lay 4000 eggs daily, if the harvest is good, you would think there was a mighty army rushing to and fro after the nectar. No need of opening these two hives. A look at the entrance and the supers tells you, and you will instinctively mark the former for a supersedure of its queen, and very likely the latter for a breeder. Then if you see many bees standing about the entrance, with little work being done, it shows that they are queenless; or, in case of a strong colony in the swarming season, they may have the swarming fever. If the bees are shiny, have swollen abdomens, move about with a trembling motion while other bees are pulling at them, and if dead bees are scattered about in front of the hive, such colonies may have bee paralysis. So examples might be multiplied indefinitely to illustrate what a glance at a colony will show to an experienced bee-keeper."

General Correspondence

THE POWELL GRAVITY STRAINER.

Eight Tons of Honey Clarified per Day, with No Attention from the Operator.

BY R. POWELL.

[Of all the gravity honey-strainers that have come to our notice, the one here described seems to have the most desirable features. We have always felt that there should be a screen used in connection with the gravity plan, to insure good results, and the screen could be made quite fine too, for the most of the impurities do not reach it. This outfit may have its objections; but they do not occur to us now. At any rate, we expect to test it thoroughly the coming season, and we suggest that others give it a trial also, and report.—ED.]

I have read GLEANINGS for over thirty years, and have yet to see a good practical honey-strainer described, so I thought I would tell how to make one that I have been using for over twelve years in large California apiaries. Others have adopted it, and they call it "Powell's Gravity Strainer."

First make a galvanized-iron can the depth (or a little deeper would be better) of the honey-tank, 14 inches in diameter at the top, and 12 at the bottom. Solder on a two-inch coupling within 4 inches of the top, to run the honey in, and another two-inch coupling as near the bottom as possible (on the opposite side). Solder one more coupling 1½ inches in size for a honey-gate to empty the strainer at the close of the day's extracting.

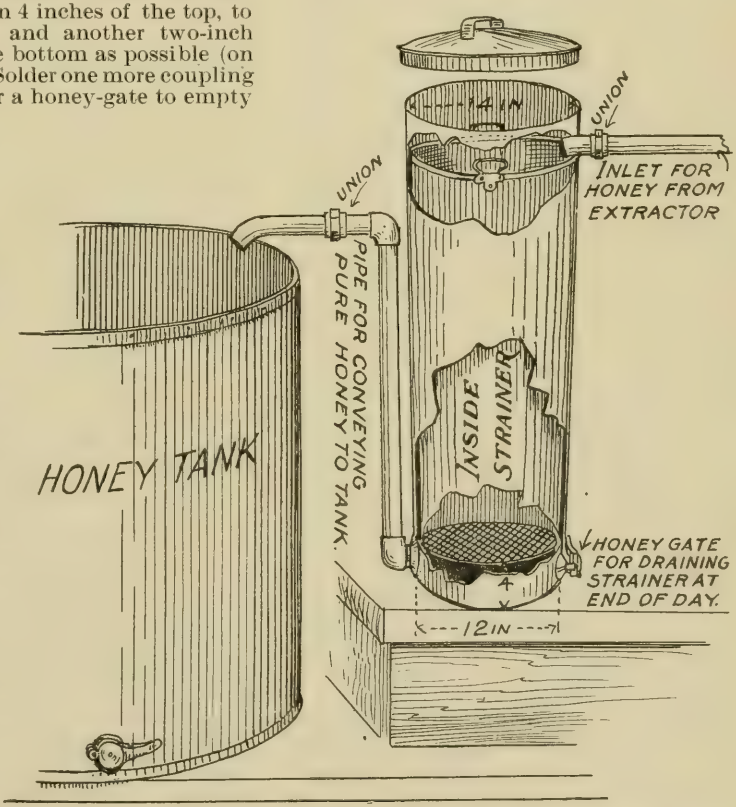
Inside of this can place another can with a strainer bottom, so made that it will slip into the outside can below the coupling that lets the honey in, and remain supported within 4 inches of the bottom of the outside can. This inner can must fit snug at the top, so nothing can pass down between the two.

To connect the strainer with the honey-tank and extractor, use two-inch galvanized-iron pipe, placing a union between the extractor and the strainer. Have the strainer at least 12 inches higher than the honey-tank, so there will be plenty of gravity flow. The pipe from the strainer to the tank should come up to a point eight inches from the top of the outside strainer-can, and then turn with an elbow over to the tank.

The strainer will always be full up to the level of the outlet, and all the impurities will stay on top of the honey, and the screen will have little or nothing to do, and will never clog (unless there is granulated honey in the combs that would find its way to the bottom and choke the strainer). At the close of the day's extracting draw out the honey from the strainer by means of the gate, and during the night the refuse will be drained clean of honey, so that the inside can may be lifted out and washed.

It is best to fill the strainer at least half full with clean honey so as not to stick wax, etc., on the screen to start with; after that it will take care of itself by the aid of gravity.

This strainer will do just as good work without the inside strainer, but it would be hard to clean, and one could not strain the honey left in the can. The capacity of this



POWELL'S IMPROVED GRAVITY STRAINER; CAPACITY EIGHT TONS OF HONEY PER DAY.

outfit is from four to eight tons of honey a day, and no attention whatever is required.

HIVES PAINTED INSIDE AND OUT.

The last few years I have painted my hives on the inside as well as on the outside; and after testing the plan for five years on several hundred I find it pays, as the boards never warp out of true, and the bees don't use much propolis on the smooth white paint surface. Bees winter just as well, seemingly, as in hives not painted; but this might not be true in a cold climate as regards the prevention of warping. Just stop and think of the effect a large swarm of bees must have on an unpainted hive while evaporating honey until the moisture fairly flows out of the hives. Is it any wonder that the hives warp so?

Riverside, Cal.

A BEGINNER'S TROUBLE IN INTRODUCING QUEENS.

BY REV. GEO. A. WALTER.

In July, 1909, I decided to Italianize one of my four colonies of hybrids; and as I did not want to risk too much I ordered a select tested Southern Italian queen. When she arrived I shook the colony in front of the hive and found two dark queens among the bees. I took these queens into the house and put them under a glass tumbler. The moment they discovered each other there began a "battle royal," which lasted probably 30 seconds, when one stretched out, stung to death, conquered, while the other promenaded around triumphantly, apparently feeling highly elated over her victory. The new queen was introduced according to directions on the cage. In about 48 hours she was released and accepted. Exactly three weeks later I saw some very pretty golden bees among the dark hybrids at the entrance, and in about seven weeks I had a colony of pure Italians. I was as proud of that queen in a way as I was of my twins in our house, and again and again I brought her forth to show her majesty to visiting friends, many of them never having seen a bee-queen.

In September, while looking them over I was surprised to find half a dozen or more queen-cells all capped over in different parts of the hive; but my "beauty" was missing. The hive was full of bees, so I thought I must have overlooked her, and that they were making preparation to swarm, so I cut out all the cells. Later it dawned on me that perhaps my queen had died or was lost. I shook the colony out, and, sure enough, my queen was gone. These bees went into winter quarters queenless, and to the graveyard the following spring.

During the winter I contracted for some select tested Italian queens, some to come in two-frame nuclei. One of these queens I wanted early in 1910, to take the place of a poor queen in one of my other colonies of hybrids which went into winter quarters after having done nothing all summer. I received her early in April, and introduced her by hanging the cage between the frames in this weak colony, having removed the dark queen first. After several days I found her on one of the combs among the bees, apparently contented. The weather continued quite cool, and about two weeks afterward a friend of mine told me he had seen a small cluster of bees, several days before, hanging on a hitching-post about a block from my home, and that, upon investigation, he had found a fine Italian queen among them. We went to my hive and found the queen gone. She swarmed out, apparently because her family was too small. The same day she was found dead on the ground near the place where the cluster had hung. She hadn't laid a single egg before she left the hive. The bees killed the next queen. I bought some colonies of hybrids just then, and out of one of these I took the queen with a frame of brood and the live bees on it, and transferred it to this stubborn weak colony, putting it in the center of the brood-nest. This plan worked all right, for the colony began to build up at once.

From the two-frame nuclei with the select tested queens which I had purchased I determined to raise my own queens later in the season, and Italianize my whole apiary, which had now increased to about 15 colonies. But in July the American foul brood hit my apiary so hard that all but a few colonies became badly diseased. Every effort to hatch queens during this month failed, the queen larvæ dying, apparently, from the disease, just as the worker larvæ died after the cells were capped over.

I determined to make one more effort before the season ended, so I moved two of my Italian nuclei, which were now strong eight-frame colonies (with the disease in a milder form) to an isolated location several miles out. I built three two-frame "baby" hives, and ordered three virgin queens. When they came I shook bees from three of my colonies into a wire-cloth box and took out to this isolated place. The baby hives (into each of which I placed one frame filled with honey, and another partly filled with brood and honey), I wet the bees and queens thoroughly so they could not fly, and dumped about one-third of the lot, with one queen, in front of each of the baby hives, letting them run in together.

One week later I found a laying queen in each one of these hives. I caged No. 1 successfully; but when I tried to catch No. 2 she took wing and flew out. Although I waited a full hour she did not come back, so I lost her. No. 3 I caged without any trouble. One of these I introduced by the reliable cage-and-candy method. She was received all right, and was safe in the hive four days later. However, I had put the dark queen, which I had removed from the colony to which I introduced the Italian queen, in a hive-body with two frames of brood and bees, on a new stand not far away. A week later I found this black rascal back doing business at the old stand, and my young

queen gone. The other one I tried to introduce by the "tumbler" method.

I allowed one bee to come up through the hole I had made in the oil-cloth cover. How she chased her majesty around, tugging first at her legs, then pulling her wing! In about five minutes she changed from a hostile to a friendly attitude. Then I admitted several more bees, repeating the operation until I had enough bees in the tumbler, all of them treating the queen kindly. When I thought all were in perfect harmony I allowed the queen to go below. The next morning I found her dead in front of the hive. They had not received her. This queenless colony raised its own queen.

I ordered three more virgins; but owing to a delay in getting them the season was so advanced that I couldn't get a single one fertilized, although some remained in the baby hives several weeks.

Later in October I purchased a fine-looking select tested Italian queen cheap from a bee-keeper who had a surplus of queens. Having run the gauntlet in experimenting with queens I determined to try the flour method. This time I caged the dark queen in case I should fail again. I sprayed the whole colony with peppermint water, and literally buried the bees and queen with flour. In 36 hours I found the queen dead on the bottom-board.

Thwarted again and again in my year's efforts in experimenting with queens I am far from discouraged. I can hardly wait until the season opens again to continue this fascinating work.

Ashton, Ill.

MENDELSON'S MODIFICATION OF THE CHAPMAN SWARMING-BASKET.

BY M. H. MENDELSON.

In Nov. 15th GLEANINGS, pages 722 and 725, I note your article describing Mr. S. D. Chapman's method of hiving swarms with a bushel-basket. I use a similar kind of swarming-basket; but the difference between mine and Chapman's is that I have a handle over the center instead of the *sides*, so as to carry much more conveniently. The handle is fastened securely to each side so it will not move or swing, for a movable handle cuts off and kills many bees. I take a heavy, No. 8 galvanized wire and cut it long enough to make a hook on one end. The opposite end I fasten by twisting around the center of the handle. This is for the purpose of hanging on limbs of trees by hooking over some limb convenient for the alighting of issuing swarms. As you are aware, after the first swarm has once clustered the succeeding swarms will be drawn by the odor of the previous swarm and cluster on the same limb, from which the swarm can be easily taken care of. When clustered quietly, I catch and remove to a vacant hive in the apiary; and if other swarms are near, then I place a duplicate basket in its stead. I prevent confusion of swarms by handling quietly. You will find the center handle a great convenience.

Ventura, Cal.

WHAT IS THE ORIGIN OF FOUL BROOD?

BY LESLIE BURR.

A few days ago I visited an apiary in which there had been a light flow of honey. The bees were strong for that time of the year, and the queens prolific. There had been sufficient rain, and other conditions were favorable, so the outlook could not be better.

But, about forty per cent of the colonies had here and there a cell affected with American foul brood. The facts are, that, early in the season, two colonies were found which had been robbed, and their brood-combs showed that they had been badly affected with the disease. Now, it is safe to wager that about every colony in that apiary has stored away somewhere in the combs the germs of American foul brood. The natural question is, "Where did it come from?" The owner of the apiary said he did not know. He had never had any colonies affected with the disease before, and accepted the situation as a decree of fate.

The incident started a chain of thought in which I recalled scenes that I have witnessed, and stories of foul brood which I have heard during the years of my wanderings.

My first experience with the disease was when a lad at home. It was on the prairies of Illinois, and the only apiaries in the vicinity were those of two neighbors and that of my father. The nearest yard was half a mile distant; the other, a mile. So far as we knew, there were no other bees within miles of us. Foul brood made its appearance in my father's apiary, and later in that of the nearest neighbor. Previous to that time the disease was unknown in that part of the State. Where did it come from?

The next picture in my mind is in Cuba, just after the "Government of Intervention." Those who have read Rambler's description of the apiaries along the Calzada have, no doubt, a fair conception of that string of apiaries that sprang into existence along that noted highway, and will recall "Windy Brown of Tulapan," "Somerford, the man who talked," the energetic Harry Howe, and the droll Harry Beaver, and G. E. Moe, the man who one month did not know the difference between a queen-bee and Adam's off ox; and the next was one of the most extensive and successful apiarists on the island. West from Harry Beaver's location was a long stretch of barren savanna, about ten kilometers, where there were no bees; and, so far as it was known, no foul brood; yet it appeared almost simultaneously in Moe's apiaries along the Calzada. And, again, there was asked the question, "Where did it come from?"

In Eastern Cuba, four hundred miles from any known foul brood, Captain Fatjo built up a series of apiaries. The only bees he had bought, except some queens, were fro..

Jamaica—an island where the natives boasted of the absence of foul brood, although there were whisperings to the contrary; but it appeared in Fatjo's apiaries. And again there was the question that was not satisfactorily answered, "Where did it come from?"

From the Atlantic to the Pacific, similar instances have come under my personal observation. American foul brood mysteriously appears in the apiary of some progressive bee-keeper, and in like manner has been the progress of European foul brood, or black brood, as it is sometimes called.

A few years ago it appeared in New York, and now we have it on the Pacific coast; and again the question comes, "How did it get here?"

I was in Havana one July day several years ago, and was discussing the subject of apiculture with a man who had come to the island and had been interested in bees before the introduction of the frame hive. "Foul brood," he said, "prior to the introduction of the frame hive, did not exist in Cuba. But a progressive bee-keeper arrived, and scientific bee-keeping had its birth. Queens were imported from the United States and other countries." He stated that a firm in the United States that reared queens had colonies which were affected with foul brood, and, during that time, shipped queens to him, and the disease made its appearance in his apiary. How did it originate?

While on a trip to California a few years ago I visited the apiary of a well-known bee-keeper who was at that time advertising "sage queens" for sale. It happened that he was not at home, so I wandered around and investigated his queen-rearing outfit, and found foul brood.

On another occasion, while at the home of a prominent New York bee-keeper, I met two of the State inspectors. In the course of our conversation they stated that, a short time before, they had visited a well-known queen-breeder in whose apiaries foul-brood existed. He was then advertising queens for sale in the principal bee-journals, and continued to do so during the rest of the season.

Among bee-keepers throughout the country I have found the idea quite prevalent that certain physical conditions will produce foul brood. One told me that moldy combs placed in the brood-nest are its cause. Another thought that sour honey, if fed to the brood, would have that effect, and still another, that a spell of damp rainy weather during the summer is the cause.

In answer to these arguments it is only necessary to state that, if they are true, spontaneous generation is a reality. However, careful experiments have been made to find out whether life can be produced spontaneously, and they have always failed to produce even the germ. So, Mr. Bee-keeper, if you have foul brood in your apiary you got the germ somewhere.

Banning, Cal.

EUROPEAN FOUL BROOD IN NEW YORK STATE.

Some Instances Showing that Italian Blood is Absolutely Essential in Permanently Curing the Disease; Not Necessary to Destroy Combs.

BY S. D. HOUSE.

Since in many apiaries the disease known as foul brood will appear for the first time this year, perhaps it may be well to give some of my experiences with European foul brood and its cure. I understand that it exists in forty-five counties in New York, and in thirty-nine States in the Union; also in Canada; and a disease so widespread and destructive in its work can not be given too much attention if we are to check so great a loss. I believe in the old saying, that "forewarned is forearmed;" therefore I will state a few cases to prove that the cure and extermination of European foul brood must depend upon Italian bees, and that the spread of the disease will not cease until the bee-keepers of this continent Italianize their apiaries before the appearance of the trouble. Many bee-keepers neglect to grasp the advantage of some system or method given by those who have been through the siege and gained their experience at a great loss of time and money.

I have had this remark made to me often, of late: "If I had only taken your advice, and Italianized my bees, I would have saved several hundred dollars." I do not wish to convey the idea that the Italian bees are entirely immune to the disease, for they are not; and I find that the different strains vary in combating disease as much as they do in other characteristics. However, I will say that a pure Italian apiary will not contract the disease unless it is directly introduced. On the other hand, the disease can not be cured to *stay* cured upon the same ground, no matter what method is followed, unless pure Italians are introduced. Finally, the disease will not destroy a normal pure Italian cojony, even if no assistance is given them except a natural flow of honey. Fig. 1 shows an Italian colony in my home apiary, one of three that never had European foul brood, although it raged in this apiary for three years. At one time 160 colonies were badly affected. The queen of this colony, at the time the picture was taken, was seven years old, and a granddaughter of the A. I. Root Co.'s red-clover queen that was so renowned for honey-gathering propensities. Fig. No. 2 is one of her frames of brood. She was superseded some three weeks later. Figs. 3 and 4 show one of the hives and a frame of brood that the European foul brood first appeared in, in the spring of 1905. This hive was one of fourteen that were purchased in the fall of 1904, and the only one I have holding this style of frame, the combs of which I should judge to be twenty-five or thirty years old. I have kept this hive and combs to show to visitors, and prove that *European foul brood can be cured to stay cured, without destroy-*

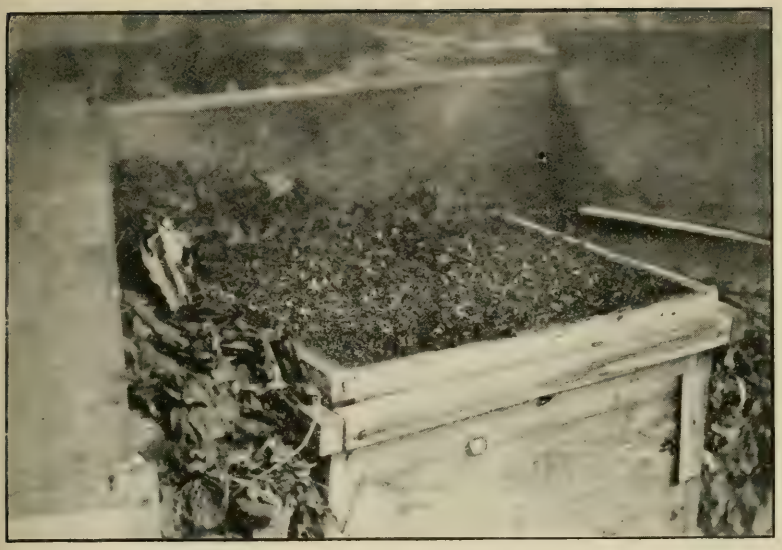


Fig. 1.—An Italian colony that remained perfectly healthy, although for three years in an apiary where there were 160 colonies diseased with European foul brood.

ing the combs. About May 1, 1905, this hive contained a colony of black bees, and about ninety per cent of the cells had dead larvæ in one stage or another. About this time the queen was killed. Ten days later a ripe Italian queen-cell was given, and in due time I had hatching brood which appeared healthy; but as the queen filled the combs with eggs the second time I found an occasional dead larva. On further examination I found about forty colonies that had been treated in the same manner, still showing the disease. I at once shook the majority of those forty colonies. The colony in Fig. 3 was so reduced in numbers that they were not worth shaking; nevertheless, the queen was removed, and, later, having a choice queen-cell, and no place to use it, I gave it to this small colony, which now was mostly Italian from the first queen given; and as the second young queen's brood looked so healthy I decided to leave them alone and make a test of the treatment given. The result is that they rid themselves of the disease, and have remained free from from it to the present time. During this time I had shaken the greater part of the colonies in this apiary upon new frames filled with foundation. The hives and bottom-boards were singed with fire on the inside, and great care was taken in all of my manipulations to avoid spreading the disease. At the close of the season I discovered that many of these same colonies that had been shaken on to new frames of foundation had contracted the trouble again. (These colonies had the same queens they had before they were shaken.)

The following spring, every colony that showed black bees to any extent whatever had signs of the disease, while all pure Italians were free from it. This same spring, two of my out-apiaries were badly diseased, and the above facts were demonstrated throughout several hundred colonies. For



Fig. 2.—A frame of brood from a seven-year-old red-clover queen.

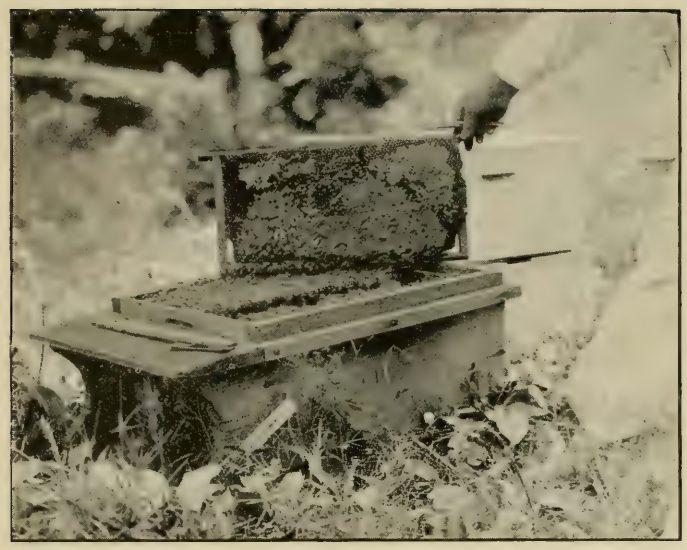


Fig. 3.—An old comb where European foul brood first started in S. D. House's apiary.

the past four years I have given some attention to apiaries surrounding me, and in each instance found black or European foul brood wherever I found black bees. F. A. Salisbury, of Syracuse, N. Y., has had from six to fifteen colonies of Italian bees, and never saw any diseased brood among his bees, and I know that the disease has existed on all sides of his apiary; in fact, its first appearance in this county was within two miles of his apiary, and has spread to every other apiary known to me within the county.

If European foul brood makes its appearance during May, and the greater part of the brood is affected, I would dequeen at once, and, from ten to fifteen days later, the length of time depending upon the race of bees being treated (it takes twice as long for the black or brown bee to clean out the cells as it does the Italians; some hybrids will clean up quite fast), after destroying the queen-cells that are in the hive I give a queen-cell from good Italian stock that will hatch within a short time, or a virgin queen. This period, during the time that the virgin is becoming a laying queen, is of great value in the treatment of the disease, as the bees will show a greater activity in removing the scales and polishing up the cells in anticipation of brood-rearing again; and by the time this young queen gets to laying, there will have been time for all the brood to hatch that will hatch. In case the colony is weak in numbers I place another light queenless colony above, with an excluding zinc between the two brood-chambers, the combs above being used later for extracting-combs. Often I find some scattered cells with dead larvæ from these young queens; but as soon as we get Italian workers in sufficient numbers the dead larvæ disappear. I have had good results from feeding when there was no honey-flow, after this young queen commenced laying.

Those colonies where the disease appears about the time the white-honey season opens I shake into a new hive. If the colonies are not strong enough to do good work during the honey harvest I shake two into one hive, shaking the frames alternately from each hive and killing the queen from the most diseased colony. The diseased brood I stack up and allow to hatch, if there is any that will hatch, and then give a queen-cell, as above stated. Later the queen should be confined to one of these brood-chambers by excluding zinc. Any combs that are old and badly diseased might as well be melted into wax, as the wax from them will pay for new foundation.

If the disease appears *after* the main honey-flow is over I proceed the same as earlier in the season.

When the trouble has once appeared in the apiary there should be no interchang-



Fig. 4.—A healthy comb that was badly diseased in 1905.



Fig. 22.—W. S. Hart's honey-room, showing part of the season's crop. In all, there were 101 barrels (or 20½ tons) of honey from 116 colonies—over 350 lbs. per colony.

ing of brood-combs from apparently healthy colonies for any cause whatever, as many times the disease exists unrecognized, and it might be the means of spreading it to colonies that possibly might have escaped it.

Another source of spreading the disease is through the use of natural queen-cells given to requeen colonies that have cast swarms during the season. I have found colonies which showed symptoms of trouble only in queen-cells, and then not until the larvæ were sealed. I account for this in two ways: First, the queen larva consumes a greater amount of food than the worker larva, which increases the chance of receiving the germ; and, again, since the queen larva is sealed at an earlier age than the worker larva there is less chance for discovery on our part, as usually a queen larva dies after being sealed, while the greater part of the diseased worker larvæ die before. And some colonies will remove the dead larvæ at once; and by their doing so we would not discover the presence of the disease until too late.

Those colonies that are shaken at the opening of the honey-flow, with the queen that was present at the time the colonies became affected, should be dequeened and a laying Italian queen introduced. No queen should be kept whose colony allowed the disease to get a foothold, as such a colony will certainly take the disease again, it matters not what treatment is given. Such queens are either affected by the disease or their progeny will not resist the disease. I have taken queens from diseased colonies and introduced them in healthy colonies, and the disease appeared in those colonies in a very short time. Again, I have dequeened a diseased colony, allowed the bees to raise a queen from their own brood, and later found the brood from this young queen badly affected from the very beginning. This fact led me to believe that the fault was in the strain of bees instead of the queen herself. The bees I am referring to were hybrids.

When a larva is first attacked it turns from pearly white to a creamy color. At the center there will be a distinct yellow or brownish spot, and the larva will soon move to the bottom of the cell and die. Then it flattens and grows darker in color. At this stage the substance becomes watery, and it is difficult for the bees to remove it; but it soon dries to a dark scale. The larva is usually attacked after the fifth day, sometimes not until after it has been sealed; and it is these sealed diseased larvæ that the bees are loath to carry out. In fact, it is almost impossible for them to remove such a soft sticky mess. After a time the air dries it so that the bees can carry it out. It is these cells that prolong the presence of the disease after the treatment.

When black bees are treated there should be at least twenty-five days of no egg-laying within the hive.

Camillus, N. Y.

Sour Smell Caused by a Species of Mushroom.

Last August I noticed a very sour smell near the hives, and looked over every thing in vain. Finally I started to the house; but upon going back I noticed a snow-white object sticking up out of the ground. It was three-fourths of an inch thick, hollow, and shaped like a finger—a kind of mushroom. This proved to be the source of the fearful smell, which was noticeable 15 feet away. After removing it the odor was gone. About two weeks later there was the same sour smell in the yard (in New Jersey). On going to the old spot I found that the plant had grown again. It looks like cooked macaroni.

Brooklyn, N. Y. H. KRONE.

BEE-KEEPING IN FLORIDA.

Migratory Bee-keeping.

BY E. G. BALDWIN.

Continued from last issue.

Florida bee-keeping has had its golden age and its tragedy. Along in the '80's, many bee-men, living inland or in localities affording but one main source of honey (as, for example, orange or palmetto), were in the habit of migrating to the coast lands for the honey from the black mangrove that then grew most luxuriantly all along the islands and keys of the East Shore. This truly wonderful tree gave results that are yet the wonder of the apicultural world—never before equaled, and never since approached (see Fig. 6, page 213, April 1), for a view of a mangrove thicket in the foreground. By migrating at the proper season—that is, *after* the orange and palmetto—many bee-keepers secured a double or treble harvest in one and the same season. To cite a good instance, Mr. A. F. Brown, then of Huntingdon, Fla., would secure there his crop of orange honey; then he would move to the flat woods or the hummock lands for the honey from the saw palmetto; then to the coast in time for the combined mangrove and cabbage palmetto. The vicinity of the Hillsborough and Indian rivers on the East Coast was the Mecca of mangrove honey-seekers at that time.

The years from 1890 seemed to grow steadily better every year, with one exception, till 1894. That was a record-breaker. Old-time bee-keepers still point back to "the phenomenal year" of 1894. That year the colonies built up earlier than usual. Spring was very far advanced early in the year, and all things were favorable from the outset. The hives were full of orange-blossom honey by the middle of March (a time when they are usually only well into the supers). By the middle of May, honey was coming in freely from saw palmetto, and extracting was begun fully a month earlier than usual from this source. Mr. J. B. Case, of Port Orange, says: "I extracted from 40 colonies, and then moved them 13 miles by wagon and boat to the Indian River, near a mangrove swamp. By July 3 we extracted 2500 lbs.; two weeks later we took off 3000 lbs. more; and at the close of the season, 1500 lbs. more, making a total of 420 lbs. per colony for those moved, and 300 lbs. per colony for those not moved."

That moving paid, and paid well. Those located right in the mangrove sections reaped a golden harvest. The results they secured were almost dazzling. Mr. Harry Mitchell, of Hawks Park, secured 600 lbs. from one colony, on scales all season, getting as high as 15 lbs. per day. His bees averaged 380 lbs. per colony *from mangrove alone.* Mr. W. S. Hart secured 20½ tons of choicest honey from 116 colonies, spring count. Two of his colonies gave him 600 lbs. each. Fig. 22 shows how his honey-house looked at the end of the season, even after about one-third of the barrels had been shipped.

The crop harvested by the combined bee-men of one locality, Hawks Park, marketed a total of 200,000 lbs. Other sections along the same coast fared likewise. That year honey was not counted by pounds or gallons. Cases and barrels were hardly mentioned. When the bee-men met or spoke of their yields it was "How many *tons* have you?" Bees were at a premium, and their owners planned big things for the coming year. But, alas for the coming year! Winter came on with an ominous fall in temperature. A strong wind drove back the sea from the roots of the mangrove, and a sudden cold spell froze the mangrove-trees back to the roots. The orange-trees fared likewise, and so a double source of surplus was cut off at one fell swoop. Ordinarily, mangrove will recover in five years after a freeze, if no more than the trunks are killed; but if the roots are injured it takes almost three times that long. Migratory bee-keeping was almost at an end then, for there was nothing to migrate to. It has taken mangrove 15 years to come back into bearing. The first freezing of it was in 1835, the earliest recorded by the white men; the second was in 1886; by 1890 it was blooming again, and steadily improved till 1894, with the one exception of 1893. In 1894, as stated, it froze worse than ever before in the history of white men in Florida. Formerly it grew to a tree 18 or 20 feet in height, the giant stumps and trunks of which can still be seen—mute, gaunt monuments of those earlier days, pathetic witnesses of an age gone by. The year 1909, in the vicinity of Hawks Park, was the first year since the big freeze when mangrove has given any surplus honey. Conditions have never been the same since that time. Whether those days are gone for ever, remains to be seen. Mr. Hart says, "Black mangrove is getting of good size again, and I see no reason why yields should not come back to the old figures once more."

Before the freeze of 1894, Mr. O. O. Poppleton and Mr. E. M. Stover kept bees three-fourths of the year at the fork of the St. Lucie River, north of Stuart, Fla., and then would migrate 150 miles to the vicinity of Hawks Park for the mangrove. They secured excellent results, says Mr. Poppleton. Since 1895, the migrating practice has become a habit with Mr. Poppleton, and he has continued to migrate, but in an opposite direction. He no longer went north but south from the St. Lucie to the large keys of the southeast coast of the peninsula. He still moves his bees over this route every spring. More of this later. Bee-men still sigh for the "olden golden glory" of the mangrove days.

It is probable that "trekking," to use a Boer term, has had its day. Henceforth the out-apiary system will supplant migrating in great part, if not entirely, unless conditions assume exactly the phase exhibited between the years 1886 and 1895. That the



O.B. METCALFE'S WAY OF CARRYING SUPERS OF EMPTY COMBS TO THE HIVES AFTER EXTRACTING.

out-apiary has come, and come with a vengeance, is shown by what follows.

De Land, Fla.

To be continued.

RETURNING EMPTY COMBS TO THE HIVE.

Robbing Liable to be Started if the Work is Not Rapidly Done.

BY O. B. METCALFE.

In putting empty combs back on the hives, more robbing is started than in any other way. With a big outfit like ours frames must be put back when there is no honey coming in; and it is not always handy to wait until evening, hence the necessity of a system that is quick.

We use a wheelbarrow to bring the honey in, and we formerly used one to take back the empty frames in the supers; but we have found that one man can carry from four to six supers, and do it much more quickly than a load of about the same number can be taken on the wheelbarrow. We used also to take the supers of empty frames back by the buggy-load, but found that this method started too much robbing while unloading the buggy, and we never were guilty, after the first two weeks, of taking the combs out of the supers and carrying them to the house in a comb-basket while the empty supers stood on the hives waiting for the return of the empty frames.

Fig. 1 shows Mr. Wayne picking up a load of hive-bodies where they had been passed out at the flap door of the honey-house and placed on some empty supers. Just before him another man had gone into the yard to throw off four covers, and in Fig. 2 Mr.



FIG. 1.—METHOD OF TRANSFERRING AS CARRIED OUT BY E. D. TOWNSEND.

Wayne is seen setting the pile on the first of these uncovered hives. When the honey-house is close by, as it was in this case, or when he is carrying for one "spacer" only, he then distributes the supers to the other hives from where he first set them down. If he is rushed he goes back for the next load, and the spacers distribute the supers to the hives.

In Fig. 3 my partner, H. L. Parks, is seen spacing combs, and in Fig. 4 he is using a canvas inner cover to make some combs stand up straight and stay spaced when they do not want to, because the bottom-bars rest on the top-bars of the old hive below. This little trick is done by holding the frames spaced until the canvas is laid on at one end so as to stick to them and hold them in the desired position.

Mesilla Park, N. M.

BEE-KEEPING FOR BEGINNERS, ILLUSTRATED.

Transferring Direct into the New Hive.

BY E. D. TOWNSEND.

During the season of 1910 we transferred 30 colonies of bees by the Guernsey method. The plan is something as follows: At the approach of the main honey-flow (which is from clover here at Remus, where this work was done) a set of brood-combs from a hive in which the bees died the previous winter is set on top of the colony to be transferred. In a week the queen will have taken possession of these combs, and will be found laying above. At this time a queen-excluder is slipped in between the two hives. In 21 days, or as soon as the brood is hatched out of the combs in the old or undesirable

hive, it is removed and the colony in the upper hive is given a bottom-board and the work is done. If foundation is used instead of drawn combs, a frame of unsealed brood should be placed in the center of the new hive to entice the queen above. The combs in the old hive may now be set out and the honey "robbed out," so that they can be rendered for wax. A beginner might wonder why it would not be better to use empty frames instead of foundation, as they would be cheaper; but these bees are not in condition to build good combs, hence combs with 4½ to 4 cells to the inch (drone size) would be built, which must not be tolerated. The colony would likely be worth more in the old hive than to be transferred by this plan without either drawn combs or full sheets of wired foundation; for the combs in the undesirable hive were likely built by the bees of a new swarm that were in condition to build a large per cent of worker combs.

In detail the plan is as follows: In Fig. 1, No. 1, a hive is shown with cover removed. This hive, as will be seen, was filled just as full of brood-frames as it would hold before the swarm was hived. There was, by actual counting, just three short spaces between the top-bars of the frames, where bees could pass up above. This was not as much opening as we desired, for we knew that the queen would never pass up through such small openings and take possession above. We inverted the hive as shown in No. 2, and found just what we wanted—i. e., wide spacing. The party who made the brood-frames used more narrow material for his bottom-bars than for the top-bars, and consequently at the bottom there were plenty of open spaces for the bees and queen to pass above through. Box hives, or hives with immovable covers, are inverted and transferred in the same way.

The brood-nest of combs that we wanted to transfer these bees into was now set upon this inverted hive, and in a week we found that the queen had taken possession above. We tried three plans to get the queen above the excluder, in different colonies. During the middle of warm days the queen is most likely to be expanding the brood-nest, and is then more apt to go above. We found that, if we began looking for the queen while the new hive was still over the old one, the queen would get frightened and run down below; so now we quietly lift the upper off, as in No. 4, and set it on an empty body while we are looking for the queen. The second plan was to lift off the upper body quietly, as before; but instead of looking for the queen, we place an excluder on the hive as in No. 5, then set the body back on as in



FIG. 2.—E. D. TOWNSEND CONSIDERS A WHEELBARROW THE MOST PRACTICAL MEANS FOR CONVEYING HIVES AND COMBS.



BEE-KEEPERS IN ATTENDANCE AT THE FIRST ANNUAL MEETING OF THE OKLAHOMA BEE-KEEPERS' ASSOCIATION, HELD AT STILLWATER, JAN. 19, 1911.

No. 3, and cover up for about four days; then, if eggs are found above the excluder, the queen is in the right place; if not, the excluder will have to be removed and another trial made.

The third plan was to drive the bees from the lower hive by pounding on it, and when the major part of them were up in the new hive, we slipped the excluder in between; in the majority of cases the queen would be found above. This latter plan was worked upon some hybrids with which we had bad luck in getting the queen above. The hybrids were well adapted for this method, as their nervous disposition caused them to run about as soon as the pounding upon their hive began.

It will be noticed that these old hives that we transferred were about the size of the eight-frame L. hive, and that we transferred them into the ten-frame width of hive. Engravings 3 to 5 make this plain. The excluder projects over the edges about two inches. This space was left open during the three weeks or more it took to shift these bees into our regular hives. As it was during the honey-flow, and as they were all full swarms, there was no danger of robbing. Neither did this abundance of ventilation seem to do them any hurt, for it was summer time.

THE WHEELBARROW IN THE APIARY.

In Fig. 2 the different uses of the wheelbarrow are shown. The fact is, there is hardly a day nor even a manipulation about the yard but that the wheelbarrow is put to use. All our empty stories are wheeled to the different hives, and the Daisy is along with us again, as usual. Many of our yards are located upon very uneven ground—new ground in the woods or pasture. A wheelbarrow is much better than a two-wheeled cart on uneven ground. Engraving No. 2, Fig. 2, shows the start with a wheelbarrow-load of honey for the extracting-house, while No. 3 shows the same load ready to enter the house. Doors, 32 to 36 inch, are provided in our extracting-houses, so the wheelbarrow, loaded with honey, passes through easily, and we run the load right in close to the uncapping-table, so there is a minimum of lifting.

Remus, Mich.

OKLAHOMA BEE-KEEPERS ORGANIZE.

BY N. FRED GARDENER.

The engraving shows the bee-keepers in attendance at the first annual meeting of the Oklahoma Bee-keepers' Association, held at Stillwater, Okla., Jan. 19, 1911. The association was organized in December, 1909, and incorporated shortly afterward. The principal place of business was declared to be Stillwater, and it has been planned to hold each annual meeting at that place during the farmers' short course of lectures and demonstrations furnished each year free of charge by the staff and faculty of the Oklahoma Agricultural and Mechanical College of that place. The people of Oklahoma in all branches of agriculture are taking advantage of the high class of knowledge to be secured in this manner, and the attendance will soon be very large. The officials in charge of the course kindly provided a comfortable classroom for the business meeting

and program of the bee-keepers, and gave them a place on the general program.

Prof. C. E. Sanborn, the entomologist at the college and experiment station, has had quite extensive experience with bees and their diseases, and is an enthusiastic member of the association. He has charge of the bees of the station. If Oklahoma bee-keepers will rally to the support of Prof. Sanborn and the association, much can be done toward getting in on the ground floor in controlling disease, etc., in Oklahoma. The association is thoroughly organized, has drafted a bee law, and is only waiting for the opportune time for its introduction. In the mean time the support of every bee-keeper in the State is needed, and that support can best be given by sending in the membership to Arthur Rhoads, Secretary, Stillwater, Okla. The present officers are, N. Fred Gardiner, Geary, President; Geo. H. Coulson, Cherokee, Vice-president; Arthur Rhoads, Coyle, Secretary; G. E. Lemon, Nashville, Treasurer.

HONEY-BEES AND ROSES.

Mullein Flowers; the Robbers of the Scarlet Runner; Bumble-bees Puncture the Nectaries; Honey-bees Probably do Not.

BY JOHN H. LOVELL.

Mr. Webster's interesting note, page 258, April 15, does not call for any special reply; but I should be glad to correct the wrong impression which, unintentionally, I have given him and perhaps some other reader. I do not in the slightest degree doubt his explicit statement that he has seen honey-bees gathering *pollen* freely from roses. Why should they not do so? The roses contain a great abundance of easily accessible pollen. I have seen honey-bees collecting pollen from the spindles of Indian corn, and from the staminate aments of the common alder. Both of these plants are pollinated by the wind, and contain no nectar. Mr. G. M. Doolittle, a careful observer, related in GLEANINGS some time ago how he had seen honey-bees visit the elms in early spring for pollen. The flowers of the elm are also pollinated by the wind, and contain no nectar. He said, "When I went out I thought they were robbing; as there was such a roar in the bee-yard; but upon looking I found the bees hustling in the hives with great loads of yellowish-green pollen. . . . I took a circuit around the apiary to see where they were going, and found them headed for a swamp. After breakfast I started out; and when I got over there the elm-trees, which compose the timber in the swamp to a great extent, were just roaring with bees; and where some of the branches came down I could see the bees at work. I wish you could have been there and seen them." In a word, it is quite probable that honey-bees may visit, sooner or later, any flower from which they can obtain nectar or pollen.

I was emphasizing in my article the fact that the roses *do not contain nectar*, and perhaps passed over the visits of bees for pollen too briefly. I did not, indeed, touch at all on the way in which the roses are pollinated. Mueller long ago observed that the roses were visited for pollen by honey-bees, bumble-bees, leaf-cutting bees, mason-bees, and species of *Andrena*, *Halictus*, and *Prosopis*. These observations have been confirmed, and still other kinds of bees added to the list. The species of *Prosopis* are little coal-black bees, which look not unlike ants. I have seen as many as three on a single rose eating pollen, but they are so small that they are probably of little use in pollination. Large bees, like the bumble-bees, are the most efficient pollinators of the roses; for when they alight on a flower they can hardly fail to come in contact with the stigmas, while small insects usually alight on the petals or stamens, and may not even touch the stigmas. They are frequent visitors to these flowers, and I find in my collection a female and worker of *Bombus terricola* taken on our common wild rose (*Rosa humilis*) July 10.

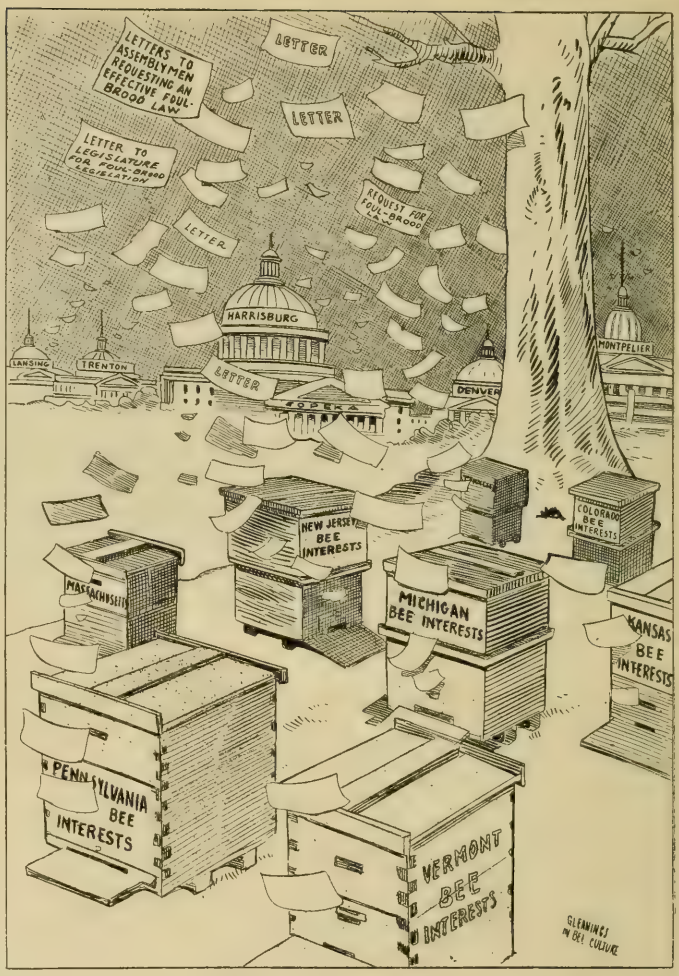
As the plums contain nectar, if there are any honey-bees in the vicinity they will be very likely to visit the flowers. In the case of the small plum-orchard, which I mentioned, I intended only to say that the wild bees were mistaken by the farmer for honey-bees, though I saw none there at that time. So there are various wild bees which visit the roses, which might easily be mistaken for honey-bees. In this locality, when our wild rose is in bloom the honey-bees are very busy bringing in nectar. Incidentally I may remark that very little is known about the bee-fauna of Alabama; and if he cares to investigate it, Mr. Webster has a wide field before him for observation.

The roses are also visited by flies, especially syrphid flies, which feed on the pollen. Many beetles have likewise been taken on the flowers. So common, indeed, are certain kinds in Europe that Delpino, an Italian naturalist, once asserted that the geographical distribution of the roses was determined by certain families of beetles; but this, of course, was a mistake. Beetles are often not content with consuming the pollen, but destroy the petals as well. I have often seen wild roses with the corolla partially or almost wholly eaten by small green beetles (*Nodonota puncticollis*). The common rose-bug (*Macrodactylus subspinosus*) is also very destructive to roses. It is covered with scale-like yellow hairs, which give it a yellow color.

Among the pollen flowers, besides the roses, mentioned in my paper, were the mulleins. Now, some of the species of mullein contain a small quantity of nectar. They are, however, visited by insects, especially bees, chiefly for pollen. If you will examine the stamens you will find them clothed with violet-colored hairs which afford a good foothold to the visitors while they are gathering pollen from the anthers. In at least one species no nectar seems ever to have been

found, and in the others the quantity, if any, is so small that the majority of bees pay no attention to it. The mulleins are in a transition stage. They have nearly ceased to secrete nectar, and depend on their pollen to attract visitors. Very likely all pollen flowers once secreted nectar.

In an article published in GLEANINGS in 1910, page 290, I described how bumble-bees puncture the nectaries of flowers, and how both bumble-bees and honey-bees (after the holes are once made) rob the flowers of their nectar in this abnormal way. I think they deserve to be called robbers in the Biblical sense of climbing up "some other way." I stated that in one instance I had seen a honey-bee make a hole in the spur of the touch-me-not. The senior editor, Mr. E. R. Root, promptly expressed his opinion that other insects had started a minute hole, which the honey-bee, coming on later, enlarged. This seemed very probable, and I determined to make further investigations.



SOME EARLY SWARMS.

In the spring of 1910 the nectaries of all the flowers of the columbine in my garden were punctured, and both bumble-bees and honey-bees extracted the nectar through the holes. There was no doubt that the bumble-bees pierced the tissue, but I was unable to prove that the honey-bees did not.

In a previous season I had observed that all the flowers of the scarlet runner had the nectaries punctured, and that bumble-bees (*Bombus terricola*) and honey-bees visited the holes constantly, not one of them attempting to obtain the nectar in the normal way. So in the spring of 1910 I planted five hills of scarlet runner at a distance of about fifty feet from my apiary. By the last of July they were in bloom, and presented a most attractive appearance. I examined 20 racemes, but not a flower was punctured.

Throughout the season I kept the scarlet runner under careful surveillance, but with the same result — none of the flowers were punctured. What was the cause of this result, which was diametrically opposite to that previously observed? For some reason, during the entire blooming period of the scarlet runner I saw not a single specimen of the *Bombus terricola* in my garden in 1910. According to my observations it is this species of bumble-bee which chiefly or alone in this locality bites holes in flowers. So I attribute the absence of holes in the nectaries of the scarlet runner wholly to the absence of this bee. Occasionally on a fair day I would see a honey-bee or two visit the flowers in the normal way, but their visits were rare and were not continued long. Apparently they were not successful in reaching the nectar. Now, when we consider the great number of honey-bees in the vicinity I can not doubt that, if they were able, they would have punctured the flowers, for in the previous season they were very glad to make use of the holes made by the bumble-bees. It seems to me that I have here obtained conclusive evidence that honey-bees can not make punctures in the nectaries of the scarlet runner, though they use them very

freely when once they have been made. It will, perhaps, be asked how I account for the absence of *Bombus terricola* during the latter part of the season of 1910. I can only guess at the reason; but it seems probable that there were no nests in the vicinity of my garden, while in the previous season there were. I intend to repeat the experiment this summer, and have considerable curiosity to watch the result.

Waldoboro, Me.

STIMULATIVE FEEDING IN THE SPRING.

The Plan Should Not be Discouraged.

BY ROBERT B. M'CAIN.

I have practiced stimulative feeding, both with a few colonies and with a larger number, and am convinced that it is a mistake to discourage the practice, as many experts do. I am not among the number of those who have a right to that title; but I know what I have done, and will set it down in the hope that some one will be benefited by the experience.

Two of the strongest colonies I ever had were brought to their high degree of prosperity by stimulative feeding. One of them occupied a two-story ten-frame Langstroth hive. At the beginning of the honey-flow I counted 16 frames of brood in that hive. There were probably an average of 3000 young bees, in all stages of development, in each of those frames, making in all 48,000 young bees in the colony. Nor is it an exaggeration to say that there were at least 75,000 worker bees in the colony. I used this colony for queen-breeding exclusively, and do not know how much honey it stored that season.

The other colony of which mention has been made was not as populous as the one just described; but there were enough bees to crowd the first super that I put on at the beginning of the honey-flow, after removing the lower story, and this colony stored 280 sections of fancy comb honey in Danzenbaker sections that season. I also took brood and bees from this colony to start two nuclei which built up into strong colonies before winter.

These two colonies are exceptional cases; but all the other colonies in my yard in those seasons were prosperous to a degree on account of stimulative feeding.

The secret of success with stimulative feeding lies, not so much in the quantity and regularity of the feeding as in producing an imitation of a real flow of nectar. The syrup should be made of the best grade of granulated sugar and pure water, in proportions of one of sugar to two of water; and it should be fed only when the bees can fly freely. Trays of wheat flour placed in the sunshine in a sheltered place will furnish pollen, and thus the fraud will be complete.

It ought never to be necessary to feed syrup in the spring to make up for shortage of stores. That is done, in my yard, by saving frames of honey from the fall flow. These frames may be inserted at any time when they are needed, no matter how cold it may be, and when there is nothing to take their place. With these in the hives in sufficient quantity to make the bees feel perfectly safe in going forward with brood-rearing on a large scale, stimulative feeding may be practiced with little fear of chilled brood. The word of caution needs to be spoken in regard to the time of beginning the stimulation and the protection of the hive from cold blasts.

By using the frames of honey to keep the colonies prosperous in early spring, stimulative feeding may be deferred longer, and will count for more in the end. If practiced three weeks or a month before the main honey-flow it will work marvels in the result.

Wenona, Illinois.

THE COLORS OF POLLEN.

That from Cultivated Plants Varies Considerably.

BY J. FORD SEMPERS.

The honey-bee with her load of pollen is a very familiar object to most people, whether they are bee-keepers or not. Frequently, by those who do not know otherwise, these pollen loads are mistaken for wax, because of the striking resemblance which the bright yellow pellets bear to newly rendered wax. Yellow, however, is only one of a number of the colors of pollen gathered by honey-bees. To some it may be interesting to know whence these varied-colored pollens come. In wild plants the colors are apparently constant for each species, so far as I have noticed. Among cultivated plants considerable variation prevails. The following list will show the average range of colors, and some of the pollen-yielding plants of this locality.

White, Missouri currant, sweet cicely, dewberry, tall blackberry, climbing hempweed, boneset, impatiens, malva rotundifolia (cheeses).

Greenish white, pear, wild generanium, sacaline.

Yellowish white, plaintain, ironweed.

Light yellow, apple, sheep-sorrel, smartweed, corn (maiza).

Yellow, golden-bell, senecio, deutzia, wild roses, sundrops, commelina, ragweeds, goldenrods, asters.

Orange, dandelion, rudbeckia, asparagus.

Yellowish green, black alder, red maple.

Light brown, cherry.

Brown, winter cress, white clover.

Olive brown, plum.

Dark olive, buckwheat.

Brownish-red, horse-chestnut.

Dull blue, cultivated clematis.

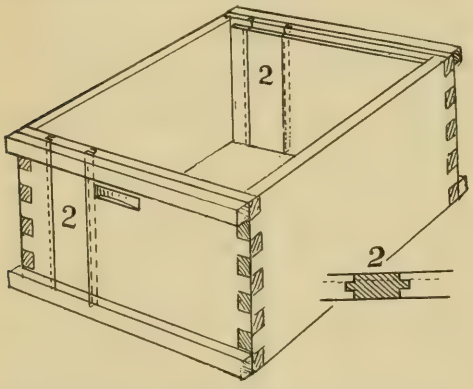
Aikin, Md.

Heads of Grain from Different Fields

Converting Eight-frame into Ten-frame Hives.

I have, at different times, met with an uncalled-for objection to the eight-frame hive, the objection reading something like this: "You can make an eight-frame hive out of a ten-frame hive, but you can not make a ten-frame hive out of an eight-frame hive." In a way this is correct. One can not make ten frames out of eight frames of like proportions; but one can change an eight-frame hive so that it will accommodate the furnishings of a ten or twelve frame hive.

To do the work you need a square, a saw, and a plane, something like what we use to match boards for floors—the tongue-and-groove plane. Mark your hive with a straight line, perpendicular to and parallel with the locked corners of the Dovetailed hive, somewhat nearer one corner than the other, so that you will not have the grooved hand-hole to work with. Saw the end of the hive on the line, and groove the edge of each side of the newly sawed end. Take a ⅞-inch board of the proper length (height of the hive-body), and the proper width, which will vary according to whether you wish a ten or twelve frame hive, and work this board down with a tongue on each side and the rabbet at the top end, and place the same (board) between the now two-pieced ends of the hive-body.



Nail one of the hive-cleats (such as Dr. Miller uses) at the top of the hive and another near the bottom, and put a ten-frame tin rabbet in place of the former eight-frame one. Perhaps the bee-hive factories will see fit to manufacture these boards.

Montpelier, O. G. W. JOICE.

Reform in Grading and Packing; the Editor's Policy Indorsed.

I have just read your editorial on page 30, Jan. 15, with much interest. I have been handling section honey in this market for the past two years, and I find very little that does not require regrading to make it satisfactory to the retail dealers. I repack and regrade all I handle, and by so doing I have gained the confidence of most dealers. I had one dealer who said there were always enough damaged sections to absorb the profit. I told him to try one case of mine and be convinced, as I would pay him retail price for all damaged in any case I furnished. He tried a case, sold it out quickly, and has continued to handle it ever since.

In regard to the crating of section honey in carriers I have requested all who ship to me to pack the cases so that the combs will be parallel to the long way of the carrier. When so packed I have none damaged. The carriers are handled on trucks by the railroad laborers, and it is when they are dumped off that the damage occurs. When the sections are crated flatwise, to fore and aft, they are much more likely to break loose in the sections. I hope the good work you are doing toward reform in packing and grading comb honey will prove to be a mutual benefit to all concerned.

Chattanooga, Tenn. G. E. LEAVITT.

[The experience of our correspondent as to the necessity of regrading and repacking comb honey that is purchased to be sold again is largely that of most dealers. It is a lamentable fact that many if not most producers do not grade and pack their honey as they should. If they would only take time to *learn how*, they could realize anywhere from 25 to 50 per cent more for their honey. It is said that none are so blind as those who *won't* see. We sometimes think none are so blind as those who don't *try* to see. So with some producers—they don't even try to learn how, after they have received their crop, to get the best price for it by putting it up in *proper shape*.

The suggestion of our correspondent, as to how to put the shipping-cases in the carriers, may be a good one. It all depends on *which way* the truckmen load them on their trucks. We should like to know what has been the experience of others.—ED.]

Bees Desert Clover to Work on Cherries Cracked Open because Overripe.

I have a few colonies of bees, and am able to get fairly good yields from them in the late spring. They work very fast and hard on fruit-bloom, poplar, and locust. Right after locust and poplar the clovers begin to bloom, and near the bee-yard we have large fields of red, alsike, and white clover, but, unfortunately, the cherries are ripe about the same time, and my bees spend nearly their whole time at the cherry-trees; and as we have a succession of fruits through the summer they never get down to honey-gathering again until fall.

During the time the bees are at the peach, plum, apple, or cherry trees, as the case may be, I find other bees from the woods, and a few of mine, out in the clover, but none compared to what are on the fruit-trees. The bees work on the fruit itself. It has been hot during cherry time for several years; and when a shower or rainy day comes it causes the fruit to crack open, and then it is that the bees seem to become demoralized; and as we have fruit all summer they work on one kind of fruit and then another.

We have large clover-fields around us; but I never get any honey except a little from fruit-bloom, and considerable from locust and poplar. When I think they should be working hard on clover they go to the fruit.

Sometimes I get a good flow in the fall. We have a succession of bloom all summer, if not too dry, and it would seem that they ought to get some honey all summer.

Some say that the bees are used to getting honey from the trees, and hence do not search as low as they would have to go for clover. I can hardly credit that, and think it must be due to some mismanagement of mine, as I have not noticed any complaint about it in GLEANINGS. Will you kindly advise me whether it is general? I have had a few bees for five or six years, and have always noticed the same thing.

Port Tobacco, Md. MRS. J. A. GRAY.

[Your experience, to the extent that bees will desert the clover-fields for the juices of ripe fruit, is quite unusual. It goes to show that clover probably does not yield much honey in your locality. When the clovers secrete nectar well, the bees, after they have once started to the fields, except in the case of some old professional robbers, could not be induced to touch raw honey on the ground or exposed in open vessels in the apiary. Never have we known them to attack the juices of overripe fruit except during a dearth of honey, or in a flow so moderate as to be hardly worth taking into account. In no case that we have ever known have bees punctured or cut into sound fruit. Taking every thing into consideration, it seems very clear that, at the time your cherries become fully ripe, your natural sources of nectar supply are very limited, and hence the bees find it necessary to eke out a living on fruit-juices.—ED.]

Questions of Queen-rearing.

1. Is it true that a queen hatched from a grafted cell is short-lived, owing to having been torn from her previous cell, being attached to it by the navel cord? Is she in any way inferior to a queen that is hatched otherwise?

2. Is a queen from a cell on the side of a comb good to save? Is she all right, providing the cell is large and perfectly formed?

3. Is it good policy to save supersedure cells? or will they transmit supersedure in the young queens?
4. Is it necessary to cage a virgin for a day or so before introducing her to a nucleus of young bees?
5. Why is it, that, after bringing the virgin queens from larvæ to mating time, so many are lost or not accepted?

Heber, Cal., April 30. P. S. MARTIN.

[Dr. Miller, to whom this letter was written, replies:]

1. That's all nonsense about there being any navel cord or any sort of attachment to break loose. All conditions being right, a queen from a grafted cell may be as good as any.
2. Yes, any location is all right where the cells are well covered with bees.
3. Supersedure cells are as good as any. I fear you have some wrong idea about supersedure when you talk about its being transmitted. Please remember that every queen, in the natural course of events, is superseded. If you could have bees that would supersede their queens always without any swarming you would have a bonanza.
4. If the nucleus has not been queenless for a day or so, and if the virgin is several days old, it requires care. The older the virgin, the more difficult to introduce. A virgin just out of the cell will be accepted anywhere, even in a hive with a laying queen; but in the latter case she will likely be killed as soon as she becomes old enough to put on airs.
5. I don't know — are they? I don't think I lose one in ten. Possibly bad weather may have something to do with it, and in some places there are predatory insects or birds that snap up the virgins on their wedding-flight.

Queen Larvæ Susceptible to Foul Brood.

Before me lies Circular 79, issued by the United States Department of Agriculture, the title of which is, "The Brood Diseases of Bees," its author being E. F. Phillips, Ph. D. In this circular, p. 2, he says, referring to American foul brood, "This disease seldom attacks drone or queen larvæ." My experience this past summer in my own apiary leads me to question the reliability of this statement. What colonies I owned last spring were hybrids. I determined to Italianize my entire stock before winter. To get pure stock I ordered six two-frame nuclei with a pure tested queen in each. These, as I stated in a former article, developed American foul brood, which, because of my ignorance of the disease, was soon spread throughout my whole apiary, only a few colonies remaining free from the disease. Some queen-cells I secured from one of my neighbors were grafted into some combs in one of my colonies which I had divided. I expected them to hatch out in due time. When I examined them I found only one left, and that larva was as putrid as any of the brood I had in the same stage of the disease. Later I made some two-frame baby hives, and gave them bees and frames with eggs from my pure Italian stock, and in not a single instance did they succeed in rearing a queen. They all died soon after the cells were capped over. My experience is that queen larvæ are as susceptible to the disease as the brood larvæ. I should like to hear from others on this subject.

Ashton, Ill., Jan. 13. REV. G. A. WALTER.

The Yew-tree as a Honey-plant.

I know a territory about fifty miles distant where woods have grown all around the town. There are hundreds of acres of the yew-tree, commonly called the "tree of paradise" or "tree of heaven." I have seen these trees in small clumps about farmhouses, and have been told that they produce an abundance of nectar, but that they have a very peculiar strong smell, which, if retained by the honey, may render it unprofitable. I fail to find any mention of this tree in the A B C and X Y Z, nor in other bee-books to which I have referred. The poplar, or tulip, which I know to be an excellent source of nectar, is also plentiful in the neighborhood.

Kewanee, Mo. E. T. JOYCE.

[While the yew-tree may yield honey in your locality, it is not generally recognized as a nectar-bearing tree in most localities, if we are correct. Our A B C and X Y Z of Bee Culture, with few exceptions, attempts to take account of only those plants or trees that yield honey in *commercial* quantities. The exceptions refer to certain plants that are remarkable either for their beauty or for their novelty. If any one can give us information showing that the yew-tree, or tree of paradise, yields honey in commercial quantities, we shall be glad to give it recognition in our A B C book.—ED.]

Do Bees Draw Out the Foundation, or Build the Cells on it?

Is it true that bees take a sheet of foundation and draw it out into cells without the use of additional wax? or do they use the foundation for a guide, and, by the use of additional wax, build thereon the cells?

AN ABNORMAL CLUSTER OF BEES.

The other day I discovered a great number of bees busy building queen-cells in a hive whose colony died early this spring. I looked over every frame carefully, but could find no sign of either a queen nor of any larvæ; consequently I decided to take a frame of brood from another hive so as to give an opportunity for getting a queen. This I did, and to-day I see that the bees have a queen-cell in preparation on the brood-frame. In the first place, did I do right in giving the bees the brood? Next, where could those bees have come from without a queen? Could it be that, because I changed the position of the four other hives, some bees lost their bearings and all clubbed together in that old hive?

Poughkeepsie, N. Y., April 27. R. E. HOLLAND.

[Bees draw out started cells of the foundation, and also build on with wax of their own making to bring the comb to the proper thickness. It depends upon the weight of foundation used as to how far they can draw out the cells started. We are not sure that we can do more than approximate this distance; but we feel certain that they draw out the foundation so that the cells are from ⅛ to ¼ inch in depth.

It might be that a small after-swarm with a virgin queen found this hive and entered it. Then, later, as the virgin queen went out to fly, if she missed her hive it would leave the bees in just the condition you found them. It is a little early for much swarming, and hence we do not know that this is the right explanation. If you changed the location of your four other colonies during a time of the year when bees were flying, and left this one colony near where the other colonies had been standing, then it is probable, as you say, that the bees that were lost in trying to find their old hive all went into this one hive and clubbed together to make up the abnormal colony without a queen. However, in either case you did just right in giving a frame of brood. A ripe queen-cell would have been even better if you had had one.—ED.]

Comb Honey Produced in Thin Sections Without Separators.

Some time ago I read an article by W. K. Morrison on the use of special sections in which bees would begin work sooner than in other kinds. I took 4¼ x 4¼ x 1⅞ two-beeway sections and worked them over, making them four-beeway — 1¼ at the wide part and one inch at the narrow part. I filled an eight-frame T-super, and the bees went right to work. All the sections except two rows on the outsides were filled straight, even though I used no separators. The inner sides of the second rows of sections were all right, but the outer sides were bulged out half way into the outside rows, and the room left in the two outside rows was built in according to bee nature. Can you give us a few pointers on the use of such sections? I believe I should have had more honey if I had had more of these sections; but why were part of them so nicely built and the rest not?

Paola, Kan., April 7. J. A. SHELHAMMER.

[Quite a number of bee-keepers are successful in getting comb honey built straight and even, without separators; but the majority have found that separators are needed in the long run. It takes good strong colonies, a quick honey-flow, and ideal conditions all around to produce comb honey, and these conditions must be well nigh perfect before comb honey can be produced right along without separators. We are not saying that those who succeed in producing good honey without separators are making a mistake; but we do insist that, in the majority of instances, the plan is not entirely successful.—ED.]

Our Homes

By A. I. Root

Behold the fowls of the air; for they sow not, neither do they reap, nor gather into barns; yet your heavenly Father feedeth them.—MATT. 6:26.

Of course the above text refers to the *wild* fowls, the birds of the air. They are under the care of and cared for by the great Father above. He, without the aid of human intervention, furnishes what shelter they have, and also protection from the weather; and it is well known, and I believe it is generally agreed, that the wild fowls and wild animals are much healthier and stronger, and have more endurance, than our common domesticated animals. As an illustration, we go to the wild turkeys, wild ducks, and geese, to get new blood to give our domestic fowls endurance. They do better without artificial shelter, and very much better without any help from artificial heat. Some years ago there was quite an excitement about cooking food for domestic animals; but our experiment stations soon decided that it was a mistake. Even our pigs do better on raw food, unground, than with artificial help. T. B. Terry, you remember, regained his health, when he was pretty close to the grave, principally by using raw wheat (and "uncooked food") as a diet in place of food artificially prepared. There is an island somewhere in the great sea where a people existed for years, possessing remarkable health and longevity, and yet they wore no clothing whatever. We sent our missionaries among them, and the natives were greatly benefited in the way of morals and spirituality; but giving them clothes, houses to live in, and other things belonging to what we call modern civilization, enfeebled them so the race threatened to become extinct. The poor natives on this faraway island came near being "civilized out of existence;" and, my good friends, I greatly fear that some of us have already been civilized out of existence, and, as a consequence, we hear a great hue and cry, especially from the great cities, about "getting back to the land."

Now, I want to talk considerably about chickens in this Home paper; and, by the way, during the two winters that my chickens in Florida have roosted on trees, having no houses whatever for shelter, they were healthier, and laid fully as well (if not better) as when kept in houses. The objections were that the owls sometimes got them up in the trees, and they were so wild that it was a difficult matter to catch them when one was wanted or when we wanted to turn off the whole lot when going back to the North in the spring. Let us remember the fact brought out in our text before we go *too far* in adopting cooked food and artificial heat to keep our bodies warm. A little further on in the same chapter we read, "Take no thought for your life, what ye shall eat, or what ye shall drink, nor yet for your body, what ye shall put on."

"OUT-DOORSES, I DO."

These words were spoken by the little girl we called Blue Eyes about 35 years ago to her father when he was particularly interested in bee culture and the flowers. She was getting to be old enough to talk, and her papa had been in the habit of carrying her to see the bees work on the apple-blossoms (for it was springtime as it is now), and to show her the bees as they hurried into their hives with their loads of many-colored pollens. And she enjoyed these visits to the blooming apple-trees and the busy bee-hives so much that it was a hard matter to keep her indoors at all. She would keep saying, as I have explained above, "outdoorses, I do," and then pat her dimpled little hands on the top of her head, indicating that she wanted her little hat or bonnet so she could go outdoors. By the way, this same Blue Eyes is now the mother of three fine children; and as her health has recently failed to a certain extent, the doctor prescribed *outdoors*, so she and the children are in the open air the most of the time—that is, when the older children are not in school. She appropriated my little greenhouse before I got back from Florida, and now she is just putting her plants in the open ground, shading them and watering them with all the enthusiasm and enjoyment that her father has felt and told you about for so many years in the past. Some hens and chickens are near by also. Of course the mother hens are shut up, but the little chicks are hustling and happy all over her lawn and among the flowers.

A little more than 24 hours ago I was invited to talk on bees, chickens, etc., before the Y. M. C. A. in a college town near by. As I stepped into a car, the only seat I found unoccupied was by the side of a gentleman who was reading a paper. Finally he looked out through the open window and made some remarks about the green fields, the fruit-trees in bloom, etc. Of course, I shared his enthusiasm. After a little time he turned around and said, "Why, if you live in Medina you probably know some of the Root people." I smilingly informed him that I was A. I. Root. He put out his hand with eagerness, saying, "Why, Mr. Root, I have long wanted to see you, and to get your advice on certain matters;" but when I asked him if he had been reading our journal he replied, "I am sorry to say I have never seen a copy of it; but I have seen so many extracts in other periodicals from your talks that I have great confidence in you. Now let me explain that I am a physician. I have charge of the work in ——— Hospital, in Cleveland. I have been there many years—sometimes I think too many; but so long as I can extend a helping hand to poor unfortunate humanity I keep on with my work, even though I realize, and have for some time, that I *must*

get outdoors and have a change. I will say that my lungs are already affected. I went down to Texas, and stayed in the open air for a year. I got so much better that I ventured to go back and take up my work once more; but it won't do. I have *got* to give it up."

I expressed some surprise that he, a physician, and a prominent one too, should want *my* advice in regard to *his health*. I asked him if he slept in the open air. He said he did not. The open air in that great city, especially at the point where his home is located, is so full of coal smoke and dampness—that is, a great part of the time, both day and night, that he felt that a room with plenty of windows was just as good or a little better. I told him that all experience seemed to indicate that it was not. Our boy Huber is most emphatic in this matter. He says the best room in the world, with all the windows you can put in, would not compare with a bed right out in the open air with nothing but the stars above you. He says that anybody who has once tried it agrees with only a brief trial, and I am inclined to believe he is right. Now, very likely I shall continue to talk open air so long as God gives me life and strength to keep it up; and if I continue to *practice* what I preach I have much hope that I may have several years yet to talk "out-doorses."

When I came back from Florida this same blue-eyed mother I have been talking about had purchased 25 day-old chicks. As the weather was cold and bad she had them in the bath-room where it was "nice and warm." But when I reached home quite a few of the chickens had died, and others were acting so dumpy she had separated them into two groups — the well ones and the sick ones. The minute I got my eyes on them I said, most emphatically, "Put them outdoors." But she urged that it was too cold and damp, but I insisted, "outdoors! outdoors!" I found there was a hen in the poultry-house that wanted to sit. I got one of my coops out of the cellar, and a bushel basketful of chaff from the barn. I dumped the chaff on the grassy lawn, and set the coop over it. Then I put the clucking biddy inside and gave her the chicks, both the well ones and the sick ones. It was some little time before she could catch on. She had wanted to sit for only about one day; but by a little persuasion the chicks were taught to get up under her wings, and pretty soon she took on the *role* of mother. The sick ones brightened up in response to her cluck and other baby talk, and not a chick died afier that, except one that was so near dead that it was hardly worthy of being counted among the live ones. Then I went over to Huber's, and he too had 25 day-old Barred Rocks. Of course they were indoors, where it was "nice and warm;" but they had been dying about one every day, notwithstanding he had a lamp brooder. I had hard work to convince him that 25 chicks in the month of April need *no* artificial heat. In fact, the artificial heat was a damage and a detriment. Why, I meet this thing at almost every turn; and I honestly believe that thousands of chickens are killed annually by artificial heat when they do not need it *at all*. Now, I would not spend so much time in talking about chickens were it not that chickens are *exactly* like human beings. Our little greenhouse has movable sashes that can be taken away when the weather is warm. We still keep some heat on the iron pipes, even when the sashes are removed, for the exhaust steam costs nothing. Two years ago, as some of you may remember, I purchased 25 day-old chicks; and as the sashes were removed so the greenhouse was practically open air, I put the chickens up by the warm pipes, and for a while I thought I had made "a great discovery." But my chickens were not doing well. They kept dying one after another, and the rest of them spent their time in hugging the warm pipes when I thought they ought to be running out in the grass. Finally I took what were left and fastened up the greenhouse so they could not get in around the warm pipes at all. At first they shivered and made a great fuss; but in a little time, recognizing, probably, that "what can not be cured must be endured," they commenced chasing about in the open air; and in so doing they brightened up and fleshed up at once. Not another chick died. Later on I had another bunch of chicks in a brooder warmed with hot-water pipes by means of a lamp. As the weather was bad I kept a little heat on at night. But *they* were not doing well; so I blew out the lamps and covered the metal pipes with some soft cloth, so they could not get up tight against them and thus become chilled. They at once ceased dying, and some that could hardly walk when they had the artificial heat, in a few days strengthened up, got their appetites, and made fairly good chickens. It seems as if I meet this same thing wherever I go; and even if our friend Philo *has* got a "pile of money" by what he calls his "system," I think he deserves the thanks of the whole wide world for doing so much to teach people that God's sunshine and pure air are *ever so much better* than any form of artificial heat that man has yet devised.

I wish you would turn back to that monkey story found on page 739 for Nov. 15, last year, and read it over and over;* and while doing so may God help you to recognize that the same lesson taught there applies to

*This matter is of such extreme importance that I want to quote briefly from the article referred to.

"Nothing in years had delighted visitors so much as what had now become an every-day sight — one of those tropical animals, in zero weather, seated upon a snow-bank, contentedly eating a banana.

ALL THE INSIDE MONKEYS DIE.

"But the twenty monkeys that, early in the winter, had entered the steam-heated monkey-house in splendid physical condition had not fared so well. By spring not a single one was alive—all had died of tuberculosis. The artificial reproduction of 'tropical conditions' had killed them, as it had killed hundreds of their predecessors. The five outdoor animals, however, never showed the slightest trace of the disease."

chickens, and, I think I may say, to all other domestic animals; and last, but by *no means* least, to human beings. Thousands of people — especially old people — are not only losing their ambition and their health, but are going down to their graves *prematurely* because they are hugging up to stoves or radiators and other forms of artificial heat. I have abundant reason to believe from my own experience that hot-water pipes and hot-water radiators are the worst forms of artificial heating that were ever invented, because they do not *necessitate* any change of air nor any admission of outdoor air. A stove will not burn without air to give it draft; and fresh air must get into the room from some point to make up for what goes out of the chimney. An open fireplace or grate is far ahead of *any* stove; but a stove is better than dead hot-water pipes. You have seen a lot of loafers, doubtless, hanging around a stove in a country store or grocery, smoking or chewing filthy tobacco, breathing bad air, and, too often, I fear, feeding their immortal souls with filthy stories. While the fireplace is the best place for artificial heat, the heat that comes from bodily exercise is far ahead of even the open fireplace. Have a good big woodshed or outhouse where you can swing an ax, even when it rains and it is too stormy to be in the open air, and warm up by the exercise of your muscles instead of depending on artificial heat. You will remember our text where Jesus says, "Behold the fowls of the air. They toil not, neither do they gather into barns; and yet your heavenly Father feedeth them." Please note that our heavenly Father not only feeds them, but he keeps them warm, and he does it too without hot-water pipes or radiators, and without even an open fireplace. It is true that, when winter comes, the fowls of the air seek a warmer clime; and my impression is that those of us who are ailing, and especially when along in years, had better seek a warmer clime. If you are strong and well, you can thank God for the fact, and stay here in the North and attend to the necessary work of this busy world. A great many times you think, like the chickens, you *must have* artificial heat in some form or other. Let me give you a little of my experience. When I take my daily bath every morning, I usually have the water warmed up to something *near* the temperature of the body—say 60 or 70 degrees. The shock seems to be too great to a person of my age to take even a sponge bath in a cold room with the water still colder. Well, a good many times it is not convenient to get warm water, especially when I am in a hurry. But I will tell you what answers just as well in my case, and perhaps better. Before beginning my sponge bath I take a minute or two to rub briskly my arms, chest, and body all over with dry hands. Work fast and give the bare flesh some good brisk blows, pounding the muscles, slapping the chest and back with the palms of the hands until a feeling of warmth is induced all over. Just try it.

When you get warmed up by this brisk exercise, the water does not feel at all unpleasant, even if it is rather cold.* If the room is very cold I bathe the upper part of my body and rub it dry with a towel before divesting myself *entirely* of my night-dress. Then something can be thrown over the head and shoulders while you give your feet and legs a thorough sponging and rubbing. Now, unless the weather is severely cold, I feel very much better by taking this sponge bath in a moderately cool room.

* I believe Terry does not use any soap at all; but I use soap on my hands and face; and a little soap, therefore, gets into the water that I bathe all over with. But I do not believe in using very much soap unless it is where it can be thoroughly washed off

HIGH-PRESSURE GARDENING

By A. I. Root

APPLES, APPLE-TREES, ABANDONED ORCHARDS, ETC.

Somebody asked one of the editors of one of our farm papers which was of most value to the world—oranges or apples. The reply was that apples were not only more wholesome but of more value to humanity than any other one fruit; and this I can heartily indorse. As I have mentioned, while down in Florida I was obliged to pay 40 cts. a dozen for Oregon Ganoes. There were apples I could buy for about 75 cts. a peck; but these big Oregon apples were always perfect — no wormy ones, no bad-shaped ones — always large, some of them very large, and of the very *best* quality — at least *I* should call them the best. I thought that, when I had got back to Ohio, I should be able to get some apples cheaper; but, lo and behold! the only apples in the town of Medina at the present time are these same Oregon apples; but they are a *nickel apiece*. Now, it is a burning shame that right here in the midst of our Ohio hills, so specially adapted to apple-growing, apples should be a nickel apiece, even in May, and have to be carried a distance of about 2000 miles besides. A large part of our trip between Jacksonville and Cincinnati was over hills and mountains; and those hills and mountains could easily be covered with apple-trees; and our cold-storage-men can certainly keep them in good condition the year round for a much less price than a nickel apiece or $10.00 a barrel. I expect to go up to Northern Michigan in a few days; and I said to myself, "Well, up there nice apples will certainly be cheaper." But just then I saw a quotation in one of the farm papers saying that a barrel of choice apples was recently sold in Traverse City for $10.00.

Now, I have been making some discoveries in apple-growing, as well as with chickens. Here is one of them: Some time last September great big rosy apples were dropping off every day from my favorite tree, the Par-

adise Sweet, at such a rate that I decided I would pick them and put them in the cellar before they *all* dropped off. This was about the first of October—too early in this locality by a month for gathering winter apples; but I figured that, if they were all going to drop off and get bruised, I would forestall that dropping, and pick the apples and risk putting them into the cellar that early. Well, the boy whom I set to picking them picked about two bushels from the lower limbs, and then said he could not get those higher up, for it always made him dizzy to get up on a ladder. As there was nobody else available just then the matter was neglected, and I was greatly astonished to find that no more apples dropped off. The dropping, as I figured it, was because there were too many on the tree to get matured and ripen up. As no more apples dropped off, or not enough to be worth noticing, I let the rest stand until about a month later. There were about three bushels of the latter picking; and they not only increased in size but colored up very much better after the thinning out; and I am just now greatly enjoying these Paradise Sweet apples every evening when other people are eating their regular suppers. Of course, my discovery is right along the line of thinning out, so much practiced by fruit-men, only the thing is usually done when the apples are much smaller—not large enough to be of any value.

Quite recently our experiment station at Wooster, O., sent a man up here to teach our people how to prune old orchards and to give them a talk on apple-growing generally. Among other things he advised all those who had early trees, say Yellow Transparent, Harvest, Red Astrakhan, etc., to commence using the green ones just as soon as they are at all fit for sauce or pies—thus thinning out the apples when near maturity. They are not only delicious and wholesome as sauce, but they give what are left on the tree a chance for much better development and ripening up. Now a word about *old* orchards.

When our Ohio experiment station purchased the ground near Wooster they found a good-sized orchard of old apple-trees—trees that were past their usefulness, as most people would say. But they commenced experimenting to see what could be done for old orchards; and last fall it was my pleasure to go through this old orchard just before going south. First, the old trees received a tremendous pruning. I am not sure, however, it was all done at one time—probably not. The great long sprawling limbs away up in the air were shortened back; the ground was cultivated and manured, and the trees were mulched and thoroughly sprayed; and at the time of my visit, when some of the apples were beginning to be picked, there was the most beautiful fruit I ever saw in my life. The specimens were so large and fine that I failed to recognize my old favorites. And this kind of work of rejuvenating old orchards will pay tremendously, especially if prices are going to continue at any thing like a nickel apiece or $10.00 a barrel.

Under date of May 9 the Cleveland *Press* has this to say in reference to this same matter:

> The Wooster station has issued a bulletin telling of work done by its experts in Southeastern Ohio last year. One orchard of 14 acres that they treated returned a profit of $6000; another, with 350 trees, of $3100.

Just now, May 10, I am happy every night when supper-time comes, because my supper is to consist of half a dozen or more of these Paradise apples I have mentioned. Then I am happy after supper in looking over our orchard, and seeing which trees are going to give the fruit. By the way, I have recently expended ten or fifteen dollars in having our trees judiciously pruned. This pruning, as you will notice, is only another way to thin fruit so as to have what is left larger and finer; and I suppose it is a saving to remove the surplus when it is in bud or blossom rather than wait till the apples are partly grown or nearly full grown. I believe our friend Terry eats a variety of fruit; and a good many have wondered why I did not take the cheaper oranges while down in Florida rather than the expensive apples. Well, I have tried almost every kind of fruit that our kind heavenly Father has given us; but so far nothing agrees with me so well as nice mellow apples. I think grape fruit would come next; but that *alone* does not quite seem to hit the spot as do the delicious apples I have been having now for several years for the last meal of the day. If I take any thing else with my apples it seems to require an additional effort for my digestive apparatus. I do not sleep as well, and I do not feel as bright and full of vigor in the morning when I first get up. Now, if it should turn out with you as well as myself that apples, even at a nickel apiece, are cheaper than doctors' bills or "stuff you get in bottles," at the drugstore, don't you believe you had better follow me and take no other food into your stomach after your noonday meal than beautiful rosy-cheeked delicious apples?

THE AUTOMOBILE AND THE FARMER.

The *Practical Farmer* for May 15 has a "good-roads special;" and their Experience Pool has for its topic, "Give your experience with automobiles on the farm; are they as expensive to maintain as horses? what influence have they exerted toward better roads?" I believe somebody made an estimate that 70 per cent of the low-priced automobiles sold this present year have gone to farmers. Just a short time ago, as you will remember, our agricultural periodicals were, a good many of them (the *Farm Journal* particularly), fighting the automobiles, and very likely they had some pretty good reasons for so doing; but since the farmer has begun to use an auto, so that he can go to town and run on errands without interfering with the work of the big team that

pulls the plow, things have changed considerably. The editor of the *Practical Farmer* says in his summary: "Wherever you find automobiles you find an advocate for better roads—one who will talk and argue and fight for them." He says, "Farmers all over the country are now of one opinion—that the automobile has exerted the greatest influence for good roads." And even our careful and staid neighbor, T. B. Terry, suggests that even *he* may run an automobile when they succeed in getting a good road clear up to his farm. I wish every one of our readers would send for the copy of the *Practical Farmer* on good roads, even if they do not subscribe for it for a whole year.

PARCHED CORN AS A BREAKFAST FOOD.

I want to say that, from personal experience, parched sweet corn, ground fine, with plenty of the "top of the milk" mixed in, and sweetened with white-clover honey, makes a dish good enough for even a farmer bee-keeper, saying nothing of a king.
Riceville, Ia. A. F. Foote.

Thanks, friend F. We have not only talked parched corn several times in past issues, but I think many of us have greatly enjoyed it. Dried sweet corn, parched and ground as you suggest, will, no doubt, be an improvement; but I think I should find it "sweet" enough without the honey. I have often thought that not enough was made of the sweet corn and canned green corn which are already on the market. But a breakfast food made of *parched* sweet corn I think might be a good rival to any of the great and successful breakfast foods; and there is plenty of time to plant a good plot of sweet corn when this meets your eye, in order that you may have enough matured sweet corn to test Bro. Foote's suggestion.

POULTRY DEPARTMENT

By A. I. Root

"POULTRY SECRETS;" HOW TO TELL THE SEX OF BABY CHICKS.

I am inclined to think the "secret" business is rather on the wane; at least I have not seen many secrets offered for sale of late. By the way, several poultry-journals have been carrying an advertisement of a 25-egg incubator; and in this incubator advertisement mention is made of some big discovery in regard to hatching duck eggs. I wrote for their catalog, and mentioned that I wanted to get hold of all the late discoveries in the line of growing ducks. Now, what do you suppose this distinguished professor wanted for his secret? Only the trifling sum of *one thousand dollars!* He explained that his business was teaching his secrets to some of the great duck-growing establishments. He said if I were growing ducks on only a small scale he would make a price that would be reasonable; but I was so scared that I did not push the matter any further. Why should I? During the last winter every egg that I set, or almost every one, produced a duck, and every duck grew and prospered except the two that the alligator caught, and some other trifling accidents. May be it is a good thing to have somebody come out with a $1000 secret; and it just now occurs to me he would be just the fellow to go in partnership with Kellerstrass. What a thriving business the two together might build up!

Oh, yes! I promised to tell something about determining the sex of day-old chicks. Here is the advertisement that was sent me.

TO TELL THE SEX OF BABY CHICKS.

At last we have the poultryman's *greatest* need—to tell the sex of baby chicks. You can tell in 3 minutes' time from the time the chick is a day old. Guaranteed. Inclose $1 with addressed envelope to
The Kinsey Co., Milton, Ind.

I can not tell you where the clipping came from; but I sent my dollar, and here is the secret for all of you. You just pick up the chick in your hand. Put your thumb around its neck and give it a gentle squeeze. If it is a rooster he will kick and *keep on* kicking; but a pullet will kick only a few times and then be quiet. Now, there is, no doubt, some truth in this. We all know that the male chick is, as a rule, a little larger and stronger than his sister; but how about the chicks that are just half way, that keep on kicking a *little longer* than the ones you decide to be female? His dollar secret may help us to tell something about it; but I very much doubt whether it will enable anybody to sort out with any certainty a cockerel from a pullet when only one day old. When the chicks are two or three weeks old I can very often decide, *almost* to a certainty, by the growth of the comb. The cockerels will very soon show much greater development of the comb than the pullets. But this is by no means certain. When Ernest was visiting me in Florida we picked out some cockerels to send to market. He called my attention to the fact that he thought one of them was a pullet after all, and she was almost a full-grown hen, so I put her among the pullets. But two weeks later she was having a square fight with one of my big Buttercup roosters, and *she* turned out to be (or *he* turned out to be) a male after all. And I have found it to be true, that, although we can tell *generally* when the chicks are a month or six weeks old, there are certain cases where it puzzles almost any one to decide whether a *full-grown chicken* is pullet or rooster.

Please notice, in regard to the wonderful secrets, you not only have to send a dollar for about a dozen lines of instruction, but you must also inclose an addressed envelope.

A PULLET LAYS AT FOUR MONTHS OF AGE, EVEN DOWN IN FLORIDA, ETC.

There seems to have been an impression, and I confess that I shared it more or less, that pullets do not commence laying as

early in Florida as here in the North. Here is a report, however, that seems to indicate the contrary:

A. I. Root would be interested to know that we have a four-months pullet laying.
Sarasota, Florida. J. H. DENSMORE.

Sarasota is only a few miles from Bradentown, and the writer of the above, if I am correct, has the White Leghorn fowls. While I am talking about chickens, let me say I sold to a neighbor six pullets. I think they were nine or ten months old. He was obliged to keep them shut up in close quarters, and I explained to him something in regard to the Philo system. As the pullets were moved only a short distance they kept right on laying, three, four, and five eggs a day; and when *Sunday* came he had six eggs from his six pullets.

HOW MUCH DOES IT COST TO FEED CHICKENS? HOW CAN WE DO IT MOST CHEAPLY?

Can you give me some information as to the proper kinds of food for chickens? also the cheapest kinds of food to use, considered from the standpoint of giving the best results, and how much will it cost to keep 100 hens on the basis of 40 cts. per bushel for potatoes, 40 cts. per cwt. for cabbage, 65 cts. per bushel for barley, and 50 cts. per bushel for corn? What proportions of each should be used?
Green Bay, Wis., April 16. WM. LARSEN.

My good friend, I do not know whether my answer will be satisfactory or not; but you strike on a problem I have studied on a great deal. Let me explain that our chickens are all fed in galvanized tubs, hung up by wires just high enough so the rats can not get in, but so any chicken can get in readily after it is three or four weeks old. In this tub we keep corn, wheat, and oats, putting in enough to last several days. If they pick out all the wheat first, then I put in more wheat, and the same way with corn and oats. Let them balance the ration themselves. Now, if you buy a good quality of corn, wheat, and oats (of course you can use barley, kafir corn, etc., if you choose), you will find these staple grains are very much cheaper than screenings or *any sort* of mixed feed. I have tried again and again different brands of mixed feed in the tubs, and there is always a lot of stuff left which the chickens will not eat. At the same time, the parties that prepare these mixed foods and do such extensive advertising make a profit over and above the cost of the grain. Buy your grain, if possible, from the farmer direct, and thus cut off the middleman. Besides the grain mentioned, you want green stuff—alfalfa clover, Bermuda grass, or in winter time cabbage and potatoes, carrots, mangel-wurzels, etc. At the price you mention, it should not cost you very much to keep your chickens.

In regard to the proportion you mention, I would let the chickens have what they seem to prefer. Let them do their own balancing. If you skip wheat for a few days you will notice they will all go for the wheat with great avidity, and the same with corn and oats; but I very much prefer to have *oats* that have been soaked for about 24 hours; then if you bury them in the dirt so they will sprout, you have, perhaps, the best *green* food, and, besides, the exercise of scratching it out.

In regard to the expense of keeping a laying hen for, say, a year, the old figures were $1.00 per hen. If on the farm, where they pick up a large part of their feed, perhaps 75 cents would be about right. If only a few are kept, however, 50 cents or less might pay for the cash out. Down in Florida it will cost from $1.25 to $1.75—perhaps on an average $1.50 a year. A growing chicken, say after it gets to be two or three pounds in weight, will take as much food as a laying hen.

Now, if I am off in the above estimates I hope some of the brethren will straighten me up. By the way, potatoes are an excellent food for chickens. In Florida they will eat up every scrap of potato parings or small potatoes, or any thing in the potato line. In the North the potatoes may have to be boiled and mixed up with bran mash. I think it will pay every farmer to pick up every potato, little and big, and save the culls for our chickens in the winter time.

Just one thing more about a balanced ration. After the chickens have had grain, green food, and ground bones or beef scrap, they will take with avidity a wet mash made of bran and shorts. Do not make it wet and sloppy. At one time a pailful of bran mash made by my colored man was left where a chicken got into it and was *drowned*. While they will eat it in this shape, it is objectionable in many ways. The mash should be so dry that it will be crumbly. In this shape it may be fed on the green grass without any waste; and if you choose a fresh place every time, there will be no danger of disease from fermentation and souring of the food.

AN INDIAN RUNNER DUCK THAT PARALLELS MY PARTICULAR DUCK; ALSO SOMETHING ABOUT LAYING TWO EGGS A DAY.

See the following, which I clip from the *Rural New-Yorker:*

I have an Indian Runner duck which appears to me to be a remarkable bird. I have read a good many chicken stories that taxed my credulity to the limit, and it is quite probable that many who read the following statement will not believe it. The duck referred to has laid 98 eggs during the past 96 consecutive days, and the indications are that she will extend this wonderful record still further before taking a rest. I do not ascribe this abundant yield to my method of feeding and care, but rather to the exuberance of her productive nature. Eggs are large and white. I have been able to catch her on the nest but twice. I attach affidavit.
Maryland. E. S. KING.

Mr. King sends a signed affidavit in support of his statement.—ED.

In the above case the duck laid, apparently, a little more than an egg a day. The above report strikes also on a point recently brought out by a writer in the Jacksonville (Florida) *Times-Union*. This writer says that no hen lays an egg *exactly* every 24

hours. It is more often in 25, 26, 28, or 30, and clear up to 48 hours, which would be an egg every other day. Now, there are evidently a few hens that lay an egg every 23 hours; fewer still, 22, and may be less. These hens or ducks would, therefore, occasionally lay two eggs inside of a day. Such eggs, of course, would have to be laid, at least one of them, in the night time; and this might account for the eggs we find under the roost. On my Florida ranch they roost not only low down, say 2 or 2½ feet from the ground, but the sand under the roost is so soft that an egg is very seldom broken that is dropped in the night. This accomplishes two desirable things: The eggs are not wasted, and the hens are not taught the egg-eating habit by finding a broken egg under the roost. I would suggest that the duck mentioned above laid an egg in a little less than 24 hours; and therefore in 96 days there was a showing of two more eggs than an egg a day.

INDIAN RUNNER DUCKS.

The editor of that excellent poultry-journal called *Poultry* has been testing the Indian Runner ducks. Here is what he says about them:

We received the three ducks and the drake March 3. One duck laid March 12, and the next day two of them laid. Then all three of them began to lay regularly, and up to this time (twenty-five days after we picked up the first egg) we have got seventy-two eggs, lacking three of getting one a day from each duck for twenty-five days. Every one of these eggs has been pure white. Tested by cooking we have been unable to detect any difference between them and eggs from our hens. We are very much interested in these ducks of ours, and we are going to keep them going as long as we can, and raise as many of them as we can this season. If they continue as they have started out, we are inclined to think that our egg-ranch will be largely stocked with Indian Runners in the end.

Well, if his experience and mine are not the exception, no wonder he is coming to the same conclusion as myself—that all *his* chicken business hereafter will be considerably along the line of ducks.

THE PROSPECT OF A HONEY CROP IN THE EXTREME SOUTH OF FLORIDA, ETC.

The "general drouth in Florida," spoken of in GLEANINGS for April 1, has been broken in a few places in this county. There have been good showers in Alva, Caloosa, and this place. At the first two points the orange-bloom was delayed by the dry weather, but the rain has put the trees into full flower, and one could gather a great crop of honey if he would move his bees there. That is not the thing to do, however, for the saw palmetto is just blooming profusely, and the harvest here is beginning. The heavy rain which we had a week ago was in addition to that mentioned above, and put enough moisture in the ground to keep many acres in full flower for several weeks. It is too bad that tons of nectar are to go to waste for lack of bees to gather it. There are fine locations in this county for many large apiaries. It might be well for some of the friends to consider them carefully.

The largest bee-keeper in the county is a lady—Mrs. Brainard, postmistress at Captiva. She has 57 colonies at this time, and writes that she gets a crop of honey every year from sea-grape, mangrove, and cabbage palmetto, though not always a large one. There are not enough oranges and saw palmettos on the island to give any surplus from these sources. Captiva is a long narrow island that is far beyond bee-flight from the mainland. I think her location is about as poor as could be found in the county.

Many enquiries have come to me about free government lands. I have had time to reply to only a few of them. The last one received asks that I reply through GLEANINGS. I will do that, telling what I think of the homestead proposition after a year's experience with it, if you care to have me. It does not look as rosy to me as it did when I first came to Florida.

Ft. Myers, Fla., April 20. F. M. BALDWIN.

Friend B., I am very glad to tell you we had several good rains in Manatee Co. before I left. The last one gave us 1½ inches of water in one shower. By all means tell us about the government land. I am glad to see you own up that your experience is not quite equal to your anticipation when you first started in your Southern home.

THE CROWS — ARE THEY THE FARMER'S FRIENDS OR FOES?

I have always felt sad, and a good many times worried, to see the boys start out to hunt crows; and even when the crows are digging up the corn I have wondered — in fact, hoped — that there might be some better remedy than poisoned corn or even tarred corn. Well, the *Rural New-Yorker* has had several communications lately to the effect that it is better and cheaper to leave enough corn on the top of the ground for the crows, so they will not pull it up. In order to avoid having the corn cultivated under, and coming up as a weed in a cornfield, the corn is sprinkled along the dead furrows, where the crows can easily find it without pulling up the planted corn. One writer suggests that a peck of corn scattered about will protect a ten-acre lot; and it is not only the cheapest remedy, all things considered, but after Mr. Crow is satisfied with all the *corn* he wants, in order to make a balanced ration he needs some animal food, and he will go to work at the grubs and cut-worms with just as much relish as if he had not had so much corn. When we take into consideration the damage that worms and insects do because there are not enough birds to keep them under, is not the above a sensible and humane way to manage the crow? It has been suggested that even skunks as a whole are of more benefit to the farmer than damage; but, of course, this would not prevent us from trapping or shooting any *individuals* of the tribe that had got into the habit of visiting our chicken-coops.

SPECIAL NOTICE.

W. S. McKnight, queen-breeder, of Newton, Ala., has just informed us that his shop was destroyed by fire a few days ago, and that the loss includes most of the correspondence and queen orders he has received this spring. Unfortunately, Mr. McKnight has no duplicates of his orders, and can not tell who is entitled to queens. He has requested this announcement, and asks that his patrons kindly bear with him in his trouble, and let him know at once of orders they have sent, with the amount, and what for. This we trust they will do.

Gleanings in Bee Culture

Published by The A. I. Root Company, Medina, Ohio

H. H. Root, Assistant Editor
A. I. Root, Editor Home Department
E. R. Root, Editor
A. L. Boyden, Advertising Manager
J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX JUNE 15, 1911 NO. 12

Editorial

OUR CALIFORNIA DEPARTMENTS.

Our readers will notice that "Bee-keeping in California" is conducted this issue by P. C. Chadwick, of Redlands. California has so many different climates, and extends over such a large area, that it is our intention at this time to have three or four different contributors supply interesting news for this page, and to have such news appear every issue instead of every other issue. Mrs. Acklin will continue her notes, and we shall probably secure the services of one or two more bee-keepers representing the extreme south, and also a point further north.

WINTER LOSS NOT SO BAD IN EXTREME SOUTHERN CALIFORNIA.

The following from E. M. Gibson, Jamul, Cal. (near San Diego), indicates fair wintering. The weather conditions, however, are unfavorable.

I am sure it's simply guesswork yet to foretell any thing about it; but conditions with me are not nearly so bad as reported by Mr. P. C. Chadwick for the northern part of the State, and, in fact, I lost no more bees than usual, three colonies in the lower yard, eight in the next, and fifteen in the upper or mountain yard. The loss in this mountain yard is always greatest on account of its being so much colder. Until May the prospects were first class for a big crop; but the May dwindling has been very heavy, and the cold winds continue. We had frost night before last (very light), May 25. If this condition continues, the crop will be light; but with milder weather within the next week I expect to harvest a good crop.

FARMERS' BULLETIN NO. 447, ENTITLED "BEES."

We have just received Farmers' Bulletin, No. 447, which is virtually a text-book on bees, by Dr. E. F. Phillips, in Charge of Apiculture, Bureau of Entomology. This new edition is a slightly altered edition of Farmers' Bulletin 307, with the addition of a little matter in the text, and a few omissions. On pages 45—48 there is a complete list of the Bureau's bulletins on bee-keeping. This, like its predecessor, is a brief work on apiculture. It is conservatively and carefully written; and considering the fact that it is sent out free it ought to have a large demand. To obtain the same, address the Secretary of Agriculture, Washington, D. C., asking for Farmers' Bulletin No. 447, entitled "Bees," by Dr. E. F. Phillips.

THE MASSACHUSETTS SCHOOL OF APICULTURE AT THE AMHERST AGRICULTURAL COLLEGE.

Massachusetts is surely outstripping all her sister States in the recognition that she gives to apiculture in the Agricultural College at Amherst. Dr. Burton N. Gates, formerly of the Bureau of Entomology, Washington, D. C., has been appointed instructor of apiculture, and certainly no better man for the place could have been secured. He seems to have the enthusiastic backing of the Secretary of Agriculture and the authorities of the college. A model apiary under his supervision has been started where practical demonstrations are made for the benefit of students in bee culture. While the apiary is not large, a nice beginning has been made. It is the intention, as fast as the funds will permit, to put up a model apiary workshop and extracting-building, and materially increase the apiary and equipment. Splendid progress has been made for the first year, and a class of some thirty students in bee culture has just graduated.

We had the pleasure last week of attending a general convention and a field-day meet while at the college. Among the speakers secured by Dr. Gates from outside of the State were Anna Botsford Comstock, Entomologist at Cornell University; Arthur C. Miller, of Providence, R. I., one of the best-informed bee-keepers in the country; and E. R. Root, of Medina. Owing to the unfavorable weather the field-day meet was not as largely attended as it would otherwise have been. But there was a very enthusiastic gathering, and apparently those who came seemed well repaid for their visit.

One of the most interesting addresses given to us was by Prof. W. P. Brooks, of the college, on the subject of growing clovers. In our humble opinion he knows more about the clovers and suitable soil for growing them than almost any other man in the United States. We hope to give you the benefit of some of his experience in a later issue.

The paper by Mrs. Comstock, on the domestic economy of the hive, is one of the most interesting we ever heard. We hope to place it before our readers at another time.

Arthur C. Miller exhibited an observatory hive that surpasses any thing of the kind we have ever seen. With this Mr. Miller has made some interesting if not wonderful discoveries. There is no doubt that he knows more about the babyhood of bees than any other man in the world. His studies are a revelation, and we are arranging to get them before the public.

THE HONEY-CROP CONDITIONS FOR 1911.

REPORTS are so conflicting that it is impossible to give even a good guess as to the yield from clover. Taken as a whole the prospects are not as good as they were two weeks ago. Since that time there has been quite a severe dry spell in some sections. While conditions early in the spring were exceptionally good, and promising a fine yield from clover, the aforesaid drouth apparently gave the plant a setback; but, very fortunately, this was broken by a general rain throughout most of the Eastern States, commencing about the 3d and 4th, and closing about the 10th of June. This did an immense amount of good. How much it will retrieve from the drouth it is impossible to forecast.

In New Jersey, Eastern Pennsylvania, and perhaps Delaware, the drouth was more severe than in that section on the coast directly north; but clover never is very abundant in Eastern Massachusetts and Connecticut, largely because of a lack of lime in the soil. So we never expect very much honey from those two sections. In Vermont, New Hampshire, and Maine, the clover flow at this writing apparently will be good. Conditions also are very promising for a good crop in Canada; and the very opportune rains in New Jersey and Eastern Pennsylvania have improved the clover conditions very materially. If these rains had come on a week or ten days sooner, the conditions would have been ideal. As it is, there will probably be only from one-fourth to one-half a crop of clover in New Jersey, Pennsylvania, and possibly some parts of New York. Central New York will average rather better than the Eastern part of the State.

Reports from Michigan are very conflicting, for that State seems to have all kinds of soil and all kinds of climate. Some reports are very flattering, while others are discouraging.

Reports are just as conflicting in Ohio, Indiana, and Illinois. The drouth in these States was not as severe as in the extreme East.

As yet we have seen no reliable reports from the alfalfa States; but a few scattering replies seem to indicate that the alfalfa crop will be about as usual.

We have already reported that the crop in Florida and California is short, but a late report shows prospects of a good yield from mangrove are exceptionally good on the east coast of Florida.

In California it appears that, owing to the unfavorable season last year, many colonies had to go into winter quarters in a very much weakened condition — too weak to survive till the following spring. It is reported that thousands of colonies died outright, either in late winter or early spring. Notwithstanding all of this, several carloads of California honey have been bought; and we may say in this connection that a considerable quantity of Florida honey has been shipped north; but it may be safely assumed that the aggregate yield from either State will be light. Texas seems to have had a good season; but as her crop rarely moves out of her own borders, it will have no perceptible effect on the general market.

Taking it all in all, present indications generally do not warrant the belief that the crop of clover will be large, but, apparently, it will be considerably in excess of that of last year. The short crop of California and Florida honey, and the possible light yield of clover would seem to warrant a general stiffening of prices all up and down the line; and, even if there should be a good yield of clover, in this day and age it would be simply impossible to glut the market with it. We should not be surprised if the buyers of clover or Eastern honey will be bidding hard against each other; and unless conditions improve materially, we would naturally expect the market to advance. Even if the yield from alfalfa should be large, this kind of honey is coming to be more and more largely consumed right where it is produced. We can not, therefore, think it can have a tendency to weaken prices, no matter what the yield may be.

In order to get more reliable information we shall be glad to have our subscribers everywhere send us postal-card reports on existing conditions. Do not send us long reports, because we can not take time to read them.

MOVING BEES A SHORT DISTANCE.

ONE of the questions that are being asked constantly is how to move bees a short distance. The time was when it was considered impracticable to do this except after a confinement for a period during winter. We have learned by experience that it is no trick at all if one proceeds properly. If he contemplates moving the bees he should undertake the work before a honey-flow. Proceed as follows: In the cool of the morning, or as early as possible, approach the hive that is to be moved to the front or back yard. Smoke it vigorously, then pound and drum on the hive, giving it a general shake-up. Throw it on a wheelbarrow, bumping it as much as possible when going to the new place. Set it down with a thump and a jar. Smoke again; then lean a board up against the entrance, so the bees will be sure to mark the new location when they come out. The board should be removed the next day. Change the appearance of the old spot as much as possible where the hives

stood. If there is any trash or rubbish, strew it promiscuously around on the old location for a few days. Try out the plan and report.

As already stated, we do not advise moving during a honey-flow nor immediately following. The reason for this is obvious.

Last fall we had some hives that were located within six feet of some plowed ground. We moved them in the manner described, clear over to the other side of the yard. There was scarcely a bee that returned, and this spring we had no better colonies in the apiary. Again, this spring we had one yard that was located in a spot where the north wind struck it a little fiercely. We decided to move some of the hives to the center of a large orchard about 200 yards away, and that, too, on the other side of the road. We have been putting a number of colonies into new locations, and the bees seem to stay without any difficulty. We expect to try a few more colonies after the honey-flow, to see what the effect will be.

FACT AND FICTION.

THE following appears in a health-journal entitled *The Battle Creek Idea*, published at Battle Creek, Mich.:

Q. Is bees' honey a healthful food?

A. It is a splendid food for bees. It is not the best food for human beings. It is not the best form of sweet. It is better than cane sugar, however, because it contains all the properties of the sweet juices of plants, whereas cane sugar does not. Cane sugar is a crystalline sugar, and there is no lime present. It also requires digestion, and is an irritant to the stomach. The sugar of flowers is fruit sugar, and the bees gather this fruit sugar and deposit it in little cells. If they did not do any thing more it would be the most perfect of sugar; but, unfortunately, bees, like flies, are not altogether tidy. They do not use the doormat before they come into the house; and they gather up more or less dirt on their feet, and get dust on their fuzzy bodies, and, of course, some of this gets into the honey; also some of the pollen and some of the essential oils of the plants; and if the plants happen to be poisonous, then some of these poisonous flavors are put into the honey. Then there is another thing. The bee has a poison-bag as well as a honey-bag. I remember that very well from an experience I had when a boy. I was exploring a bee and I discovered the poison-bag and thought it was the honey-bag; and that little drop of nectar which I touched to my tongue made me so sick I did not get over it for a good many years, and was not able to take honey without being made sick by it. This is formic acid, which is a very irritating and poisonous substance, and is a powerful disinfectant. *The chief use of the poison-bag is to secrete formic acid to preserve the honey. The bee adulterates the honey with antiseptics. The United States government prohibits the use of antiseptics without putting a label on the package; but the bee violates the pure-food law.* When he gets the little cell filled with honey he puts a minute speck of formic acid out of his poison-bag down into that cell so the honey will not ferment. Some people are very susceptible to this formic acid, and the small amount of it that the honey contains is enough to make them ill, and to cause a breaking-out of nettle rash—the same rash that one gets when stung by the nettle, and that is formic acid also.

It is hard to conceive how more fact and fiction could be put together in one conglomerate mass than in this. It is strange how any one can draw on his imagination. Just think of it! a little drop of nectar or bee-poison made the writer of the above so sick that he could not get over it *for many years*. Then he rehashes the old exploded theory that bees sting honey; goes on to say that the chief use of the poison-sac is to secrete formic acid to preserve the honey; that the bee adulterates with antiseptics, contrary to law (?), etc. We should like to know where the writer gets his scientific authority for the statement that the bees put bee-sting poison in honey so it will not ferment. Then it is news that honey causes a rash to break out all over the consumer on account of the alleged presence of bee poison in honey. This quotation is a violent case of where "a little learning is dangerous."

IN MEMORIAM OF W. Z. HUTCHINSON.

THE sad news of the death of no less a personage than W. Z. Hutchinson, founder and editor of the *Bee-keepers' Review*, Flint, Mich., reached us just as the last issue was going to our readers. For some months back I had been forced to the conviction that our old friend had not many more months to live; but I was hardly prepared to believe that his demise would come so soon. He passed away at his home at 2 o'clock on the afternoon of May 30, at the age of 60.

I do not hesitate to say that Mr. Hutchinson was one of the ablest writers on bees that this country ever had. Indeed, I doubt if there is a man in all our ranks who was a better bee-keeper or a more forcible writer. Our senior editor, Mr. A. I. Root, "discovered" him away back in 1878; and so pleased was he with his work that he made him our leading correspondent. For many years he conducted in this journal a department entitled "Notes from the Banner Apiary." This was discontinued in 1887, when the *Review* was started. The launching of the new bee journal was at a time when the field was already full of bee-journals and competition of the severest kind. But the *Review* grew in popularity and strength until today it is recognized as one of the foremost publications on bees in all the world.

Mr. Hutchinson wrote numerous newspaper and magazine articles on bees, and he was also the author of that superb work, "Advanced Bee Culture," the new edition of which, containing his very latest and best thoughts, is just out.

The death of Mr. Hutchinson will be a distinct loss to the bee-keeping world, and those of us who were fortunate enough to know him best loved him as a brother. While I was not unprepared for the news, yet it came as a severe shock. I can not bring myself to believe yet that this quiet, modest man, who rarely spoke at conventions, but whose words will long live after him through the printed page, has gone. I could never think of him as a competitor, and when his paper grew I was sincerely glad.

In our next issue we shall have an extended sketch of his life. See page 23, advertising section.—E. R. ROOT.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

I VOTE for a 24-section shipping-case, double-tier, with three-inch glass.

HIP! HIP! HURRAH! Illinois has a foul-brood law. [Then the insurgent bee-keepers who have been fighting this law were not successful. Good!—ED.]

THE OPEN WINTER caused some anxiety about white clover, but I never knew it thicker than it is now. Of course, it is yet to be seen whether it will yield any nectar.

THAT FINE TYPE is all right. If any old fellow can't read it so well, let him get fresh specs. Fine type gets in more stuff, and you can't get in too much stuff for us younger chaps who want to learn all we can about bees.

FRUIT-BLOOM is no longer of so great importance here, because it comes right in the midst of dandelions which have now become so plentiful. Still, it is of value because yielding in the afternoon after dandelions have closed up.

HONEY-BUTTER, p. 293, is said to be granulated honey in bricks. The term has already been used to mean butter with an ounce or more of honey to the pound worked into it. Makes the honey taste better and keep better. Try it.

IS NOT THIS the way of it? A section filled and sealed out to the wood is less likely to break in shipping than one with a row of empty cells; but if it does break it is more mussy. Also the full one is mussier when cut out to put on the table.

IT SEEMS that Standard Oil with all its millions has to yield to the majesty of the law at last. Now if Lorimer is properly taken care of, the death-grip of the saloon loosened from the throat of the nation, and the honey-market bettered a little, this will be a nice country to live in.

F. M. BALDWIN, I think cucumbers yield a good quantity of honey; but other plants yield at the same time, so I can say nothing positively about its quality. I don't believe it's better than the average fall honey, and sections are varnished with something that I'm afraid comes from cucumber.

A CORRESPONDENT is puzzled over a Straw on p. 237, and I don't wonder. To prevent after-swarms, it says put the swarm "on an old stand," which would mean any old stand. That "an" should be "the." Put the swarm on *the* old stand, and put the old colony close beside it. Then in 7 or 8 days move the old colony to a new stand.

TROUBLE in Medina with a rim of honey at the top in Langstroth frames, page 322. Ever try foundation splints so as to prevent stretching of the upper cells? [No. But do you really think that that would remedy the trouble? We used to have honey in the upper row of cells when we used medium and heavy brood foundation, that is, wax so heavy that there would be no stretching of those cells. No queen or bees either ever put brood clear up to the top-bar like the Cyprian and Holy Land queens we formerly had.—ED.]

THE REASONS given for having hives in pairs, p. 319, are valid, but my chief reason is that double the number can be kept on the same area. Place hives singly in a row at a safe distance, thus:

0 0 0 0 0 0

Now set another hive beside each of these, thus:

00 00 00 00 00 00

and there will be no more danger of bees entering wrong hives in the second row than in the first. A bee from the first hive of a pair will be more likely to enter the first hive of the next pair than to enter the second hive of its own pair. [You are right.—ED.]

A CORRESPONDENT says a drone is dwarfed by being reared in a worker-cell, and thinks an opposite cause should produce an opposite effect, and so would expect an enlarged worker-cell to produce an enlarged worker. That reasoning will hardly hold. In China small shoes make small feet. It does not follow that large shoes make large feet. When a boy I went barefoot each summer. My feet had all outdoors to grow in, but they are not abnormal in size. Yet the fact remains that prominent French bee-keepers say that bees *have been* enlarged by the use of cells larger than common. [We can not help sharing your feeling of doubt that bees are made any larger by giving them larger cells.—ED.]

ITALIANS are claimed to be necessary to clean up European foul brood. I suspect that hybrids are just as good as Italians *if just as vigorous*. Aug. 18, 1910, I caged the queen in No. 105, which had European foul brood, and freed her six days later. No disease has been found in No. 105 since, the last time it was inspected being May 19, 1911. No. 105 is a colony of hybrids, most of the bees not having even one yellow stripe. [From the general reports we have received, hybrids are by no means as good as pure Italian stock for cleaning out European foul brood. But it is conceivable that extra vigorous stock such as you have, a cross between blacks and Italians, might clean up the disease quite as well; and it is conceivable, also, that some pure Italians will be no better than most blacks.—ED.]

IN A SYMPOSIUM of replies in *Schweiz. Bztg.*, 138, regarding the width of frame stuff, one man prefers .984 inch, and the rest want nothing less than 1.102 inches. That's close up to the Miller frame with its 1.125 inches. [That is very close to the average of the frame stuff put out by the hive-manufacturers of this country. It is pleasant to know that the general consensus

of opinion on both sides of the great water is about the same.—Ed.]

Most of the logic, p. 262, about eight and ten frame hives is all right, Mr. Editor, but one thing is not. That two-thirds of hives now sold are ten-frame does not prove they are best, but it proves that you have told beginners they are best. Hives are sold chiefly to those who are more or less beginners, and beginners take your word for what is best. Mind you, I don't say your advice is wrong in this case. I changed from ten to eight frames mainly to be in fashion. If it were to do over again I would likely stay by the ten frames.

The statement, page 290, that breakage and leakage in shipping comb honey averages 20 per cent is rather startling. I had supposed one per cent was pretty bad. [Doubtless one per cent would be a high average of breakage for you, shipping as you do in carloads, and looking after the packing yourself. The 20 per cent is based on the average of shipments of comb honey from everybody alike. But even when the comb honey is well put up you would be surprised to see the amount of breakage that takes place in less than carload shipments. —Ed.]

"The queen in a natural state lives about five years." That's the provokingly brief statement of the *British Bee Journal*, p. 130. I wish it would enlarge a little upon it, and tell us what is the natural state, and how long she lives in the average hive under average conditions. [Five years is a long time in our locality for a queen-bee to live. We seldom have a queen live more than four years; and the average in our yards probably would not run much over three years. These figures are based on the assumption that the queens are mothers of full colonies, and lay eggs for a big force of bees.—Ed.]

Those figures, p. 326, set me to figuring. If a queen lays 3000 eggs daily from May 25 to June 10, she will in that 16 days fill 8 frames full all but a rim of ½ inch at top and at each side. If she lays daily 4000 eggs she will in 16 days fill 9½ frames entirely full. But notice, that's only for 16 days, and a hive must hold what a queen will lay for 21 days. Besides, frames are never filled without a considerable margin, for at least some of the combs. If we allow an average margin of one inch at top and sides, it will take 14 frames to accommodate a queen that averages 3500 daily for 21 days. No doubt many a good queen is badly cramped in a ten-frame hive during the height of the breeding season.

The season is rather unusual. Weather seemed backward for some time, but the second week in May brought a number of days with the mercury up near 90. Bees stayed in the cellar till April 13, and there was just a little question whether they could build up for the harvest. But they built up straight along, and by May 10 we had to hustle to get in the bottom-racks, for comb was being built down below the bottom-bars. I think the colonies are stronger throughout the whole apiary than I ever knew them before at the same date, May 18. A number of second stories have been needed to accommodate the increasing brood. Just now they might be better off if they were all in ten-frame hives. A number of swarms have been reported in this locality—something that I never knew before up to the middle of May.

That item about old comb, p. 293, looks as if the printer had been taking liberties with it. Cells worked over into drone-cells because old, and then worthless for breeding, because filled with old pollen, rather tangles me. I can't understand how there is room to enlarge a worker-cell into a drone-cell; and if it should be enlarged why should it be filled with pollen? Bees are not in the habit of putting pollen in drone-cells. I can easily understand that old combs may have holes gnawed in them by mice, and that the bees may fill the holes with drone comb, and, of course, the comb is then objectionable. But that cells become "imperfect" merely because old, and that old worker-cells are enlarged, rather gets me. (The usual objection is that cells become smaller with age.) Having as old combs as I have had, and as many of them, it seems I should have noticed it if such things happen as stated, but I never have. I'm ready to believe whatever J. E. Crane says; and if he really wrote that just as it is printed, I wish he would tell us more about it. [No mistake in the copy. It is up to Bro. Crane.—Ed.]

Dandelions seem on the increase every year, and just now the bees seem to have more than they can do to take care of them. This change in the dandelion crop has had a very important effect in the matter of queen-rearing. Formerly a queen reared before the white-clover harvest was so likely to be poor that no cells were allowed to mature before that time. Now dandelions allow good queens to be reared about a month earlier. A few dandelion queens reared two years ago have done excellent service. Of course, it will not do to rear queens in the break between dandelions and clover. [Dandelions are also a great help in this locality in our early queen-rearing operations. But, doctor, you speak as though the dandelion queens and those reared during the white-clover harvest would be better than those reared before. What is the matter with queens reared under the impulse of scientific feeding? The man who rears queens for us in large numbers says he gets the best and most uniform results in cell-building from colonies scientifically fed when no honey-flow is on, because he can then regulate the supply of feed. During the honey-flow the bees become excited, and will sometimes neglect the important business of queen-rearing. This is particularly so when the clover flow is very heavy. —Ed.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

That is a decidedly good plan Mr. Greiner tells of on page 170, March 15, that the New York bee-keepers are having school pads made so as to advertise bees and honey. We have used blotting-pads for the same purpose.

You tell us, Dr. Miller, page 196, April 1, that M. Mertinet is the originator of a new kind of clover, and has named it "apitrefle." Pray what is the significance of the name? I suspect it would mean in plain English bee clover, but am not sure. Can you tell us more about it?

I am glad to learn that the Ontario Agricultural College, Guelph, Canada, is to open a course for the study of apiculture. It may not be generally known that the Massachusetts Agricultural College, at Amherst, is also to have a short course from May 24 until June 7, closing with a convention of bee-keepers June 6 and 7.

On page 199, April 1, Wesley Foster gives some timely hints on advertising honey, which are more practical by far, it seems to me, than the expensive wholesale advertising advised by others. I see no reason why interesting paragraphs on bees and honey could not be printed in quantity by the editors of bee-journals, and furnished at a moderate price to bee-keepers in all parts of the country.

Dr. Miller inquires, page 237, April 15, if it would not work, after destroying all queen-cells, and in eight days again destroying them, to give a laying queen. Perhaps, sometimes; but I find they accept a virgin more readily; also, if it would not work, to give a virgin a week earlier. Most decidedly, no, as she would be quite sure to lead out a swarm. Better wait until the swarming fever has abated.

It is true, as Mr. Doolittle says on p. 165, March 15, that a strong colony will quickly clean out dirty and moldy combs; but I have about made up my mind that it pays better to make wax of them and give the bees frames of foundation instead. True, if combs are badly molded we can't get a very large amount of wax out of them; and I have noticed that the bees often tear down such combs, or part of them, and build new.

I will say, for the information of Mr. Byer, that the corrugated cases he saw in Toronto, and mentions on page 197, April 1, are not only like our cases, but were doubtless those we furnished to the Canadian bee-keepers, for we have had considerable trade in them from Canada, where they seem to be appreciated. Not only do these cases ship honey safely to Manitoba, Saskatchewan, and Alberta, but we have used this case in shipping comb honey to Europe the past season, with entirely satisfactory results.

Mr. H. Harley Selwyn's experience, page 254, April 15, is of much interest in relation to the treatment of foul brood. Last year, having read of placing diseased combs in the super, and confining the queen below on foundation starters in frames, I tried the plan, only to meet with complete failure. I did it as an experiment, but it won't pay.

"May God hasten the day when good women shall do at least some of the voting," says A. I. Root, p. 117, Feb. 15. Well, my brother, I have lived to see it. This very week at a school meeting called to take action on the erection of a high-school building in our village, when the crisis had come, and the votes were nearly all in, a number of public-spirited women walked single file up one aisle of our hall to the stage and dropped their ballots, and down and off at the other side, so dignified and quietly that I could not help admiring them. No need to say that we are to have a new school building.

I think you are mistaken, Mr. Editor, p. 185, March 15, in thinking that 6⅔ lbs. of granulated sugar would make about 9 lbs. of stores when sealed. Now, if you take 6⅔ lbs. of sugar and add 30 per cent water you will have 8¾ lbs., which, as you say, is about 9 lbs., but it would be 30 per cent water, while honey is but about 18 per cent water. Besides, more or less of the syrup will be used in making wax for cappings, and also in the increased activity of the bees. After some experiments we have tried I am satisfied we don't get many more pounds, if any, of stores sealed in a hive than we feed pounds of sugar.

An exceedingly interesting item by Wesley Foster, page 199, April 1, calls our attention to time in the insect world. Doubtless time seems longer to all the lower forms of life than to us, as we may all remember how slowly time seemed to move when we were children, and how fast it seems to fly now that we have so many things to think about and do. That insects suffer as we do from bodily injury seems doubtful, as we have sometimes severed a leg from a queen in trying to clip her wings, without very much apparent discomfort to her. Experiments made upon grasshoppers, years ago, led me to think their sense of pain is quite obtuse; and yet that bees often suffer from our clumsy manipulation of their combs is evident from their cry when pinched.

Bee-keeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas

MOVING BEES SHORT DISTANCES.

It is sometimes necessary to move bees a short distance at a time when it would prove more or less disastrous on account of the tendency of the bees to return to the old location. We have adopted a method that has given better results than the usual way of moving them. Instead of taking the bees from the old place to a new location near by, we move them a distance of several miles. Then we take bees from an entirely different location, also far away, and place them on the site which was selected at first for the others.

While this requires more hauling, we have found it so satisfactory that we have continued to practice it on many occasions. Especially do we like this method since we earnestly believe that the shaking-up that the bees receive during such a move, in addition to the change of location, some time before the honey-flow, gives them greater energy, and consequently results are obtained in the honey crop which more than pay for the extra trouble.

WHITE CLOVER AND ORANGE-BLOSSOMS IN TEXAS.

It may be surprising to note that we have in Texas as pretty white clover as anywhere else. A photograph sent us by our friend Miss Helen Buller, of Alvin, Texas, reveals this to us most forcibly. She writes, April 15, "The bees are busy on white clover—had some orange-blossom just before." Alvin is in what is known as the Gulf Coast country of Texas, the entire slope along the Gulf of Mexico about a hundred miles wide. Orange-groves have been planted there so extensively that there are now thousands of acres in orange-trees. In time, orange honey may be important in this part of Texas. In some parts of this coast country, all kinds of tropical fruits imaginable are grown to various extents, and many new fruits and vegetables are being introduced from time to time, so that it is not long before Texas will be growing almost every thing, so large is her territory and so varied her soils, her localities, her altitudes, and her climatic and atmospheric conditions. [In the next issue we expect to have an engraving showing this clover-field.—ED.]

BEES AND HONEY AS MOUSE-BAIT.

We discovered several years ago that mice are especially fond of the dried bodies of dead bees. They devour these greedily, leaving uneaten, however, the abdomen, the wings, and the legs—the part that seems to be most relished being the thorax. It afterward occurred to us that, if this were true, we might use dead bees for bait in traps. After a trial our theory was proven, and since then we have caught many dozens of mice with such bait.

Mice are also very fond of comb, and we have baited them with this many times. Once they spoiled for our use a dish of comb honey. Accordingly we turned it into a mouse-trap, the best that we have ever had. The trap is laid so that the mouse, springing from a cake of wax placed on the particular side where the trap is, will land squarely on it, and thus meet its fate. In this way we have caught one mouse every night for several weeks. We have often caught two in a single night by looking after the trap before retiring, in nearly every case removing a mouse at that time, and another the following morning.

ANTS AND BEES.

From the number of questions asked about keeping ants out of hives, we judge that there must be more trouble from this source in many localities than we have in any of our apiaries. Possibly most of these inquiries come from the small or farmer bee-keeper. We ourselves have never had much trouble with ants molesting bees. The large wood ants and agricultural ants of Texas do not attack them; but we have several species of small red, yellow, and black ants that are very troublesome in some apiaries. Where these are very numerous we can well understand that the trouble will be serious enough to warrant taking such steps as will relieve the trouble.

The easiest method of keeping the ants away is to raise the hives up from the ground, preferably on stout wooden pegs driven into the ground, around which a trench can be dug, and filled with crude petroleum. As this is very cheap and effective it is the best remedy that we can recommend. If petroleum can not be obtained the trenches may be filled with water, using kerosene on the top. But the water, unlike the thick crude ail, is soon absorbed, hence is not as effective. If only a few hives need to be treated, the legs of the stands can be inserted in cans into which the crude oil or even water may then be poured. If water is used, a little kerosene should be poured over it to prevent the breeding of mosquitoes in it.

To prevent any bees falling into the oil, which will kill them as well as the ants if they come in contact with it, a wide alighting-board should be hung in a slanting manner in front of the hive so that the heavily loaded bees can reach the hive in safety. Tall weeds and grass should be kept down, or the ants may be able to reach the hive by using these as bridges over the trenches or cans of oil.

BEE-KEEPING IN CALIFORNIA

P. C. CHADWICK, Redlands, Cal.

The orange bloom is already nearly over, and but little extracting has been done. In localities where bees depend entirely on sage ranges there is about as much honey stored per colony as in those depending on the orange alone; and there is a prospect of the sage flow lasting from four to six weeks yet, while the orange is nearly gone. This ought to be consoling to the sage man who got nothing last year.

In spite of the fact that this spring has been an ideal one for building up weak colonies, the fact remains that the strength of colonies Mar. 15 would have been about normal for Jan. 15. It is impossible to force three frames of brood in a hive that contains only bees enough to cover one frame; but new honey came in so rapidly, beginning early in the season, that it was necessary to spread the brood repeatedly to keep the queen busy, and the bees from wasting time by covering the combs on each side of the brood-nest that contained only new honey and pollen. They would have removed this in time, but time was precious.

Seven cases shipped from Redlands the first of the season brought 7½ cts. Sounds good, doesn't it? Three buyers this week wanted to contract for the season's output of white and water-white honey. The first offered 5 cts., F. O. B., but the last one came up to 6½; 7 would have looked better to me.

The best-posted man I have seen for some time is a honey-buyer who told me of 14 different places where there would be a big honey crop this season, in some of which the bees were only a few weeks out of their winter quarters. I have no use for these men who try to scare us out of our honey and money.

Since my report that this locality has sustained a loss of 50 per cent, I have been accused of overestimating the loss; but after further and more careful investigation I am convinced that my report was not an error. Besides, I am getting letters from other districts that lead me to believe that this condition is general over the southern part of the State. In one apiary near Monrovia only 100 colonies were saved out of 400; and in another locality 25 were left out of 150.

Not very much can be expected of colonies that start into winter quarters with a small force of bees already old enough to die, even though such colonies are often the ones that produced the most honey the season previous. In our locality many colonies died, leaving plenty of stores of both honey and pollen, and, of course, *all* died that were not well supplied. However, probably 75 per cent of the bee-keepers who lost in this way read no bee-journals, are not experienced, and therefore not up to date. They do not know what caused these conditions, and they never will know, but will ignorantly let the same thing happen again.

One of the most essential things that bid for success is room sufficient to keep every bee working to the limit, and everlastingly at it. Valuable time is often lost, even when there is little sealed honey in the hive; colonies with scarcely a cell sealed become as completely blocked from a field-worker's standpoint as though every cell had been sealed. I learned this bitter experience during 1909, when my hives became filled to the limit; but there was little sealing done, because the bees *would not* seal until the honey was properly ripened, and the ripening was slow in the extreme. Where there were extra combs to supply room, the yield per colony was far greater, showing conclusively that plenty of empty combs are a most valuable asset to an extracting apiary.

This honey was from the orange, principally, which yields the thinnest nectar, and, besides, was gathered when weather conditions were not favorable to the rapid evaporation in the hive. With the sage it is different, the nectar being much more easily reduced, and the weather conditions more favorable. We can often extract this when no more than half sealed, yet have a splendid honey in all respects.

Successful management depends on having every colony treated as regards its own condition. When a colony is ready to extract, the work should be attended to immediately, without waiting for the entire apiary to get ready, or even enough for a day's extracting, for valuable time will be lost by some colonies before others are ready.

One year, when the season was half over, a friend of mine who had had but little experience allowed his hives to remain full and sealed because he had read that honey should be left on the hives until well ripened. Think of it! hives full, sealed, and waiting, and a honey-flow on that would yield to any good colony not less than 5 lbs. daily! There are some who go to the other extreme, and wait for little sealing under any condition, removing mere nectar at times when buyers sometimes refuse to handle for lack of body and danger of souring in the can. Others seek to do things on a big scale. They have several yards which they run on the let-alone plan until harvest time, when they rush into the yard with a power extractor, and begin on one side and strip it clean. If the owners of such yards are late, and the hives have been full for seven or eight days, from 5 to 8 lbs. of honey lost per day for lack of room, they are none the wiser, but go on with a feeling of satisfaction that they are "boring with a big auger." Details are lost sight of; swarms are let go, and conditions are not watched closely. The day is coming when these men will finish up with a gimlet!

Conversations with Doolittle

At Borodino, New York

AFTER-SWARMS FOR INCREASE.

A correspondent writes that he wishes to work his bees for comb honey and increase. He plans to use the prime swarms for honey as well as increase, and then increase as much as possible with the after-swarms.

As a rule I do not think that it pays to keep or to build up after-swarms unless the one wishing such rapid increase desires to study the way bees conduct their affairs when left to carry out their instinct to its fullest extent, or unless he is unfamiliar with increasing rapidly by artificial increase. With the after-swarms goes all prospect for any surplus honey from the parent colony, and a greater yield can be secured from this than from the prime swarm, if rightly managed. To hive each prime swarm that comes, generally results in nearly doubling the number of colonies in the apiary each year; and, unless winter losses are great, this would build up an apiary as fast as the experience of a beginner would warrant.

And there is another phase of this matter which is often overlooked by the novice desiring a very rapid increase; that is, that the surplus honey secured from the parent colony, where rightly managed, will generally sell for more than enough to buy good full colonies to take the place of the after-swarms, and thus save all the time and fussing required to build them up so that they will winter. Hundreds of bee-keepers in the past would have given ten times as much to know how to be entirely rid of all after-swarms as they would to know how to build them up to full colonies for wintering. Of all the annoyances and nuisances to the practical apiarist, after-swarms are the worst.

But as all people do not think alike, I will tell how I used to manage in the beginning of my apicultural life, when I was anxious for a rapid increase, and when our present modern plans had not yet been thought of. The first requisite toward a successful start for an after-swarm is a frame of brood in all stages, to be placed in the hive at the time of hiving. As the queen with an after-swarm is rarely if ever fertilized when the swarm issues, and seldom earlier than two or four days later, it is between four and eight days before she commences to lay, thus making nearly a month from the time of hiving before any young bees emerge from the cells in which this young queen deposited her eggs. By this time the bees belonging to the swarm are beginning to die in great numbers from old age. This keeps such a colony weak from that time on.

It helps materially to give a frame of brood; for, as fast as the bees die, young bees are emerging to take their places; and thus the queen, when she begins to lay, has many suitable bees to mature the eggs and brood, so that, by the end of six weeks from the time the after-swarm was hived, there is a populous colony in good condition instead of one sadly deficient in numbers. This frame of brood is also of much value in case the after-swarm loses its queen when out to meet the drone, for she is sometimes caught by birds, or fails to mark her new home accurately. In case of a loss of this kind, the fate of a broodless colony is sealed unless the bee-keeper is on hand to remedy the matter by giving another queen or brood.

If brood is given when the swarm is hived, and the queen becomes lost, they have the material from which to rear another. Then if, in addition to the frame of brood, the remainder of the hive is filled with empty combs at time of hiving, or, better still, with combs containing some honey, this colony at the beginning of winter will be more valuable than are those from prime swarms, inasmuch as the queen will be at her best the following year, while the queens in prime swarms, where more than two years old, often begin to weaken and fail before the honey harvest of the next year. In the absence of combs, other than the one containing brood, I would most certainly use comb foundation for all after-swarms, no matter what it costs, if I intend to winter them; and I say this, knowing that such after-swarms build worker-comb almost entirely.

I said, "if I intend to winter them," for I have often used after-swarms for building such worker-combs, keeping them at it until they were used up in doing this, or so nearly so that several were united for wintering. I then believed that there was a profit in using them in this way; and where combs are scarce, and foundation high, I still believe they can be made as profitable in this way as in any other, where they are allowed to issue at all. However, if I should desire them for wintering I would give them every advantage possible, including comb foundation, where empty combs are not available. Having them fixed as I have outlined, they are now in good condition unless they should fail in securing enough stores for winter.

Where these are lacking they must be fed the same as any other colony which is short of stores when the flow of nectar ceases for the year. If they are thus short, do not delay this feeding, but do it just as soon as you reasonably believe that the honey harvest is over for the season, so that it may be gotten in shape to surround the winter nest as is needed for successful wintering.

The question of how much to feed depends upon whether the bees are to be wintered in the cellar or on the summer stands. When wintered in the cellar the amount given can be shaded by from 5 to 10 pounds. If the bees are wintered on the summer stands I allow from 25 to 30 pounds, preferably the latter. From more than forty years' experience I have found that, with that amount, the bees feel so rich that they do not retrench in brood-rearing before the flowers bloom in spring, as they will when light in stores.

General Correspondence

THE BINGHAM AND JONES KNIVES COMPARED.

A Wide or Narrow Bevel—Which?

BY R. F. HOLTERMANN.

We have seven or eight honey-knives from which to select during the extracting season, and there are two old knives of the D. A. Jones pattern that are general favorites with all our expert uncappers. These knives are always the first to be selected for use by those who know their business.

Fig. 1 shows the Bingham knife, and Fig. 2 the old Jones knife. The sectional views give all the differences there are in the construction of the two knives. By comparing Fig. 1 with Fig. 2 it will be seen that the contact surface of the Jones knife is broader than that of the Bingham, and also that the bevel is carried only a short distance on the comb, or from A to B in Fig. 3. In Fig. 2 it is carried all the way to the middle of the knife—that is, from C to D.

FIG. 1.
BINGHAM

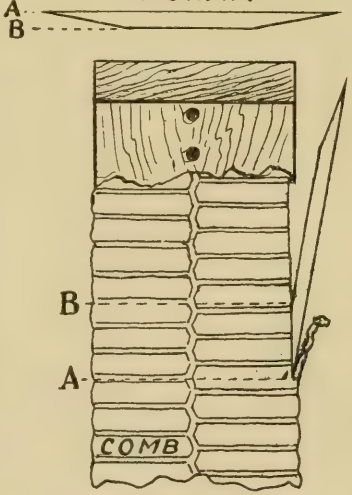


FIG. 3

FIG. 2.
JONES

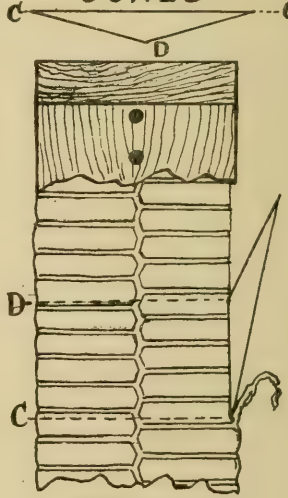


FIG. 4.

In theory there should be less friction when cutting with the Bingham knife, as the surface of contact is less; but the angle at which the knife is held in cutting is more difficult to maintain than with the old Jones knife. It is practically impossible to estimate the correct angle when cutting with the edge A, in Fig. 3. When the correct angle is not maintained, the knife will either be pressing into the comb at the heel B or the knife will be held at such an angle that the depth of capping will be increased. Either is objectionable; but in the former case the resistance will be much more increased because the heel B will be digging into the comb and flattening the cell walls.

In Fig. 4 there is much more to guide the knife when cutting, and therefore it is less difficult to keep the knife in a proper position for cutting. Of course we know that, where honey is acting as a lubricant, friction will play no important part; but to have the knife at point B press into the comb increases the force required to uncap, to some extent. This is an argument in favor of the Jones knife.

The strongest proof of all, however, is that I have found so many uncappers who, by practical experience, have found the old Jones knife to do its work better than the more modern Bingham.

Another desirable feature in any honey-knife is that, when laid flat down on a straight surface, the shank and point shall not touch the surface. The blade, in other words, should be on a general curve instead of being straight.

Brantford, Ont., Can.

[Mr. Holtermann presents some pretty strong arguments in favor of the wide-beveled knife as shown in the cross-section, Figs. 2 and 4. Doubtless some of our readers have used both kinds of knives. In order to get at the truth of the matter, we should like to receive an expression from every one who has tried them side by side. Several of our Canadian correspondents have already told us that the Jones model was better than the regular standard Bingham; and it would seem reasonable to suppose that the wide bevel would make more even work in uncapping. In the hands of an expert, possibly one would do as good work with the Bingham model as with the Jones blade; but we are sure of this: That with the ordinary Bingham knife the average *beginner*, at least, gouges in and out of the comb in a way that entails considerable work on the part of the bees in reconstructing the comb, and at the same time throws an unnecessary amount of honey and wax into the uncapping-can or the capping-melter as the case may be.

This is an exceedingly practicable subject for discussion, and we hope our readers will talk. The manufacturers will be willing, of

course, to furnish whatever the public wants. —Ed.]

TWENTIETH-CENTURY SHIPPING-CASES.

Modern Methods of Shipping, by which a Large Part of the Leakage and Breakage of Combs will be Eliminated.

BY E. R. ROOT.

For several years back, both producers and buyers of comb honey have been gradually coming to the conviction that stronger and better shipping-cases are demanded by the trade; and that the policy of buying the cheapest shipping-cases that can be obtained, or, worse still, having them made at some local planing-mill, would, if continued, ultimately kill the comb-honey business, leaving the field exclusively to extracted honey or bulk or chunk honey. The very fact that comb-honey producers have been changing over to the production of extracted honey, that extracted honey is constantly coming nearer and nearer to the price of

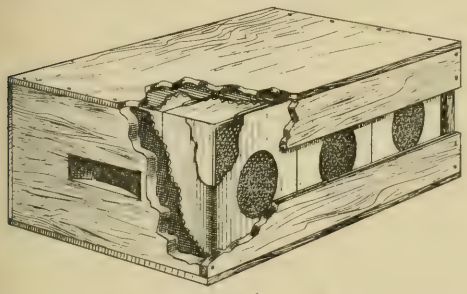


FIG. 1.

comb honey, and that some comb-honey buyers are refusing to take comb honey any more, shows only too plainly that the comb-honey business is doomed unless saner and safer methods are used for shipping the product; and, furthermore, there are not a few evidences to show that transportation companies are liable to advance the rates on comb honey. Taking all of these things into consideration, the movement toward saner methods of shipping so fragile a commodity has begun none too soon. We have been informed that several of the manufac-

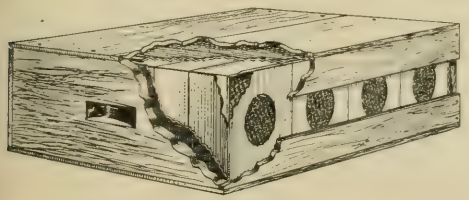


FIG. 2.

turers of bee-supplies expect to put on the market, this year or next, heavier and stronger shipping-cases. Whether they will all be of the pattern here shown we are not advised.

The subjoined illustrations show some such shipping-cases patterned after the modern requirements. In all of them it will be observed that each individual section is put into a cheap carton without top or bottom.

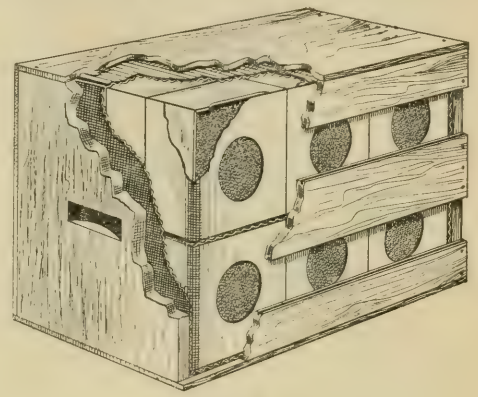


FIG. 3.

In the bottoms and ends of the cases and on top is placed corrugated paper. When the cases are made double-tier, a sheet of the same material is placed between the two tiers; and speaking of double-tier cases reminds us of the fact that this case for 24 sections is slightly stronger than a case of the same capacity where the sections are all in one tier; for the nearer a box or package can approach the shape of a cube, other things being equal, the stronger it can be made. Another advantage in favor of the double-tier case is that it allows the manufacturer to use the same size of covers and bottoms, and the same size of glass that he uses in the 12-lb. size, single-tier. The disadvantage of the double-tier cases is that they do not stack up quite as well. This is an advantage in another way—namely, that it prevents placing too great a weight on the case that may be at the bottom. However, the slightly deeper carton, as will be shown, will largely overcome this.

In this issue Dr. Miller, who has for years used a 24-lb. section-case, declares in favor of the double-tier case; and it is our opinion that, inasmuch as this case is stronger, and costs no more than the same capacity of single-tier, it should be used by the trade generally.

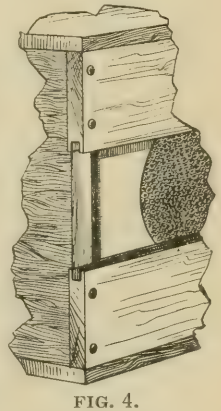


FIG. 4.

It will be noticed further that the Twentieth-century cases are made heavier. The ends are thicker; the sliding-cover feature is abandoned; and it is found that the scheme of

nailing the cover on the case stiffens it materially. In Fig. 5 it will be observed that where the covers are in two or three pieces they are halved together. This is very important; because if there is any shrinkage it will prevent small insects such as ants from getting into the sections.

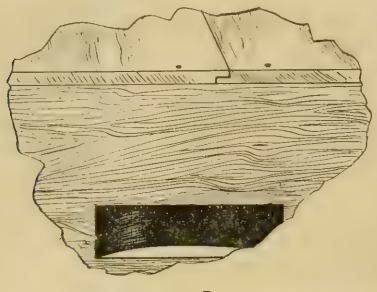


FIG. 5.

In all of these new cases the same width of glass—namely, two inches wide, is used throughout. In Fig. 4 it will be observed that the front cleats to hold the glass are let down into the end of the grain so as to bring the glass tight against the wood. The ends of the glass are then closed up with short strips of section stuff as on the old-style cases.

In Figs. 6, 7, 8, 9, will be seen a carton made of a cheap kind of strawboard ⅛ inch deeper than the section is tall. This is to take any vertical strain that may be placed on the section. The carton can be folded flat as shown in Fig. 9, so as to take but very little room in shipping. A slight pressure at both ends will square it up as in Fig. 8, so that a section can be let down into it as seen in Fig. 6. When sold to a customer a rubber band holds the carton in place, see Fig. 7. A good many times it happens that the housewife is disgusted when she sees a nice box of honey punched into by other packages of groceries; and she will naturally decide that the *next time* she goes to market she will get along without honey if it is going to daub her other groceries like this.

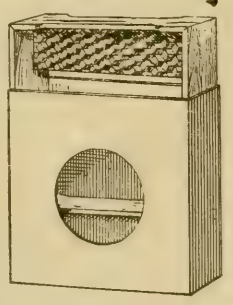


FIG. 6.

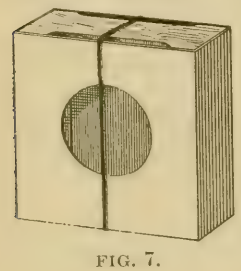


FIG. 7.

The Twentieth-century idea means that the sections should be protected, not only during shipping, but after they reach the market-basket of the consumer.

In Figs. 6 and 7 the artist shows a section with a foundation starter rather than a built-out comb. Of course, an empty section is not sold to the consumer.

This brings up the all-important question whether the producer can afford to buy these more expensive cases. Let's see. One large buyer recently told us that the average of his breakage, carefully figured up in one season, of the total aggregate of his shipments of comb honey, showed a loss to the producer, which he had to charge up, of $11\frac{3}{10}$ per cent; and we are satisfied that this figure is low, if we take into consideration the average of shipments that go to the city from small producers, for this $11\frac{3}{10}$ per cent for breakage and leakage took into account shipments from *large* producers who know how to put up comb honey properly, as well as from the small ones, careless and indifferent. Twenty per cent is not far from the correct average loss to small producers; 25 per cent would be a very conservative estimate of all comb honey not shipped in carriers. Taking these figures as a basis, it will be seen that the average producer can *well* afford to pay the slight advance in the cost of these better cases rather than to suffer the constant leakage and breakage that have been charged up to him in his final account of sales.

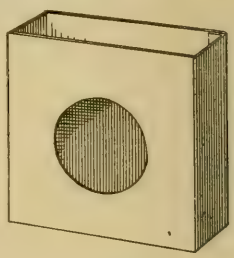


FIG. 8.

We figured up in our issue for May 15 that the 20 per cent breakage and leakage, allowing 50 per cent market price for the broken product, means a loss of 35 cts. on a 24-lb. case; or on a crop of 10,000 lbs., of a loss of nearly $150. Any one who can see through a ladder can easily see that for years and years bee-keepers have, by pursuing a policy of economy at a *wrong point* in their business, been paying a big tariff for their cheap cases that were any thing but cheap in the final settlement for the honey. It would pay them well to invest a small per cent more for their shipping-cases in the first place; for if it pays the producers of eggs and the makers of glass bottles and jelly-tumblers to put these commodities each in a separate compartment and in a strong and well-made box, it would *certainly* pay the comb-honey producer, whose goods are much more fragile, and the value of which, as a general thing, is considerably in excess of the value of eggs or jelly or honey in tumblers or bottles, to use at least as good a package.

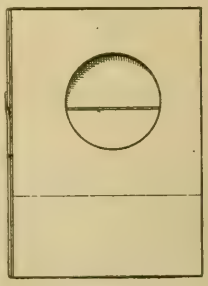


FIG. 9.



Fig. 1.—O. O. Poppleton's old apiary under grapevines, at Stuart, Florida.

BEE-KEEPING IN FLORIDA.

Some Representative Bee-men of Florida.

BY E. G. BALDWIN.

Continued from last issue.

Facts and figures are essential to the accurate exposition of any subject. But the personal equation is always more interesting. No account of bee-keeping in Florida could, therefore, be considered complete that did not give at least a glimpse at some of the men who have made it what it is to-day. The following is but a birdseye view of some of the most representative apiarists of our State. The list does not begin to contain *all* the men who stand high in the ranks of bee-men here, but it is at least representative. Not only are they among the most successful, but also the most prominent here for the longest time, and are also from the most widely diverse and separated portions of the State.

I think that anybody who knows him and his history would agree with me that Mr. Oscar Ogden Poppleton, of Stuart, Fla., is entitled to the term of prince and pioneer. While he has not been a bee-keeper in Florida alone for the greatest length of time, still he began keeping bees in Iowa away back in 1870—forty years ago—and has kept them continuously and as a specialty ever since. Mr. Alderman, of Wewahitchka, I think, comes next in length of years a bee-keeper. Mr. Poppleton came to Florida in 1886, and began bee-keeping as a business at once. For two years (1888 and 1889) he was in Cuba, experimenting; then came back to Florida and has resided here continuously ever since. He has 280 colonies in six apiaries—2 on the mainland and 4 on the keys. He is, perhaps, better known outside the State (unless it be Mr. Hart) than any other man in the ranks. The reason is not only because of his clear thinking and daring execution of his plans, but also because of his facile pen. He is, indeed, the "grand old man" of Florida bee-men. He produces extracted honey exclusively.

He is the one man who *makes* his locality by moving to it. His home apiary at Stuart, Fla., is shown in Fig. 1. A twelve-horse-power launch affords his power, and draws a large lighter that carries 80 colonies of bees at one time. Every January he loads his mainland apiaries on this lighter and starts for Key Largo, off the southeast coast. Fig. 2 shows him just leaving the wharf at Stuart

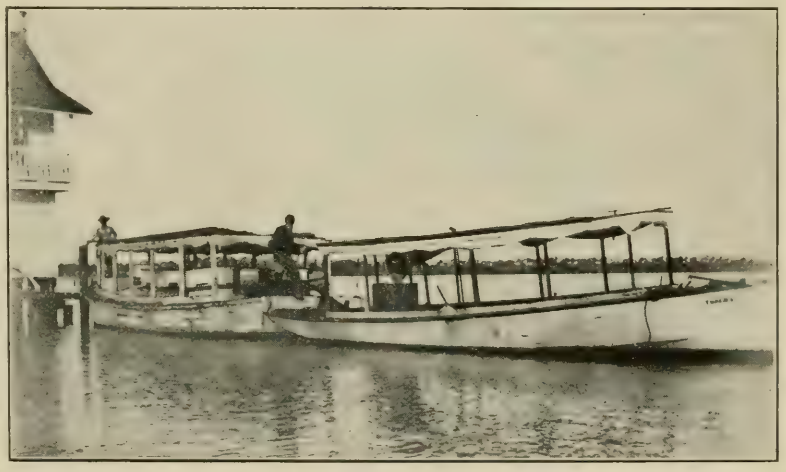


Fig. 2.—The two boats ready for leaving the wharf at Stuart for a 175-mile run to Key Largo with the first load of bees taken there.



Fig. 3.—Boatload of bees owned by O. O. Poppleton, moving from Stuart, Florida, to the Keys, for honey of the manchineel trees, April, 1910. Taken *en passant* at Miami; there are 80 hives on the boat; Mr. Poppleton stands at stern; Royal Palm Hotel in the background; cocoanut palms in the foreground.

for the 175-mile run down to the keys. Two trips are required to carry the bees. *En route* he passes beautiful Palm Beach, and Fig. 3 shows him passing the dock there. Fig. 4 shows him just arrived on Key Largo; the hives as they were landed, and before they had been lined up or straightened up. Mr. Poppleton assures me that he finds it profitable to move his bees thus.

On the mainland his chief honey-sources are wild pennyroyal, saw palmetto, cabbage palmetto, and wild sunflower; on the keys, black mangrove, manchineel, pigeon cherry, and dogwood. He says the mangrove honey from the keys is of even better body than that further north on the coast.

He is the representative of the Long-Idea hive, that is one story high, 13¼×36 inches long; telesecope top and tight bottom. All the expansion is done laterally, not vertically, as in all other hives of any note in this country. He widens out instead of tiering up. He always paints his hives white, and uses full sheets of foundation. This year his crop of honey from the keys was 8500 lbs. as against 28,000 lbs. last year. He is almost the sole migrating bee-man in Florda to-day. Fig. 5 shows five snap-shots of his apiaries on the St. Lucie River, the North and South branches, about three miles above Stuart, Fla. The peculiar form of his hives can be seen in these pictures.

De Land, Fla.

To be continued.

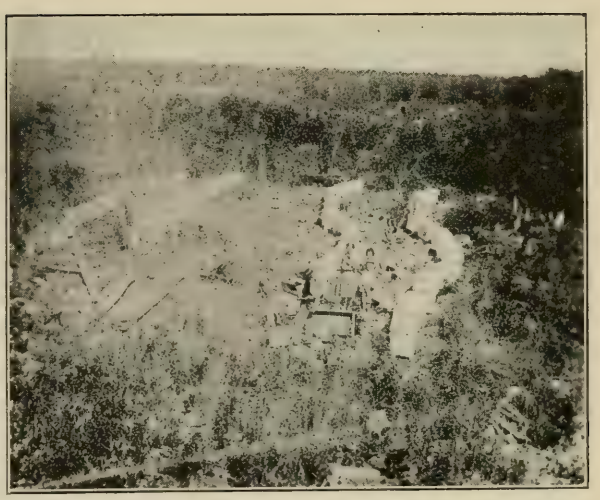


Fig. 4.—Mr. Poppleton's first apiary at Key Largo. This picture was taken just after the bees were landed, before the hives had been leveled up or the rows straightened.

SEPARATING THE HONEY FROM THE CAPPINGS WITHOUT THE USE OF A CAPPING-MELTER.

A Scheme that Looks as if It Might Have Considerable Merit.

BY D. E. LHOMMEDIEU.

A few years ago, while extracting, we ran out of room; and to make room my brother took a stick and "churned" the cappings till they were completely broken up. There was no strainer in the bottom of the box, nor honey-gate, so the cappings, honey and all, were together at the time. Since that time we have always mashed and churned the cappings before trying to strain the honey out. If the honey is drawn off before this is done, the plan does not work as well.

To mash the cappings we use a small-sized ball-club with the lower end sawed off to make it square. It takes only a few minutes to prepare them for straining.

After the mashing and turning, the cappings and honey should be transferred to a coarse cheese-cloth strainer laid over a heavy galvanized wire screen supported near the top of the tank, as described in GLEANINGS some years ago. When another lot is to be strained we gather up the corners of the first lot, tie them with a string, and hang it over a can to drain a few days. The more honey cut off with the cappings, the better the plan works.

Those who have capping-melters that are satisfactory may not need to follow this method, and it may be a good many will pass this simple plan by without further thought; but I think that if a few would give it a trial it would be found to be very practical, especially with those who do not wish to bother with capping-melters.

When the bees and extracting-combs are smoked so much that one can smell the smoke while uncapping the honey, that lot of cappings is already tainted, and should not be put in with the tank of good honey. Smoke should be used very sparingly when taking off surplus combs.

Colo, Ia.

[This certainly looks like a practical method for separating the honey from the cappings. The plan of melting the cappings as fast as they fall from the knife involves considerable expense, to say nothing of the discomfort of working right over a two-burner gasoline-stove when the weather is already too hot to work to the best advantage.

Then, moreover, it has not yet been definitely determined that the separation by heat does not affect the flavor of honey in all cases. Our tests last summer seemed to show that the capping-melter did not darken or mar the quality of the honey.

Friend L.'s plan is so simple and easily tried that we hope some producers will try it and report.—ED.]



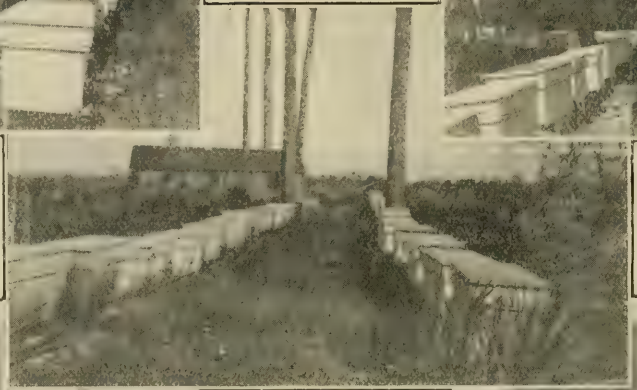
North Fork apiary, four miles from Stuart; 100 colonies.

South Fork apiary. A navigable creek runs within 30 yds. of the honey-house.



North Fork apiary, four miles from Stuart; 100 colonies.

South Fork apiary. A navigable creek runs within 30 yds. of the honey-house.





South Fork apiary.



FIG. 5.—SOME OF MR. POPPLETON'S APIARIES NEAR STUART, FLA., SHOWING THE LONG-IDEA HIVES.



METCALFE'S WAY OF TAKING OFF HONEY IN THE FALL AFTER A LIGHT FLOW.

TAKING OFF A LIGHT FALL FLOW.

BY O. B. METCALFE.

When we have a late fall flow which does not fill the combs up well we have fallen into the habit of leaving the honey on until cold weather begins, and then we get into the yard at daylight some crisp morning, and, before the bees knew it, their supers are all off and in the honey-house. We do this wholesale taking-off of half-filled frames with a brush of weeds and an empty super set under the one we are working with.

Fig. 1 shows my partner at a hive with the cover removed, and his empty super standing where he can get it handily. In Fig. 2 he is prying loose the super combs, bees and all. In Fig. 3 he has picked up the super and is holding it on his hip while he places the empty one on the hive. In Fig. 4 it will be seen that he has set the super of honey and bees on top of the empty super and taken out one frame. With a big wisp of weeds he is brushing the bees from the next frame; and when he has "swiped" them off the side next to him he pulls the comb over next to the wall of the hive, and proceeds to brush the further side of that second comb and the near side of the third comb, both in one operation. Thus he continues across the super until all the combs are brushed, when he picks up the comb which he first took out, and puts it in the beeless super which he has just set on the ground as in Fig. 5.

This method of taking off honey can be practiced only when the nights get cold enough for most of the bees to go below; and then those left above are so cold that they will not quickly fly up and get back on the combs. Neither can the method be used after a bumper fall flow when the combs have been filled "jam full," for they are then too sticky for the brush and bees. After a light fall flow, and when the combs can be left on until the nights get cool without granulating the honey, there is no method that compares with this one. There is one other condition, however; and that is, that a good power-driven outfit is needed to extract such honey if there is any quantity of it.

Mesilla Park, N. M.



Fig. 1.—Colonies are reduced by S. D. House to a single section of brood at the beginning of the clover-flow.

PRODUCTION OF FANCY COMB HONEY.

Some of the Details of the System Used in Producing an Exceptionally High Grade of Honey.

BY S. D. HOUSE.

In the production of comb honey we lay the foundation the fall preceding by giving as many colonies young queens as possible, reared during August, or the first half of September at the latest. My first work in the spring is to see that the brood-nest is in proper condition to permit the bees to develop to the greatest advantage. Some colonies will have too much honey, while others will be short. I do not allow solid combs of sealed honey on two sides of brood—I place all such at the outside. There should always be empty combs in the brood-nest during the months of April and May.

During the early part of May I clip all queens—the right wing the first year and the left wing the second year. This leaves the yearlings with both wings clipped. I also use a piece of section tacked on the hive, upon which I make a record when the queen was clipped, which enables me to tell at a glance the age of the queen. When it comes to hiving swarms, this system enables me to care for more swarms with less labor than if I were getting them out of a tree. If a swarm issues with a clipped queen I find her within a few feet of the hive. She is caged; and while the swarm is still in the air I remove the brood section of the old hive and put in its place one with full sheets of foundation, and one or two empty combs to catch the pollen. I replace the supers, and when the swarm has returned I release the queen; and by the use of the shallow frame the work in the supers goes on as though the colony had not swarmed.

Usually, during fruit-bloom, most of the colonies need more room. A section of the brood-chamber filled with full sheets of foundation is given which is drawn out and occupied with brood and honey by the time clover opens; then the colonies are reduced to a single section of brood (Fig. 1), the section of new combs being left on the old stand. The bees from the other part of the hive are shaken; and if increase is desired, this section is placed upon a new stand and a queen-cell given that will hatch within a short time. The colony will be so reduced that, after the young queen hatches, they will destroy all other cells. (Cells in sectional hives are quickly destroyed, as they are built near the bottom-bar of the upper



Fig. 2.—Queen-cells in sectional hives are nearly always built along the bottoms of the upper combs, and are thus easily removed.

set of combs (Fig. 2). If no increase is desired I stack the brood-chambers upon weak colonies; and at the close of the white-honey season these combs are given back to those colonies that have produced comb honey over a single section of brood-combs, which gives them a full-sized hive for winter.

Sometimes in hiving a swarm in a single section of a hive the bees will come out again. To overcome this I put an empty section of the hive under the one with frames for 48 hours. At the end of this time the colony has become established, and the empty sections must be removed or the bees will build comb from the bottom-bars of the frames.

I usually give one super, and, as soon as work is well started, I give the second one. In a good flow another super will be needed about every seven days until four have been put on. If a fifth super should be needed, I remove the upper one at the time the fifth is given, placing the new super next to the brood-nest. Many times, when the third super is given, the upper one will be finished. If so, I remove it. Comb-honey supers should be removed as soon as finished, whether one or more supers are on the hive, especially if built over old brood-combs. I have known three or four days' time to soil the surface of the honey so as to make it a No. 1 grade. My aim is to have the honey sealed away from the brood-nest; and as the close of the white flow approaches I put unfinished sections on colonies that have new brood-combs.

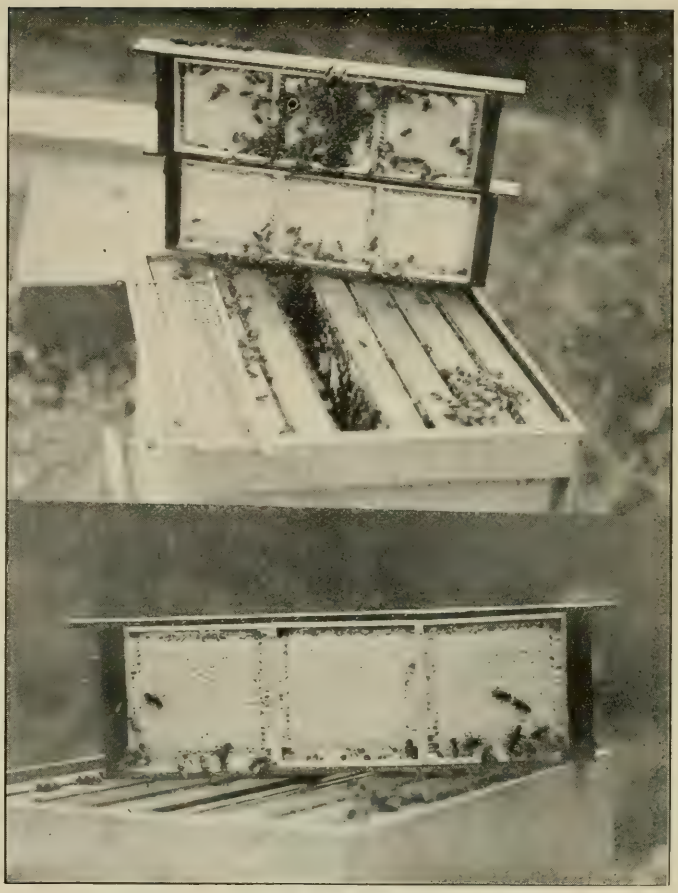


Fig. 3.—The Betsinger wire-cloth separator and brood-frame as used by S. D. House for eighteen years.

I use the Betsinger wire-cloth separator and super. This super has hanging wide frames that hold three no-beeway sections. There is a set-screw in one of the end-bars that holds the sections in place and brings the weight upon the end-bars instead of the bottom-bar, which is only $\frac{3}{16}$ inch thick. Fig. 3 shows the wire-cloth separator and wide frame. In the left end-bar is shown the set-screw. There is a bee-space between this end-bar and the section, and there are tin spacers nailed just under the top-bar on the end-bars that hold the separator away from the wide frame and sections, giving a longitudinal bee-space past the section. The lower spacer is on the separator, the binding projecting $\frac{3}{8}$ inch below the wire cloth, not folded.

I have used these separators for the past eighteen years, and consider them the best and cheapest, as they are practically indestructible, and there is an immense amount of time saved in cleaning them compared with the fence separator. Then, too, there is no travel-stain to transmit to the honey. The super has the least possible bearings, and there is little use for propolis, as there is a bee-space on all sides of the separator and wide frames. If I were to start over again, the only change I would make would be to use a separator at the outside of the wide frames, making a double bee-space there.

The super cover should be of wood. If a cloth cover is used, it comes in contact with the section or wide frame, and the bees will glue it to them. It should never be used over comb-honey supers.

If there is any one thing that I am particular about it is comb foundation and its use for surplus honey. It must be pliable when given to the bees; and if they do not draw it out within 24 hours I know that they are

not ready for it and I give no more supers until they can draw it out. There is a great difference between drawing out the walls of foundation and building new wax on them. Wax that is exposed to the light and air will soon harden, and the bees will not work the side walls over as closely as they would if the wax were more pliable; and, even though they do work it over the inside is still hard, so that, when the consumer eats it, he has good reason to complain, and he usually does. Foundation should not go into the sections until the bees are ready to draw it out. I use full sheets cut ¼ inch short of sections fastened at top only, and I do not allow it even to touch the sections anywhere else. The sections are first placed in wide frames which hold them perfectly square; and when the foundation is fastened in there is no binding to the sides; when foundation binds on one side of the section it will warp from the opposite side, this being the usual cause of brace-combs to the separator.

The temperature of the foundation should be about 90 degrees when fastened in the frames. If fastened at a low temperature it will expand and buckle when it reaches a higher temperature. In brood-frames the expansion of the foundation draws it away from the tight wire. The remedy is a slack wire or a high temperature when the wire is imbedded.

Drawn-out combs in sections carried over from the year before have done more to deter the sale of comb honey than all the manufactured-comb-honey canards ever printed. The wax, especially in the midrib, has become so hardened and tough that it is not eatable, and the consumer thinks he has the bogus article sure. If such bait sections are used they should be at the outside of the super, from which we usually get a lower grade of honey at the best. A bait section that has partially granulated should never be used, as the new honey stored in that comb will very soon granulate also.

Camillus, N. Y.

UNFAVORABLE CONDITIONS IN CALIFORNIA.

BY H. J. WARR.

The conditions in this locality are very unfavorable for a honey crop, the mortality rate averaging about 20 per cent, and in some apiaries as high as 50, with a large percentage of the remainder coming through no stronger than nuclei. The long dry summer and fall was, no doubt, the cause. Many colonies died with an abundance of honey and pollen in the hives, and in those apiaries where disease was present, but no apiarist, there is apt to be a grand spread of the same.

Early in the spring, prospects looked very favorable for a good crop, as weak as a number of the colonies were; but we had a lot of cold cloudy weather with exceptionally cold nights; and, although the strong colonies grew stronger, the weak ones barely held their own. Then we had a few warm days in which the strong colonies stored 10 to 20 pounds surplus of sage honey; but the clouds again came over, and on May 14 some portions of Southern California were blessed with what the weather man calls a "freak shower," the same amounting to over an inch in some localities; but in this neighborhood all we got was the cloudy weather followed by several days of hot dry winds from the desert, which put black sage beyond the nectar-yielding stage. Unless we have some heavy fogs or a more local rain, the chances for any surplus of white sage honey are very slim. Still, we have hopes of an extracting off wild buckwheat.

I am stating conditions in this locality.



A SAMPLE OF THE PRODUCTS OF THE FARM FROM AWAY OFF IN NEW ZEALAND. SEE OUR HOMES.

In others the prospects may be more favorable. Last year a locality within 20 miles of this one had a two-inch rain in April, while we had barely enough to lay the dust. They got several extractings while we got none. Several years previous it was just the opposite. This shows how variable conditions may be in California.

Perris, Cal., May 23.

A NEW WAY OF SCREENING ENTRANCES FOR SHIPMENT.

Preparation of Bees for Moving Long Distances.

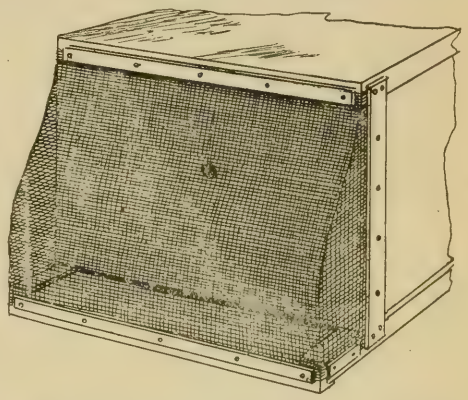
BY WESLEY FOSTER.

When one is preparing to move a carload of colonies a thousand miles it is necessary to have the bees locked up for two weeks at least. If the weather is warm, the bees will need abundant ventilation; and when one loads a car it is not as well to have a screen over the top of the hive, for the piling-up of the hives and the shaking of the train in motion will try the top screens unless some one or two inch pieces are placed over each tier of hives for the one above to rest on. The method here described will save time, protect the bees in all seasons of the year, and the hives will pack into a car much nicer than in any other way.

When the screens are used over the whole top of the hive, nailed on with lath, or fastened in a frame, the bees are exposed to the cold if there is any during the move. The heat of the cluster will pass off just about as fast as the bees can generate it. Now, we use a piece of wire cloth, two feet long and one foot wide, with a piece of lath a foot long nailed across each end as shown in the illustration. The lath at one end should be nailed to the hive-body with three or four good-sized shingle nails, the top end into the cover with two nails, and the bottom end into the bottom-board. The screen is then passed around the front end of the bottom-board and tacked down with little strips (⅛ inch thick and ½ inch wide is large enough for these). The lath strip at the other end of the screen is pulled up snug at the other side of the hive, and nailed the same as the first strip. There will be found more screen at the top than at the bottom, on account of the extension of the bottom-board; but this extra is easily folded down, some at each end, and tacked down with another of the small strips, such as are used at the bottom. Finally, two lath strips nailed at each side of the back of the hive securely fasten the cover, body, and bottom-board firmly together the same as in front.

This screened-in porch on the front of the hive takes up no more room, for it does not extend beyond the bottom-board extension in front; and if the weather is cold the bees stay inside; while if the car should be stalled for several hours in a freight-yard, where the sun beats down unmercifully at times, even in our so-called winter months, the bees come out on this porch and get air. An auger-hole ¾ inch in diameter may be bored a little above the entrance so the bees may easily come and go should the entrance become clogged with dead bees or dirt. A flat tin or wood cover works best with this arrangement, as the hives then pile up in the car as nicely as square blocks of wood. If gable or other uneven covers are used, wood strips will have to be used, on which to place the next tier above. If one has tight inner covers the outside cover may be removed, and the lath strips nailed into the inner cover the same as the regular flat tin or wood cover.

This method will work in shipping bees in less than carload lots short distances by rail. In this case the bees are generally



placed in a car that is being returned empty, and the hives are placed in one end, and braced so they will not slide around.

My uncle, Oliver Foster, has used this manner of fixing bees for shipment, with the greatest success, and I think he was the originator of the idea.

Boulder, Col.

NUCLEUS HIVES FOR QUEEN-BREEDERS.

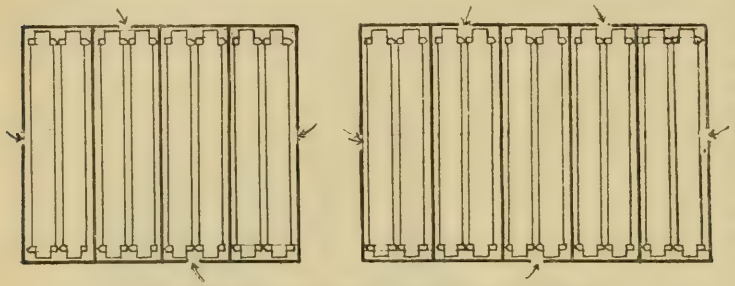
The Standard Frame Preferred.

BY D. E. BEST.

In my experience I have used a good many different-sized hives for getting my queens fertilized. Twin mating-boxes with small frames, or even good-sized nailing-cages, are all right if the queens can be taken out about as soon as they stop laying. If this is not done the bees are very likely to swarm out—I lost a good many valuable queens in this way. After a good deal of experimenting I finally decided that it did not pay me to have a smaller nucleus than two standard combs. The engraving represents my two sizes of hives, the first holding two nuclei, and the second five. The entrances are ⅜-inch holes bored near the bottom, with small pieces of tin pushed between the hive wall and the bottom-board for an alighting-board. The sides and divisions in these hives are all the same

height, so one cover does for all, and they are one or two inches higher than the top-bars of the frames, giving a space where I can cage queens. This also permits the use of heavy quilts between the tops of the frames and the cover.

Four or five nuclei together maintain a much more equal temperature than do those in separate small hives. The five-nuclei hive is a very good one, but there are two entrances on one side. This makes no difference, however, if a dividing-board 8 or 12 inches wide, and as high as the body of the hive, is fastened between the two.



D. E. BEST'S FOUR AND FIVE NUCLEI HIVES.

When I start these nuclei I go to some strong colonies, take the frames of sealed brood about ready to hatch, and the adhering bees, and place them in these hives, keeping the entrance closed for several days; then I open them toward evening and the bees always stay. I like to use the regular standard-sized frames in mating-boxes, for it is so handy to change them back and forth from the weaker to the stronger, etc., especially when some of them run short of stores. Then in the fall I can unite all of the nuclei so that every eight or ten will make a colony ready for winter.

Slatington, Pa.

SWARM CONTROL.

Securing the Full Honey Crop, Increase or Not, as Desired.

BY WILLIAM N. MILLER.

Before I tell you how I get a full crop of honey with 100 per cent increase or with none at all, I wish you would bear in mind the fact that I live in the southern part of Wisconsin, in what may be termed the White-clover Belt. I have often seen the pastures and parts of the field white with clover-blossoms, and a honey-flow that would last from the 18th of June to the 15th of July; so it is evident that the bees would be inclined to swarm if not taken care of.

I have tried many methods of swarm control and prevention—among them those of Messrs. Doolittle and Jones, but without satisfactory results. As I do not allow any of my colonies to cast a natural swarm, I find the following method most satisfactory.

Those colonies that need it are fed for stimulation in the spring; then, when the fruit-bloom comes, each is given an extracting-super (I believe a comb-honey super would fill the bill). I place the extracting-super, with combs, beneath the brood-chamber, for in this section of the country we often have a cold snap during fruit-bloom. When treated thus the bees will make no preparations to swarm until the main (clover) honey-flow is on. As soon as the honey is coming in from the clover I go to each colony that is preparing to swarm, and take it off its stand, placing an empty hive with seven frames with full sheets of foundation in place of the old hive. In the middle of the new hive I place a frame of drawn comb that has had brood in it at least one season.

If I wish to produce comb honey I next place a super on top of the new brood-chamber; for extracted honey I place an excluder on top of the new brood-chamber, and over this my extracting-super containing the frames from the old hive that have the least brood, so that I have only eight frames of brood left in the old hive. The extracting-supers given at the time of the fruit-bloom usually contain only two or three frames of brood, the rest of the combs containing honey.

I now shake the bees from all but two frames, allowing them to enter the new hive. The bees left on these two frames will care for the hatching brood. I prefer to have the queen go in with the last bees, so that she will not go into the comb-honey super with those which have entered first. The old or parent hive is set behind and a little to one side of the new hive, and left alone for seven days. At the end of that time the bees are shaken from all but two combs, and allowed to enter the new hive. If I want increase I now give the old hive a new location, and either a queen or a ripe queen-cell, and this nucleus will build up into a good colony by fall. If I do not want increase I cut out all the queen-cells, and at the end of six days I again shake all the bees in front of the new hive and use the combs with the remaining brood as I think best. Sometimes I use the brood that is left at the end of seven days to build up a weak colony.

Some may ask, "Do the shaken swarms prepare to swarm again?" About 6 per cent do; but the honey-flow is nearly over, and most of the time they "back out."

I place my second comb-honey super on top of the first; and when the bees go to work in it I put it beneath the first and next to the brood-chamber. As a result the bees draw out the sections, making them more plump and full. My object in arranging the supers thus is to avoid breaking the

cluster of bees. One might suppose the sections would become dark; but when full sheets of foundation are used in the brood-chamber it is more of a myth than a reality. The frames of drawn comb keep the queen and pollen out of the super. I have had the bees work through five supers. If any one else has tried this method I should like to know results.

Dodgeville, Wis., April 17.

FASTENING FOUNDATION IN BROOD-FRAMES.

The Melted-wax Plan Superior to the Groove-and-Wedge Top-bar; Shortened Top-bars Condemned.

BY R. C. AIKIN.

The short-top groove-and-wedge brood-frame, in many instances, is abominable; yet it is boomed as the "best ever." If one happens to have hives from two or more factories, or even from the same factory, but made at different times in its history, there is trouble because the frames drop down; or the spacing-staple is not in far enough for one hive or too far in for another. Old hives that were made just a few years ago, in which the thin edge stood up from the rabbet, and warped out, even though originally true to length, will let the modern short top-bar drop down. The full-length top-bar is more satisfactory than the short one, for with it we can use hives that were not specially made for the frame; or when, from any cause, there is a variation in the body length or in the staple-spacing, it makes no great difference.

It is, however, in the matter of the groove and wedge for fastening foundation that I must make the hardest kick. That plan is a nuisance and a useless expense. We can take those frames just as they come from the factory, and let them lie for weeks to season in this climate, then put them up, fill with starters, let them stand a week or two, and put bees on them, and then find, a few days later, that many of the wedges have fallen out and the foundation is down among the bottom-bars, so that it is almost impossible to remove a frame without tearing every thing to pieces. I find this a general complaint, and many have taken to nailing in the wedges to prevent their falling out.

To fasten foundation or starters, prepare a board with a handle, as shown in Fig. 1, made of common ⅞-inch lumber, and about ¼ inch shorter than the inside length of the frame, and about $\frac{3}{16}$ narrower than the inside width. Bevel slightly the upper edge with the sharp edge the same side of the board as the handle. The edge of the handle should be beveled slightly so it will incline downward to make a good easy hold for the ends of the four fingers of the left hand, as in Fig. 2. The nails should be driven at the proper points in the edges, so that the board will extend a little less than half way through the frame.

Fig. 2 shows the board reversed, a frame on it, and a starter laid on the board, the fingers of the left hand being under the cleat and the thumb on top, reaching well over and pressing down on the bottom-bar. A pressure with the thumb merely enough to hold or support the board and frame in position, and at an incline so that the wax from the spoon will course down the top-bar and against the foundation, holds the frame in such a way that the top-bar is kept snug to the two nails that support it on the form-board. This not only makes the foundation line to the center, but keeps the top-bar from touching the form-board, so that if any wax runs through between the foundation and bar it does not touch the board, but will drip off into a pan over which the frame is held while the wax is poured on. You see if the frame fits the board snug, and wax runs between them, it waxes the two together. This is why the form-board is made $\frac{3}{16}$ inch narrower than the frame.

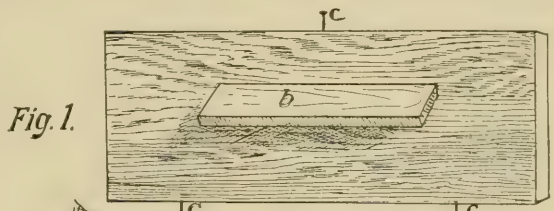
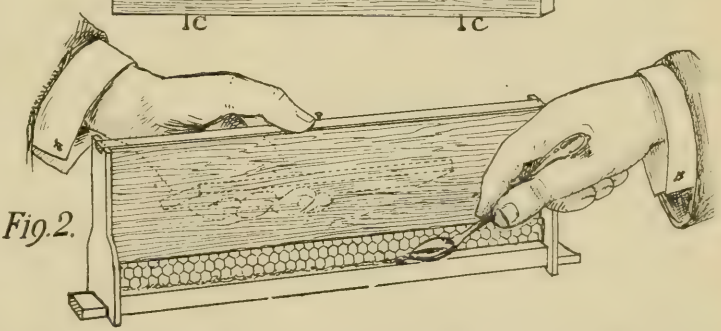


Fig. 1.


Fig. 2.

To melt the wax, one can use a little oil-stove, or even a common small burner lamp, if a frame is made to set it into having a wire or metal top so a tin can may be set above the chimney. The wax should be just hot enough to run well, but not so hot as to melt the edge of the foundation or to cool too slowly. If it is just barely liquid and the room cool it will congeal almost as fast as it touches the frame and foundation,

and as fast as one can handle the frames, so the work is done very rapidly. If these rules are followed, starters may be put in in this way faster than with groove and wedge.

Keep the form-board in the left hand; for if the melted wax is of the right temperature the work will proceed as fast as the spoon can be dropped into the wax-dish, the frame lifted off with the adhering starter, and another one put in its place. After a few times one will know just about how much to incline the frame both endwise and sidewise to make the wax run properly along the frame-top and against the foundation. On removing the frames from the form, just drop them at one side until there is quite a stack; then lay down the board from the left hand and pick up the frames one at a time, and run wax on the other side of the starter.

I will guarantee this method to be fully as rapid as the groove-and-wedge plan, and it will take not one whit more wax. It will even take less time if the wedges have to be nailed or glued in, and it is, without question, a good job when done.

It sometimes happens, especially in foulbrood localities, that it is desirable to cut out a comb and put in new starters; and the plain-surface top-bar is just as good to restart as it was the first time used.

Loveland, Colo.

EXPANSION AND CONTRACTION AS A MEANS OF SWARM CONTROL.

Small vs. Large Brood-chambers.

BY J. E. HAND.

The editorial on the control of swarming on pages 234, '5, April 15, is, in my opinion, a strong argument in favor of expansion and contraction as against large fixed brood-chambers. Just now, while many are advocating a standard hive of larger brood-chamber capacity than is afforded by the eight-frame Langstroth hive, it may be well to consider the method of expansion and contraction as outlined in the editorial mentioned. The question is no longer whether we want large brood-chambers, but whether we want large *fixed* brood-chambers like the Dadant, or smaller brood-chambers that are adapted to expansion by adding another during the breeding season, and which, by means of contraction at the beginning of the honey-flow, will force the bees into the supers, and, incidentally, control swarming. This is a subject that has been thrashed over in the bee-journals during the past quarter of a century, and yet there is still a wide diversity of opinion.

If one were to produce extracted honey exclusively, and at the same time control swarming, undoubtedly the large fixed brood-chamber would accomplish the desired results with the minimum of labor. On the other hand, if the bee-keeper wishes to produce comb honey exclusively, or in connection with extracted honey, a modification of the method of expansion and contraction outlined in the editorial mentioned will give absolute control of the swarming impulse of bees, and at the same time compel them to store practically all the honey in sections instead of in a mammoth brood-chamber that is capable of swallowing up the entire season's crop during an ordinary honey-flow. Those who advocate expansion and contraction are frequently accused of advocating a small brood-chamber. The truth of the matter is, they have a small brood-chamber when it is needed, and the largest of any when a large one is needed.

After practicing expansion and contraction with sectional hives, all things considered I have about come to the conclusion that, in the legitimate occupation of honey-production, there is little gained by contracting to a smaller capacity of brood-chamber than is afforded by the eight-frame Langstroth hive. The question then arises, "What advantage has the sectional hive over an ordinary eight-frame hive expanded during the breeding season by the addition of another eight-frame body as outlined in the editorial mentioned?"

With my present light upon the subject of handling bees instead of hives and combs, as previously outlined in this journal, I am inclined to favor the use of full-depth Langstroth frames, and will, perhaps, use the eight-frame hive, not because I consider it better than the ten-frame size, but because I can use it interchangeably with my eight-frame sectional hives. Concerning methods of contracting brood-chambers, all my previous experience along this line proves to me that the method described in your editorial can not be depended upon as a means of swarm control in comb-honey production. Contracting the brood-chamber at the beginning of the honey-flow, and thus concentrating the brood, would defeat the plans of swarm control if the bees are compelled to draw out foundation in which to store section honey; at least, that is the way it usually works in this locality.

After much experimenting along the line of expansion and contraction I have come to the conclusion that the correct way to contract a brood-chamber or to combine the working force of two colonies in one set of supers, and, incidentally, control swarming, is to separate the bees from their brood right at the beginning of the honey-flow, having previously made all colonies strong by uniting, so that every hive will be crammed full of bees. This does away with all uncertainties, and settles the swarming question during an ordinary honey-flow; it may be accomplished by the interchanging of hives, and shaking and brushing the bees from the combs of one or more hives, allowing them to run into an empty hive that is placed on the stand formerly occupied by the colony treated. This method is known as shaken swarming, and is largely practiced as a means of swarm control in out-apiaries run for comb honey. Recent inventions, how-

ever, have simplified the method of separating the bees from their brood, eliminating the labor of interchanging hives, shaking and brushing, etc.

Birmingham, O.

[We do not claim that the plan we outlined in our April 15th issue is infallible. The fact is, that any of the methods that have been described will fail *sometimes*. Your system, not tried by the general public yet, may be infallible. That is to be determined.—ED.]

EUROPEAN FOUL BROOD.

The Various Treatments for Saving the Combs; a Reply to H. H. Selwyn.

BY F. B. CAVANAGH.

I wish to answer Mr. Harley Selwyn in his experience with European foul brood, as outlined on page 254, April 15. He evidently confuses his treatment with that advocated in my article appearing in the March 1st issue, p. 130, while, as a matter of fact, I believe his treatment to be lacking in the vital elements which go to make a cure.

Mr. Selwyn makes the two common mistake of placing the diseased brood over the shaken swarm. In reality his treatment amounted to nothing more than placing a set of extracting-combs beneath the diseased hive with the queen confined below by an excluder. This is the old Demaree plan, I believe, when followed up for extracted honey. Now, if the reader will glance at the beginning of my article, March 1, p. 130, he may read the following: "Having observed the importance of Part I., or ridding the hive of diseased material, and Part II., establishing immunity in *all* colonies in the apiary, let us now consider," etc. Now, Mr. Selwyn omitted Part I. by placing the diseased material back on the shaken hive. He omitted Part II., viz., the establishment of immunity by making colonies very strong, requeening all in the yard with Italian stock. Hence I think he will agree with me on second thought that he failed entirely to include the vital principles which I believe constitute success during the honey-flow.

In the second column, p. 130, I did advocate the Demaree plan; but under the *following conditions only;* viz., strong colonies which have just been requeened with Italian stock, and which are just beginning to lay. This condition imposes a term of queenlessness just previous to the shift. Furthermore, a heavy honey-flow is specified, and the condition is mentioned that the disease has probably disappeared by this time. If under the conditions for which this treatment is permissible the disease has not yet disappeared, then the operator and I evidently can not agree on what constitutes a "strong colony," "slightly infected colony," and "heavy honey-flow."

Perhaps it will be apparent from the above why I do not recommend any thing except the McEvoy treatment for the amateur. It takes a man who is an expert, and intimately familiar with every detail of the beekeeping craft to succeed with the plans I have outlined for the professional.

I am glad to hear from Mr. Selwyn, and hope to be corrected if I have made any errors in my treatment. While I am fully satisfied that European foul brood is much easier to cure if properly treated than American, yet I feel that perhaps we are yet going a long way around to get a whack at it.

The matter of cleaning out extracting-combs after brood has all hatched hinges on the fact that bees store late-gathered honey in the center of their brood-nest. This being also their winter nest, the taste of honey they get from the combs is consumed in the beginning of winter, hence no danger is present that I have ever experienced or can see.

Hebron, Ind.

PROGRAM FOR THE NATIONAL.

E. B. TYRRELL, SEC.

Your Secretary believes that the average producer keeps his nose so close to the grindstone of production that he doesn't have time to learn the best selling system, and for that reason isn't getting all out of his product that he should. Believing this, I am anxious that the next convention go on record as the best one ever held with reference to real business methods being discussed. In addition to this selling question, there is the all-important one of new laws for the National, and this should be of interest to every member.

I want every member to read carefully the following proposed program. Think it over, and then tell me by return mail what subjects you would like cut out, and what ones added. Also be sure to tell me whom you would like to handle the different subjects. You see I am going to ask you to help me get up the program. I want to get something the members want, and I offer the one below simply as a starter.

1. President's address.
2. General Manager's report.
3. Secretary's report.
4. How can a national campaign be conducted against foul brood?
5. How to get State foul-brood laws.
6. Shall the National be one separate association, or an aggregation of smaller ones?
7. Is a national advertising campaign for selling honey practical?
8. A national campaign for developing markets and selling the honey crop.
9. The new constitution and by-laws.
10. Developing the home market.
11. A mail-order honey trade; how conducted.
12. Question-box.

Detroit, Mich.

Heads of Grain from Different Fields

Why the Bees Refused to Accept the Grafted Cells.

Dr. C. C. Miller:—Please inform me through the columns of GLEANINGS regarding cell-building. I have been trying to rear queens by the Doolittle method, but have had failures every time, as the bees would not accept the cells when I gave them the embryo cells composed of royal jelly, and three to five hours larvæ.

Nashville, Tenn. B. K.

[Dr. Miller replies:]

It is hard to answer fully why you have failed, without knowing more fully what you have done, and I can only guess. It may be that you have tried to have the bees start cells over an excluder, with a laying queen below. In such a case bees are generally ready to continue cells already started, but averse to *starting* them unless the queen be old and perhaps near being superseded.

It may be, however, that you have unqueened a colony, giving the cells at once, and the bees have promptly emptied out the cells before discovering their queenlessness. Or you may have allowed the bees to have brood of their own on which they preferred to start cells. If you use bees having enough of the swarming fever to have already begun building queen-cells, and give them cells with no queen and no other unsealed brood in the hive, you ought to succeed, especially at a time when bees are gathering in abundance.

It may not be amiss to tell you of another way that will be sure to succeed, by which you can rear just as good queens—the way I rear queens for my own use, after having reared many queens by the other plan. About the time bees think of swarming naturally, go to the hive with your best queen; take out all the frames but two, giving these to another colony to be cared for a few days. It will be better if the two frames left are well filled, with little room in them for the queen to lay. Between these two frames put two or three empty frames, each having two starters of foundation. The starters may be four or five inches from each end, about two inches wide, and coming down to a point within two or three inches of the bottom-bar. In perhaps a week you ought to find these frames partly filled with comb containing eggs and young brood. Take them away and return the brood you took away. In your prepared frames there will be a border of eggs at the outer part of the comb. Trim away all, or nearly all, these eggs. Now put this frame in the center of a colony that has already begun starting queen-cells, of course removing the queen. The bees will do the rest, preferring this new comb to their own older combs.

Marengo, Ill. C. C. MILLER.

The Annual and Biennial Yellow Sweet Clover; a Case where Spraying in Bloom has Killed Bees.

I bought 100 lbs. of yellow-sweet-clover seed in August, 1909, and supposed I was buying the biennial variety, as I had heard nothing of the one-year kind. But the next spring I was surprised to see the stuff commence blooming when not more than three inches high, and it kept it up nearly all summer; but not a bee touched it so far as I could see. Thinking this might be a freak I waited till this spring to see, and it is the same thing over. I have some of the two-year variety, the seed coming from Kentucky, which is doing finely, and bees are now working on it right along. Does the annual variety produce honey in other places?

About the spraying of fruit-trees in bloom, I will say that a number of us bee-keepers here were badly hurt by the same this year.

Roswell, N. M. R. B. SLEASE.

[In regard to the yellow sweet clover that you bought in 1909, we have reports where this annual produced honey—in fact, it yielded honey right here in Medina. We also have reports where it did not yield honey, and others where the other variety did. When we first bought this sweet clover we did not suppose there was more than one variety of yellow; but in the last year or so we have been advertising the two. The annual is a little more rapid in growth, and in this locality it reaches the height of the ordinary white sweet clover. Indeed, you will find a photograph of it in our sweet-clover pamphlet, where it is six feet high. The bees were busy on it at the time the photograph was taken.

It is possible the soil was not right, or that the climate is not suitable for the annual; and, again, another year it might yield very satisfactorily from the seed dropping down from the first year's growth. —ED.]

When Two Swarms Cluster Together, How Bees Sometimes Protect Queens from being Balled.

I have had experience like that of B. B. Fouch, of Chamberino, N. M., May 1, p. 278; and I am convinced that two or more swarms coming out at the same time will unite without friction; but when housing them, the bees of one swarm, finding a strange queen, immediately attack her. The probability is that, by observing closely, you will find either two or more balled queens, or you may find one carefully protected by her own bees.

Hatch, N. M., May 10. S. MASON.

[Our correspondent refers to the fact that bees under some conditions will sometimes form around the queen to protect her from being balled by strange bees. This is a wonderful provision of nature, and it is the provision, probably, by which, in the case of ordinary uniting, one queen will be saved and the other killed or destroyed. It seldom happens that both queens are killed unless the bees get to fighting among themselves.—ED.]

Coöperative Selling.

In the article entitled "Coöperation in Selling Honey," by J. Hedstrom, April 1, page 204, he says, "Now, a few of the larger bee-keepers get together to sell honey on a coöperative plan, but somehow they do not seem to get the reasonable price they expected. They talk the matter over, and find that there is honey on the shelf beside theirs at a lower price. A small bee-keeper had to sell his crop, as he needed the money; and as the commission man wanted to make a little something for his trouble, this small producer was forced to take less for his honey."

Now, could not the larger bee-keeper buy the honey from the small producer, at a reasonable price—that is, if the small producer had to sell his crop because of being in need of money, and cut out the commission man?

May the day come speedily when both the small and the large bee-keepers will sell on a coöperative plan!

Botkins, O. J. A. BECHER.

Hiving a Swarm in a Hive with a Laying-worker Colony.

I wish to tell your subscribers how, without any hive manipulation, I got ahead of a colony that had laying workers. They had refused to accept a queen of any kind, having gone for several months without one, when one of my boys brought in a rather large swarm of bees from the woods late one evening. As it was dark I lifted the cover of the hive and shook them in over the frames, giving them all a good smoking as they went in. On looking at them the following morning I found a few dead bees in front, but a fine large dark-colored queen inside, a little shy, but enjoying all the privileges of housekeeping. Since then they have done well.

Austin, Texas. W. W. DURHAM.

The Alexander Veil as a Swarm-catcher.

I have demonstrated the usefulness of the Alexander veil for capturing and carrying a swarm of bees, and, furthermore, keeping the swarm over night until a hive could be made ready. There is one precaution needed to succeed; and that is, to be sure that the lapping of the wire and of the cloth (both top and skirt) is bee-tight. To prepare, fold the skirt down over the wire, like turning up a coat-sleeve just enough to control the cloth. Then when the swarm has been jarred down into the veil, quickly gather the edges of the skirt into the hand, and tie securely in the center with a string, making a bow-knot if the distance to be carried is short. This all presupposes that a swarm can be reached in any practicable way. In an emergency it works like a charm.

Hoboken, N. J. C. D. C.

How Bees Sometimes Carry Eggs or Larvæ for Building Cells.

I got an Italian queen from which to rear some queens. On May 18 I went to my strongest colony to get some bees to form a nucleus, and I found the hive broodless. I took some bees to make my nuclus, and on May 20 I put a frame of brood into the queenless(?) colony; but it did not build any queen-cells on the brood. I examined the frame of brood from time to time, but no queen-cells were started.

To-day, May 29, I proceeded to find the queen, which I thought must be there. I did not find a queen nor any brood, excepting the frame I put in; but I did find a completed queen-cell all alone on another comb. How did they get the egg into that queen-cell on that comb? I put my queen in an extracting-super, and put it on this hive with a queen-excluder between, after cutting out the queen-cell and taking out the frame of brood. Do you think it safe to take out the queen-excluder?

Alma, Wis. J. J. ZIMMERMANN.

[It is evident that the so-called queenless colony must have had something for a time which it recognized as a queen. It might have had fertile workers, or it may have had a poor virgin which was subsequently lost on a mating-trip.

There is nothing strange about the cell being built on some comb other than that which contained brood. It is a fact now well established, that bees will move eggs or larvæ to queen-cups already started on other combs. It is pretty well established, also, that bees may, under stress of circumstances, steal eggs from other hives, and, with the stolen eggs, raise queens in their own hive.

It would be rather risky business to put the queen that you bought in the upper story of the hive you mention, with only perforated zinc between the two stories. We should rather feel that the bees from below, even though the cell were destroyed, would come up and kill the queen above. We should not be surprised at any thing they might do under such circumstances.—ED.]

A Swarm's Queen that Returned to the Hive from which the Swarm Issued.

I bought three colonies of bees last spring, and had my first swarm July 1. I carried the cluster to a Danzenbaker hive which was ready, and dumped the bees in front of it, close to the entrance. About half of the swarm went in within two minutes, and stayed about five minutes; then all came out. In five minutes more the swarm was back on the limb from which I had taken it. I then sawed off the limb while the bees were still on it and carried it to the hive, shaking them off in front of it as before. All but about a coffee-cupful soon entered. I then stirred these about with my finger, looking for the queen, as I wished to catch her and clip her wing.

Presently I saw her, but she escaped, and started to fly. She circled about for a few seconds, then went straight into the hive from which she had come out. In an instant the bees that had gone into the hive seemed to be greatly excited. In another minute they were all out, the whole orchard seeming to be alive with flying bees, they evidently hunting the queen. They kept it up for about five minutes, and then I noticed them entering the mother-hive, into which their queen had gone. In three minutes no bees were in sight except a few field-workers that were coming home.

Strawberry Ridge, Pa. J. SWITZER.

To Keep Down Increase.

What is the best way to keep down increase? I have 25 hives, and don't want any more, as I have no room to set them. Would this do? When a swarm comes out, hive it on the old stand in a new hive. Shake all the bees from the brood-frames of the hive that swarmed; then put these frames over excluders on weak hives until the brood is hatched, or leave them on to be extracted when filled.

Christiansburg, Va. R. E. HICKOK.

[Your plan would probably work all right provided you could be in the apiary to see when swarms issue; but if you could not, perhaps the shaken-swarm plan would be the best for you to follow. Then, after 21 days, shake the remaining bees, that have meanwhile hatched in the parent colony, before the entrance of the new hive on the old stand, being careful to exclude any virgins that may have hatched. The bees will then have been satisfied in their desire to swarm. They will have a set of new combs and new surroundings, and, ordinarily, they will work with great vigor.—ED.]

Bee-stings for Rheumatism.

Can you give me any information or refer me to any literature on the value of the bee-sting as a treatment for rheumatism?

Reading, Mass. E. E. COPELAND.

[You will find the general discussion of bee-stings and rheumatism given in the following issues of this journal: Feb. 1, 1908, p. 153; Dec. 1, 1909, p. 784; Aug. 1, 1910, page 530. See following item. Similar communications have appeared in these columns at frequent intervals for the last thirty years.

We may say in relation to this general subject that it is a question whether the bee-sting poison is of any value in the treatment of rheumatism; and yet we have talked with persons who were positive that they received marked benefit. We can not now recall to mind who these parties were, as we saw them at bee conventions.

Mr. Wm. A. Selser, 10 Vine St., Philadelphia, has had a number of rheumatic people who have come to him quite regularly to receive their doses of bee-stings. We suggest that all interested write to him for further particulars.—ED.]

Another Instance where Stings Cured Rheumatism.

A practicing physician here in Ithaca lost the entire use of his right arm from rheumatism, and was told by his fellow physicians that the trouble would be permanent. He himself was convinced of it; but when all other remedies had failed he resorted to bee-stings, and made three applications of about twenty-five stings each. The pain almost immediately subsided. At first there was no visible effect. Later, however, the arm swelled from the wrist to the shoulder; but as the rheumatic pain almost immediately subsided, the swelling seemed of but little consequence. The cure seems permanent and complete, save a slight stiffness of the finger-joints. On occasion I have supplied bees for this physician in his practice.

Ithaca, N. Y. (REV.) E. L. DRESSER.

The Amount of Honey and Wax Produced Annually in the United States.

What would be a fair estimate of the value of honey and wax produced each year in the United States? I am preparing a paper on the insects of economic importance, and this information would be appreciated.

Geneseo, N. Y. G. A. BAILEY.

[Dr. E. F. Phillips, of the Bureau of Entomology, Washington, D. C., issued a bulletin, No. 75, Part VI., in which he places the annual amount of honey, both comb and extracted, at twenty millions of dollars, and wax at two millions. We regard these estimates as fairly correct.—ED.]

Bee-martins.

I have a bird-house in the yard where thirty martins have nested. Will they be likely to eat my bees? Let me know about this.

North Manchester, Ind. T. A. PEABODY.

[Unless you are rearing queens you need have no fear that the martins will cause any serious trouble; and even then they will do no damage except, probably, to catch a queen on the wing. If martins or king-birds kill the bees you can easily determine the fact by watching them when they fly across the apiaries when the bees are in the air thickest. If the birds have formed an appetite for eating bees they will catch them on the wing. With a shotgun you can very easily stop their depredations.—ED.]

Sweet Clover Chokes Irrigating-ditches.

I note what you say on p. 193, April 1, about sweet clover. That may look all right to you Eastern fellows who have no irrigating-ditches to keep clean; but we Westerners who farm here in irrigated districts certainly have no use for sweet clover. It is one of the worst weeds that grow. On the ditches it will completely cover the banks if left alone, and soon falls down and checks the water. It grows 8 ft. tall in some places. As a feed it is absolutely worthless so far as I know, for our stock will not touch it unless starving. However, it is not hard to keep out of the fields.

Hansen, Ida., April 14. OTTO BAILY.

Our Homes

A. I. Root

Of such is the kingdom of heaven.—Matt. 19:14.

They shall beat their swords into plowshares, and their spears into pruning-hooks.—Micah 4:3.

It rejoices my heart to look over the farm papers, not only of the United States, but of the whole wide world. As a rule they are pure and clean, every one of them, thank God. Not a farm paper of any standing, and, in fact, I do not know now that there is one of *any* kind, defends the liquor business or contains any thing that is unfit for the family circle. There are so many of them now among our exchanges that about all I can do is to look at the pictures; and when my time is not too limited I sometimes turn to the poultry departments, gardening, etc.

Of late there has been quite a fashion to have some nice pictures of rural scenes on the front cover of most of the farm papers. There was a spell when it seemed to be all the fashion to have a nice-looking country girl; and once I began to think they were going too far in that direction—that is, making too much of "handsome is" instead of "handsome does." Where this farmer's daughter was out feeding the chickens, without turning to the camera, it somehow looked a little better. Perhaps I had better be a little more definite. I was afraid the demand for *good-looking* girls might induce our girls to get on a strife and spend too much time in primping and fixing themselves up, instead of helping their mothers, feeding the chickens, etc., and in this way *discourage* some of the very best girls in the whole wide world who did not happen to be as attractive at first sight. Well, lately there has been a new departure in regard to the pictures in the farm papers; and one of the very best that ever came under my eye I have copied from the New Zealand *Farmer* for April, 1911. Turn over to page 370 and see if you do not agree with me. May the Lord be praised for that picture. Who is there among us that can resist this mute appeal for help and protection, especially the latter? Who is there among us who will not volunteer to give the last drop of blood in his veins to protect these "little ones" from the damning influences of saloons, gambling-houses, and houses of prostitution? "For of such is the kingdom of heaven."

Somebody suggests that this is a fake picture—that the baby was not really sitting on a squash or pumpkin when the picture was taken; but I am sure it is honest and genuine, and that New Zealand can be congratulated on having produced a wonderful squash or pumpkin as well as on having given the world this bright healthy baby, so ready to take in every thing that this teeming world has to offer.

I presume that most of our readers whose eyes rest on these pages are either fathers or mothers; and those who are not, I hope may, in God's providence, become fathers and mothers in his own due time.

Now, friends, what are we living for? Why did God see fit to give you and me a human life to live? Was it that in due time we might grow up and grow squashes that will win prizes? Yes, even growing squashes is praiseworthy; but, oh dear me! what are *squashes* compared with the responsibility of giving life to little ones like the baby in our picture? Even Jesus, our Lord and Master, said, when he looked on them, "Of such is the kingdom of heaven." The sacred duty is laid on our shoulders to "be fruitful, and multiply, and replenish the earth." It is one thing, and a commendable one, to give the world another bright healthy baby; but a far more serious and sacred responsibility is to give that baby the *best kind* of environment.

I have just received from the express office three blackberry-plants that cost me a dollar apiece. A bee-keeper who has no interest in the matter says these blackberries will cover a trellis like a grapevine. In fact, a single vine has been known to grow forty feet in one season, and has borne more than two bushels of berries. I will tell you more about it later on. You may be sure I gave those three precious plants the very best ground on the premises. I am watering them just right, and am shading them from the excessive heat of the sun, and I not only go around night and morning, but several times during the day, to see if they are starting to grow. I am giving them the very best "environment" I know how. The ground is cultivated and mellowed up around them almost down to their roots, for I am exceedingly anxious they should do something in our clay soil here in Ohio as they have been doing in sandy New Jersey. Now, it is a commendable thing to give a new plant or a new fruit the most careful and guarded environment; but, O my dear sister or brother! how much more important is it to give the little ones of the household this same constant, kind, loving care! The mothers are doing this already, and will continue to do it without very much encouragement; and the fathers are doing pretty well—I think a little better than they have been doing in times past. We are all of us getting to be more and more awakened to the importance of giving these babies good pure milk, and letting them have plenty of air and sunshine; notwithstanding, however, the papers have been reporting, during the recent hot spell, too big a death-rate among the babies. Now, milk for their bodies is important—very much more so than making a hobby of a new blackberry. But there are things more important than the milk and ice, or even the air the babies are obliged to breathe. We do not know whether the baby in the pic-

ture is a boy or a girl; but suppose near his home is a beer-shop, and that, sooner or later, some fiend in human form should, for the sake of a few dirty nickels, coax that boy or girl to take a drink, and finally acquire a taste for intoxicating liquor.

Right at the very entrance to the gateway to Yellowstone National Park is a little town. I have forgotten its name. But the ticket agent at that place, when he saw my name on my baggage, scraped up acquaintance, and finally volunteered the information that the whole town—men, women, and children—were going crazy over drinking beer. He said the fathers and mothers both drank beer, the children all drank beer, and the *babies* were taught to like beer before they could talk or walk; and yet Uncle Sam has set apart a great extent of territory, and employed soldiers to watch over it and protect the wild animals and look after the beauty of the landscape, to the extent of arresting any camper who might throw an empty tin can on the ground instead of digging a hole and burying it. Uncle Sam has done all this, and I rejoice that he has recognized the fitness of things enough to preserve the natural beauty and attractiveness of this wonderful region; but right at the very entrance of that park are these hell-breeding saloons, and nothing is done by the government to prevent the *babies* getting a taste for liquor. This state of affairs may not prevail there just now. I sincerely hope a reform has come about; but at the time of my visit, as you may remember, drinks were sold all over the park; and one of our party, a rich banker, was too drunk most of the time to keep still. He even went off fishing on one of those beautiful lakes, and not only tried to get every one on the boat to take a drink from some of his various bottles, but he became so drunk himself that he had to be carried back to the hotel. One nice bright-looking chap, who had evidently been considering me a sort of prohibition crank, came over to my side and said he had had enough of loaded bankers who paraded their money and their expensive liquors at one and the same time. Let me digress a little right here.

Next Sunday, May 28, is to be "peace" Sunday. Sermons on universal peace are to be preached all over the world; and the Sunday-schools are to have the second one of my texts for their golden text. The people of the whole wide world are to send up petitions to God and to their rulers, among all the nations of the earth, to resort to arbitration instead of *war* for settling their mutual differences. I have before mentioned the fact that the almost countless millions that the world is spending for ships of war and standing armies is worse than wasted. Let me make a little extract from the *Sunday School Times:*

For foreign missions Christians spend about $22,000,000; for war, Germany alone spends $160,000,000. Lloyd George, British Chancellor of the Exchequer, reports that the various countries of the world spend annually $2,250,000,000 for war—an increase of $1,000,000,000 in twenty years, exclusive of pensions.

Now let me digress still again:

Some years ago there was a poor woman living a little out of our town who had a small piece of land. She made her living by growing garden stuff and carrying it on foot to the hotels. I think almost my first acquaintance with her was in stopping to admire some beautiful cucumbers and other garden stuff that she had succeeded in growing in advance of her neighbors. Mrs. Root and I soon became pretty well acquainted with her. One day she came to town on foot—a distance of about a mile and a half—with a little money she had saved up to pay the tax on her little place. There had been an advance in taxation that she did not know about. I think she had saved for taxes about ten dollars; and she had figured that, after paying the taxes, there would be money enough left to buy some sheets for bedding, of which she stood very much in need; but on her way home she stopped at our house and told Mrs. Root her troubles. The taxes took almost every cent of her little hoard, and she was forced to go home without the sheeting. She felt so bad about it that she cried; and she told Mrs. Root how hard she had worked to support herself and pay the taxes. Mrs. Root felt so sorry for her that she made her a present of some sheeting she had in the house. One reason *why* she was so anxious about the sheets was, the ones she had long been using were getting to be so old and shabby that she feared to have anybody see them in case she might be sick. Poor as she was, she had a commendable pride in having things "decent and in order" when old age or sickness should make it impossible for her any longer to keep up the garden and carry the produce to town. Now, there are thousands of poor hard-working people, even to-day, like this woman, who find it quite a burden to pay their taxes. Well, then, where does this money, the hard earnings of our hard-working people, go to? What becomes of it? I am sorry to say I feel sad to think that a large proportion of it (I do not know just how much) goes to build great war-ships and keep up a standing army. Another part goes into the hands of greedy grafters who are sent to the different capitals of our States to look after and protect (!) the money that is collected by taxation. *Some* of the money, thank God, goes to establish sanitary measures for protecting the babies like the one in the picture; but our own government is in partnership—at least if I have made no mistake—with the liquor business, and *protects* the traffic that furnishes beer to the innocent babies. This same government is making quite a stir, as I have mentioned in another column, about selling rotten eggs to the bakers to make cake for the children; and this traffic certainly ought to be stopped, without question; but what is an unwholesome cake for the children, when compared with beer, that blasts their young lives and sends them down to the ignominy of a drunkard's grave? May God be praised, however, that a better time is coming.

These same working people are fast realizing the fact that the laws of our land permit *us* to decide who shall fill our public offices. In some States (thank God again), even the poor hard-working women, such as I have described, can have a voice in deciding whether saloons shall be permitted to go on, and trip up their children or not; and I shall rejoice and praise God when our own State of Ohio will permit our wives and mothers, and women such as I have described, to have a voice in deciding who shall handle our public funds and enact our laws. And, finally, I believe there *is* just now a *world-wide* tendency to "beat our swords into plowshares, and our spears into pruning-hooks," and declare that war, carnage, and bloodshed shall be no more resorted to, to settle differences between nations. Our own President, if I am rightly informed, is using the great weight of his influence to settle peaceably all misunderstandings, and especially troubles between nations, by the agency of *world-wide arbitration* instead of *war*.

OUR "CROP" OF BOYS AND GIRLS.

In a recent issue I spoke of the state of affairs in Newark, O., and the effects on the school boys and girls of that city. Then, by way of contrast, I spoke of what our government is doing to educate our boys and to give them a taste for rural pursuits, especially in the line of growing corn. Well, while keeping the above in your mind I want to call your attention to a recent statement going through the papers, to the effect that Adolph Busch, the man who gave his wife a crown valued at $200,000, has been recently going through Kansas (prohibition Kansas, bear in mind), and carrying a supply of his famous (or infamous) beer, and giving it out free of charge to all the boys and girls he could call together at every station where his car stopped. I have tried to find the periodical that published this information, but I did not succeed in getting hold of it. But this periodical seemed to carry the idea that there was no help nor redress through law for this kind of work. This multi-millionaire brewer could go ahead in "cultivating the appetite" among the boys and men at every little town in Kansas if he chose to do so, and no United States law nor any State law of Kansas could prevent his doing so. Rotten eggs, as I have told you in another place, have been tabooed *by law* because they might injure the health of the American people. But Adolph Busch's beer, that *damns both body and soul*, can be given out freely to children of any age, and we are helpless just because it seems to be an "unwritten law" that our President, our governors—at least the greater part of them—and our mayors and policemen must "keep hands off" (at least to a certain extent), whenever the liquor-traffic is likely to be interfered with. The time is coming when our people will be permitted to put good men in office by *direct legislation*, and may God hasten the day.

POULTRY DEPARTMENT

A. I. Root.

EGG TONIC FOR POULTRY, AND DRUGS FOR CHICKENS GENERALLY; ALSO SOME OTHER MATTERS.

Mr. A. I. Root:—I had intended to write you some time ago, advising you to keep your chickens pure. We have experimented quite a little along this line, and find that, all in all, the pure-bred do much better than the crosses. Again, in your March poultry talks you refer to the Conkey remedies. Now, you have a big influence, and I wish you would retract that statement concerning feeding for eggs. I admit that all of these so-called egg-foods are readily eaten by the hens, and will increase the egg-yield. But stop feeding these prepared foods, and your chickens will lay less than they did before. Again, for the best results you must feed it to the young or growing stock. It seems to me that it acts something like the nature of a drug, which, if once used to it, one must continue its use or results will not be satisfactory. We tried this four years ago, and the next year we did not use any kind of egg-forcing food; but the results were far from satisfactory. So we decided to stop its use *entirely*. Some time ago we sent in a record to a poultry-journal of eggs found from ten pullets before 7½ months old, by one of our patrons. On referring to the record the editors said the most remarkable part of it was that the party didn't use any kind of stimulants or egg-food preparations. Said editor is in a company manufacturing and selling such an article. At present we are getting 5, 6, 7, and 8 eggs per pen of 9 females, and no stock food of any kind is used. Wheat, corn, oats, mangles, a little buckwheat and sunflower seed, and a wet mash with a little beef scrap once a week is fed. This, with bred-to-lay hens housed in curtain-front houses, and good care, does it.

Excuse my referring to ourselves in this letter, but it was the only way to tell of my experience with this stuff. If I am not mistaken, Mr. Philo and others also claim that, if good care and feed are given, no condition or egg-food of any kind is needed. While it may not do much harm with hens for market eggs, I urge you to do all against its use in the breeding-pens. Even in the former case I am confident that, with common-sense care, they will do every bit as well without.

I am glad you still use and recommend the fireless brooder. Many people seem to make a failure with it. At present we have 300 chicks in them, and will have a few hundred more in a few days.

Lititz, Pa., April 27. A. B. SNAVELY.

Friend S., we are exceedingly glad to get a report from practical experience; and I thoroughly indorse the stand you take in regard to medicines, especially stimulants for poultry or any other farm stock. Perhaps I had better explain to our readers that, in response to what I considered an extravagant claim for egg-foods, I sent for a 25-cent package, and the surprise on my part was to see the chickens, big and little, so crazy for it. It was so pungent with Cayenne pepper or something else that I could not mix up a mash without coughing or sneezing. It was sold with the usual understanding—"money back if it does not increase the egg-yield." As the egg-yield seemed to increase immediately, I ascribed it to the virtues of the tonic. But I feel pretty well satisfied now that the increase was largely due to the mixture of bran and

shorts to be used with the egg-tonic. Before the 25-cent package was used up I ordered a 25-lb. pailful from the Crenshaw Brothers, of Tampa, Fla. As they had only the 25-cent Conkey tonic, they sent me a pail of Manda Lee's egg-tonic or egg-food. This was sold with the same guarantee—"money back," etc. Now, Manda Lee claims his tonic is composed largely of dried blood, and I have every reason to think it is true. He says that, given according to the directions, it will take the place of beef scrap, ground bones, etc. Now, I am greatly in favor, especially here in the North, of bones and scrap from the butcher's, to be ground up; but in Florida the greater part of the scraps for chickens smells badly; and even if it is given to the fowls as speedily as possible after being ground, I very much dislike to use it. Of course, you can purchase beef scrap; but the poultry-journals are now all cautioning against moldy or musty beef scrap. A year ago a very successful young poultry-keeper in our town all at once had trouble from his chickens dying. I went down to his place, and saw little white Leghorns, fully feathered out, scattered all about dead in his lot and yards. He let them loose in the fields, but it did not make much difference. At the time, no one could even suggest what the trouble was. This spring he informed me it was probably caused by the poor quality of *beef scrap* he had used. When he stopped feeding the beef scrap, there were no more dead chickens. Now, if dried blood is a safe substitute for animal food I think it may be a pretty good thing; but even if all our good friend Snavely tells us is true, are there not circumstances where it is advisable to use an egg-stimulant?

Just before I left Florida I had an offer of 15 cents a pound for all my old hens. Now, if you decide to dispose of a lot of laying hens, to be sold to the butcher, is there any objection to giving them a tonic so as to get as many eggs as possible before they go to the market?

I suppose the readers of GLEANINGS know how heartily I am in accord with every movement to discourage the use of drugs, and, I might almost say, medicine of any sort, either for mankind or domestic animals. Right in this connection I take great pleasure in submitting to your attention a 1911 bulletin from the North Carolina Department of Agriculture, entitled "Condimental Feeds, Stock and Poultry Tonics, and Conditioners." This bulletin gives us the result of a large list of experiments with all kinds of farm stock, including chickens, and they make two very important points. The first is that, even granting that these medicines are a *benefit* to domestic animals, the prices charged for such drugs are extravagant and even outrageous. You may remember what I said about paying 50 cents for a little box of salve that should not have cost over a nickel. Secondly, after careful experiments with almost every tonic and condition powder on the market they decided that the gain or improvement is so slight that the small quantity of medicine given can hardly have had any thing to do with the improvement. As I said at the outset, the mash in which the medicine is placed would of itself be a benefit to the stock. This North Carolina experiment station has gone to the expense of analyzing almost every medicine in the market. They give a list of the drugs generally used. For instance, if they are right about it, Conkey's egg-tonic, of which we have been speaking, is composed mainly of dried blood and linseed meal, and the drugs added are fenugreek, charcoal, glauber salts, and sulphur. Now, there is something in the above that puzzles me. There is no mention of Cayenne pepper, mustard, nor any of these pungent substances. Fenugreek I do not know much about; but I hardly think that this is what made me sneeze when feeding it to my chickens. Is it possible that they have made a mistake in their analysis?

There are several sides to this question. In some reports I saw recently, two lots of fowls were fed just alike, with the exception that one had plenty of strong pungent mustard put in their mash. They gave the poultry all they seemed to want. Well, this pen that had the mash not only made a much larger output of eggs, but the eggs were more *strongly fertile* than the other. We all know that poultry have a great liking for mustard, pepper, and all such pungent vegetables. Down in Florida they have two varieties of mustard, used especially for greens—the Chinese and the Florida mustard. These mustards put out great leaves as big as rhubarb, or even bigger, and it grows as high as one's head. I sowed some seed; but when even the little chicks got a taste of that mustard they *would* get through the poultry-netting, and I hardly succeeded in getting a plant to grow to maturity. Pepper-grass, young peppers, and every thing along that line, seem to be eagerly appropriated by the chickens, little and big, and I am sure it is good for them.

Before I close, let me mention that this bulletin I have mentioned advises farmers and everybody else to go to their druggist and get whatever medicine is wanted—that is, if they are *sure* they need it, instead of paying ten times or sometimes almost a *hundred* times the real value of the stuff for the much-lauded stock-foods. I have for some time been strongly impressed that the condition powders so vehemently advertised are but little short of a swindle because of the efforts the venders make in giving premiums, etc., to get people to try them. Please keep in mind that you may be swindled, even if you are promised "your money back if not satisfied." When you get the wonderful new thing you straightway give more careful attention to your cattle, sheep, hogs, and poultry, and, as a natural consequence, they show improvement. In the opening letter, brother Snavely suggests that these things are stimulants, something like tea, coffee, tobacco, and strong drink.

When you once get into the habit of using them you will, as a matter of course, suffer when you try to let them alone; and I for one declare against any article of food or drink that I can not cut off at once without suffering.

INDIAN RUNNER DUCKS, BY A MAN WHO HAS KEPT THEM FOR TWELVE YEARS.

We have had Indian Runner ducks twelve years or longer, and think we have learned some of their habits and good qualities. They are great layers, and we have had some that laid every month in the year; but they will not always do this, and I think some breeders mislead their patrons by claiming too much for their favorite breed. The simple truth is good enough.

As to eating qualities, they compare very favorably with other ducks, but are smaller when grown, but mature earlier. We have had ducks lay when five months old, but not always; and while we have raised hundreds of Indian Runner ducks we have had but two to sit and hatch, and about six that wanted to sit. They are non-sitters, but will *sometimes* break the rule. We have never had old ducks or drakes that showed any inclination to abuse or kill ducklings, and we never try to keep them separate. We keep ducklings from going into the water till they are feathered. They are more sensitive to a cold rain than little chicks. In a very warm climate it might be different. It is not possible to distinguish sex till they are several months old. The young ducks have a coarse "quack" when handled, while the drakes have a mellow liquid voice. The curled feathers above the drake's tail come later. We keep our old ducks in the "corral" at night, and till 9 or 10 A.M., to get their eggs, as they lay in the morning; and if they are out in the fields the crows get their eggs. They are great foragers, and a pond is better for them than a stream or river, as then they are not so likely to stray away. Your experience as to their being easy to raise, especially in sunny Florida, agrees with ours (out here in sunny Kansas). We usually set 15 eggs under a Barred Rock hen, and they hatch well. Thirteen is enough under a small hen in cold weather. The beaks of ducklings are yellow, but turn to a dark green when they get older; a few, however, may retain the yellow color.

The most amusing use I ever made of my ducks was to catch grasshoppers — not the Kansas grasshoppers you read about, but the same as you have in Ohio. Our alfalfa sown in late summer is frequently injured around the borders of the field by the hoppers coming from other crops and eating the young alfalfa. I just took the ducks out in the morning as you would a flock of sheep, and started them at one corner, and herded them around the field. After the first few mornings it was an easy job, and it was fun to see them catch the pests. They saved the alfalfa.

Meriden, Kan. O. C. SECHRIST.

Many thanks, friend S. From the above it would really appear that it is quite unusual for an Indian Runner duck to waste any time in sitting. I believe this is a big point where they are kept for eggs alone. The sitting can be easily managed with our large breeds of sitting hens or with an incubator. In regard to testing the sex, I suppose we shall have to give it up until they are pretty well grown.

In regard to belligerent males, it would seem as if my strain was peculiar in that respect; or perhaps they happened to learn the trick by chasing the chickens. When I left Florida my two drakes and two ducks were turned over to neighbor Abbott, as you may remember. Here is what he has to say in regard to them:

Mr. A. I. Root:—I shipped the drake as you directed. I sent the one with the dark head. He was ½ lb. the heaviest; but do you know I was glad to get rid of him? I think they are the "king of fowls" the same as the lion is the "king of beasts." They chewed off the head of a 2-lb. chick one day. I began to wonder if they might not both take it into their heads to take *me* down some day when they got pretty hungry for meat. We have 14 little fellows from the eggs I got of you. I weighed one tonight—9 oz., *two weeks old.* Things are all moving along in the same old groove, except that we are now getting nice rains every day.

The ducks have laid 45 eggs. They have *been* having a rest, but are now starting again.

Bradentown, Fla., May 19. D. W. ABBOTT.

The above indicates that ducks and chickens should be in separate yards unless they have a very broad range, say an ordinary farm; and while it is a little unfortunate to have a drake that will kill chickens, is it not true that the most valuable males among all our domestic animals are the ones that are at times ferocious? Please notice the above report of a duckling weighing 9 ounces (a little over half a pound) when just two weeks old. Is there any thing in the whole round of domestic fowls that will equal the above? As this is an interesting matter I give here a clipping from the *Farm News.*

Some years ago, A. J. Hallock, of Long Island, one of the most extensive duck-growers in the country, kept a record of the growth in weight of ducklings from shell to market. He found the following averages: Half out the shell, 2¾ oz.; all out the shell, 2¼ oz.; one week old, 3 oz.; two weeks old, 5½ oz.; three weeks old, 7½ oz.; four weeks old, 1 lb. 3 oz.; five weeks old, 2 lbs. 6 oz.; six weeks old, 3 lbs. 12 oz.; seven weeks old, 4 lbs. 12 oz.; eight weeks old, 6 lbs. 2 oz.; nine weeks old, 7 lbs. 4 oz.; ten weeks old, 8 lbs.; eleven weeks old, 9 lbs. 3 oz.

Please notice in the above clipping that the 1 lb. 3 oz., at the age of three weeks, was exactly doubled in a week more. Possibly the above is a misprint. I do know this, however, that I once had an Indian Runner duckling, when he was very small (weighing only a few ounces), that actually *trebled* his weight in just seven days. Where every thing is favorable, and the ducks are strong and healthy, their growth certainly is at times almost incredible.

One thing more: My two ducks were carried over to neighbor Abbott's, just after one of them had made the hundred-egg feat in 100 days. Well, after being moved two miles, and put in a yard, in just 30 days more the two ducks had laid 45 eggs. We will try to keep tab and see how long this wonderful egg-laying will continue.

As you may like to know how the belligerent drake stood his long trip from Bradentown to West Palm Beach, Fla., I append a report from his owner.

Mr. A. I. Root:—The drake came to hand all right, and he is a fine bird. Thanks for him.

West Palm Beach, Fla., May 17. J. N. PARKER.

"MARCHING ON."

The St. Louis (twice a week) *Republic* comes out with a proclamation, in big type right under the heading, clear across the page, as follows:

NO WHISKEY ADVERTISING WILL BE PRINTED IN THIS PAPER AFTER THIS ISSUE.

May God be praised, not only for this but that many other great periodicals, one after another, are coming out of darkness and into the light of an awakened conscience where *principle* counts more than ("dirty") *dollars.*

Gleanings in Bee Culture

Published by The A. I. Root Company, Medina, Ohio

H. H. Root, Assistant Editor | E. R. Root, Editor | A. L. Boyden, Advertising Manager
A. I. Root, Editor Home Department | J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX | JULY 1, 1911 | NO. 13

Editorial

BEE-KEEPERS STARTING IN A NEW BEE COUNTRY.

We desire to call special attention to the article by O. B. Metcalfe, on page 407, and the footnote accompanying it.

HOW AN AUTOMOBILE FACILITATES THE WORK OF A BEE-INSPECTOR.

During the last few days we have been helping the foul-brood inspectors of Ohio by taking them around in an automobile. A machine will enable the inspectors to do almost a week's work in a day, for the reason that comparatively little time is lost in running from one bee-keeper's yard to another one.

DO QUEENS LAY UNFERTILE EGGS?

In Mr. Wesley Foster's department, page 388, this issue, he raises the question whether there are not some queens that will lay a large number of eggs, a large percentage of which will prove to be unfertile. We have, ourselves, often wondered if this might not be true. Over and over again we have seen queens lay well, but for some reason or other there would be very little maturing brood. We should be glad to get the experience of our readers; because if it is a fact that some queens lay unfertile eggs, the sooner we pinch their heads the better.

WHY DON'T BEES GO INTO SUPERS?

Very often subscribers will ask the question above. Examination will often show brood-nests clogged with brood and honey, and nothing doing in the supers. In a case like this, nothing stimulates an upward move into the sections like uncapping the honey in the brood-nest and putting into the super a partly filled and drawn-out section or two from a super of another hive, where the bees are already nicely at work. Italians especially are a little inclined to jam the brood-nest. If we can *once* get them *started* above they will keep on going above and store there.

RECIPROCITY.

We have refrained from saying any thing or allowing any discussion on this subject in our columns, for whatever the bee-journals can say will have but little or no effect on the general situation. If the trade pact goes through, we are not afraid that it will affect the bee-keeping interests, for the reason that prices have for years maintained almost an absolutely even parity on each side of the line. It is our individual opinion that reciprocity will be a great benefit to both countries.

We see no need of having a general discussion of this subject in these columns, either pro or con; for, unfortunately, when a political question once gets started it is almost impossible to stop it.

THE CRUSADE FOR BETTER SHIPPING-CASES RECEIVING ENCOURAGEMENT.

Since the article on page 361 of our last issue was printed, urging better shipping-cases, we have received a good many encouraging letters; and not only are the bee-keepers of the country going to join us in this crusade, but one or two of the large manufacturers of bee-keepers' supplies have written us that they are convinced that the time has arrived for putting out stronger cases, and that they are making preparations to furnish such cases to their customers.

Keep the ball rolling, brother bee-keepers. If we would save the comb-honey business from going into a premature decline we must wake up to the importance of delivering our fragile product to the public by saner methods.

"ARCADIA HAS TO MOVE."

Our readers will remember that Dr. E. F. Bigelow, the nature-study man, and lecturer at teachers' institutes, established at Sound Beach, Ct., what is known as the Agassiz Association, of which he is president. The home of the Agassiz Association, consisting of several frame buildings, is located at Arcadia, not far from the postoffice of Sound Beach. The owner of the grounds allowed the association to use the property; but new conditions have arisen, on account of which Dr. Bigelow will have to move. He has spent a considerable amount of time in organizing the association, in putting up special buildings, and for all this he has received no compensation. He has been content to work for the good of the cause. Dr.

Bigelow is an enthusiastic bee-keeper, and the study of the bee was an important department in his scientific work. We are sorry this change has to be made, and hope some arrangement can yet be effected by which the work can be allowed to go on.

A GOOD TIME IN STORE FOR THOSE WHO ATTEND THE NATIONAL CONVENTION THIS FALL.

We have just learned that those bee-keepers who intend to attend the National Bee-keepers' Convention to be held at the Court House Hall, Minneapolis, Aug. 30, 31, and who desire to learn something concerning the city to which they are going, may get a folder describing the hotel accommodations, indoor amusements, outdoor attractions, and also giving a map of the Business District of Minneapolis, by writing to C. A. Palmer, secretary of the Minnesota Bee-keepers' Association, 1024 Mississippi St., St. Paul, or to the secretary of the Commercial Club of Minneapolis. These folders will also be given away at the hall during the convention.

The Commercial Club of the city expects to provide special cars for every one attending the convention to see all points of interest around the city, free of charge. We are sure that this royal entertainment will be appreciated by all bee-keepers who attend the meeting.

THE FOLLY OF USING SMOKE AT THE ENTRANCE WHEN A HONEY-FLOW IS ON; MORE VEILS AND GLOVES, AND LESS SMOKE.

On page 388 of this issue our correspondent from among the Rockies, Mr. Wesley Foster, makes a good point when he condemns the use of smoke at the entrance of the hive during the honey-flow. We never intended to advocate it at such a time; but during bad weather, say just after a rain, or when it is chilly, a whiff or two at the entrance, and then over the top of the frames, make it much more comfortable to handle the colony. When the bees are flying heavily at the entrance, and bringing in nectar, there is, of course, no need of using smoke at the entrance. A large proportion of the bees are then in the field, and a little smoke applied over the tops of the frames is sufficient.

In this connection Mr. Foster, after looking at the series of moving pictures showing Mr. Townsend at work among his bees, concludes that our Michigan correspondent does not use a veil. Mr. Foster very properly moralizes on this by saying, better use more veil and gloves, and less smoke. This is sound advice, and of course Mr. Townsend would concur in it. While the pictures show him without a veil, as a matter of fact he always uses face protection; but in deference to the request of the editor, who was taking snap-shots of him for the moving-picture series, he removed his veil. The personality of the bee-keeper is always an important factor. With a veil on, that personality is more or less obscured, and for that reason we asked our correspondent to take his veil off while we were "shooting" at him.

FROM THE GROCERY TO THE MARKET-BASKET; "MAD ALL OVER."

Referring to the article on page 361 of our last issue, where we urged the importance of stronger and better shipping-cases, we failed to put special emphasis on the need of protecting the sections when they go into the market-basket of the housewife. If a cheap carton served no other purpose than to protect the delicate combs while *en route* from the grocery to the home of the consumer, it would well fulfill its mission. But, fortunately, those same cartons as illustrated on page 362 of our last issue protect the combs while in the hands of the railroad companies, stiffen the case, absorb the vertical pressures, and insure better delivery at the end of the route. But the chief value of such cartons lies in the fact that the combs are protected when thrown into the market-basket with a lot of other packages of groceries having square corners that are almost sure to punch into the unprotected comb. If there is any thing that makes the good housewife "mad all over" it is to have her groceries daubed, and we couldn't well blame her if she never bought another ounce of comb honey.

THE NEW ILLINOIS FOUL-BROOD LAW WITH TEETH IN IT; OHIO'S APPROPRIATION FOR FOUL BROOD.

Some years ago Illinois had a foul-brood law, but it had one serious defect; viz., that the inspector had no power to compel a person having diseased bees to administer treatment. For a number of years the Illinois State Bee-keepers' Association, backed by the great mass of the bee-keepers of Illinois, have been trying to get a new law, correcting the defect in the old statute; but just about the time that they would begin to make progress, one or two persons styling themselves bee-keepers would put in the claim that there was no need of the law, and that the only people who wanted it were the manufacturers of and dealers in bee-keepers' supplies, particularly the makers of foundation. It looked as if these "insurgents" would be successful again this year in defeating the will of the great majority. But we are informed by the secretary of the Illinois State Bee-keepers' Association that the bill that was passed on the 19th of last May was signed by the Governor on the 5th of June. This law took effect July 1, and hence is now in operation.

The new measure has teeth in it; and while usually it is not necessary to use the power of a great State to enforce the provisions of a law, undoubtedly the foul-brood inspectors of Illinois will now have a chance to make some people come to time.

In the mean time, Ohio has secured an appropriation of $2000. When our law was

passed, a year ago, there were no funds available for direct apiary-inspection work. The Ohio inspectors are now out in the field, and are doing good work. But don't be impatient if they do not call in your locality at once. They may not come any way unless a request is made. Write to Chief Foul-brood Inspector N. E. Shaw, Department of Agriculture, Columbus, Ohio.

BEE-KEEPING BY TWENTIETH-CENTURY METHODS; OR, J. E. HAND'S METHOD OF CONTROLLING SWARMS.

MR. HAND'S new fifty-cent book has just come from the GLEANINGS press. While it was written specifically to describe the J. E. Hand method of controlling swarms by means of his new patented switch-lever bottom-board, the book contains a great deal of other valuable matter. The author shows not only how to control swarming, but how to treat foul brood without shaking. This he accomplishes by shifting the flight of bees from an infected hive into a clean new one with frames of foundation. All the brood can be saved, and every bee. There is no shaking nor brushing; no interruption, no stings, and no confusion; and, after the bees are all shifted and the brood hatched, the combs can be melted up.

Mr. Hand has been for many years a successful bee-keeper; in fact, he is one of the very few surviving pioneers of the olden days, and yet he belongs to the new generation that is ever seeking the new and the useful.

In order to get this book introduced we will offer it to new subscribers, or for renewals accompanied by $1.00, providing the same is received before the subscription expires; that is to say, we will furnish GLEANINGS one year and the new book, "Twentieth-century Methods," both for $1.00. In case one has allowed his journal to get in arrears he may take advantage of this offer by sending $1.00, plus enough more money to cover the extra time for which the journal has run.

As we have published only a limited edition, those who desire to take advantage of this offer should do so at once.

The following is a list of subjects discussed by Mr. Hand:

Higher Prices for Honey vs. Economical Methods of Production — a Common-sense View of the Matter.
Swarming.
The Equipment.
The Dual-hive System; or, the Perfect Control of Bees.
Increasing Colonies.
Swarm Prevention by Requeening.
The Hive to Adopt.
Requeening.
American Foul Brood.
Wintering Bees.
Out-apiaries.
Feeding and Feeders.
Section Honey.
Bulk Comb Honey.
Producing a Fancy Article of Extracted Honey.
Expansion and Contraction.
Conveniences.

The price of the book is 50 cts. postpaid.

LATEST HONEY-CROP REPORTS REVISED BY WIRE.

IN order to get the very latest information possible from all sections of the United States, we have asked our men in the field, where located at a distance, to send us night-letter telegrams, stating the amount of honey secured, and the probable prices that will be asked. Those near by have responded by letter. These reports will be found on page 4 of the advertising section of this issue—just following the Honey Column.

As a general summary, the reports show that Texas will not have as large a crop as was first predicted. California, taking in the whole State, will do considerably better than the first advices seemed to indicate. Iowa, Missouri, Nebraska, and all that section of the clover belt, have been hit hard by the drouth, and there will not be much clover honey from those States. Recent rains through the central States have improved conditions in Michigan, Ohio, Western Pennsylvania, and New York; and it begins to look now as if Michigan and New York might have some white-clover honey as well as basswood. Wisconsin will not have much clover, but probably some basswood. Illinois and Indiana seem to have been struck by the same drouth that blighted the clover in Missouri and Iowa, and reports do not look good from these States. There will be a fair to light clover-flow in Northern Ohio, in Central New York, and Central and Western Pennsylvania. Eastern New York, Eastern Pennsylvania, New Jersey, Delaware, and Virginia, have also been hit by a drouth, and the crop will be light if not a failure. Vermont and Maine, as well as Canada, at the present writing, give promise of a flow of clover honey.

It very often happens, when drouth has cut the clover short, especially if that drouth has been preceded by heavy rains, that basswood will yield copiously. The prospects from this source this season are better than for many years past. While, unfortunately, the great bulk of the basswoods have been cut for timber, there is enough left, especially when we count young trees, to help piece out the short crop of clover. To our notion, there is nothing better than clover and basswood mixed.

The telegraphic reports, as given on page 4 of the advertising section of this issue, are mainly from dealers in bee-keepers' supplies who have excellent opportunity to judge of crop conditions in their respective localities. Their reports, supplemented by the reports of others who have volunteered information, will be very valuable. In the meantime, we desire our subscribers to continue sending in reports, as we wish to give the very latest respecting crop conditions in the United States.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

THAT REPLY to B. K., page 376, where it says, near the close, "of course removing the queen," should have added, "and all cells already started in the hive."

THAT PLAN given by R. C. Aikin, p. 373, is the best melted-wax plan I've ever seen for fastening in foundation, and I shouldn't wonder if it may beat the groove and wedge. That "$\frac{3}{16}$ inch narrower" form-board, to avoid gluing the board to the frame or foundation, is great.

STANDARD OIL and the tobacco trust have had to let go their strangle-hold; the beef trust is shaking in its shoes, and so is the lumber trust; and I wouldn't give Lorimer 30 cents for his claim to his seat. Oh! the country isn't going to the bow-wows just yet.

THAT TALK, page 320, about picking out some things in GLEANINGS and skipping others doesn't fit "in this locality." I never dare skip any thing, even by the rawest beginner, for fear it may contain some hint that may come useful—if not now, at some future time.

M. Y. CALCUTT had two queens in foul-broody colonies that reared drones in worker-cells, and wants to know whether this was the effect of the disease. It is not likely that foul brood directly produces drone-laying, although indirectly it might have a tendency that way, for foul brood, at least the European kind, seems in some way to affect the vitality of the queen.

I ARISE to give something that I gave years ago, but which will be new to most beginners. It's about draining honey from cappings. The first part drains off nicely; then it thickens and dries down so as not to drain at all. Years ago, when I extracted, I did the work down cellar—nice cool place. The cappings left to drain there, instead of drying down at the last, became thinner all the while with the moisture of the cellar, and left the cappings quite clean. [This is a seasonable item. Paste it in your hat, brother bee-keeper.—ED.]

R. C. AIKIN, the shortened top-bar may be bad in your locality, as you say, p. 372, or anywhere where hives are of any old length; but that should not discourage their use by one who has things just right. I've used them many a year in all my hives (in all of them "the thin edge stood up from the rabbet"), and there has been trouble in just one hive, and I'd throw away that hive and two or three others rather than to forego the comfort of the shortened top-bars. [The groove-and-wedge plan has made trouble in some few cases; but in the great majority of instances bee-keepers have seemed to get better results with it than by the melted-wax plan advocated by our correspondent. The wax plan is messy and requires considerable skill to work it properly.—ED.]

A BEE-KEEPER found his ten colonies dead early in December. They had been fed syrup prepared in a copper vessel. Analysis showed copper in the syrup and in the dead bees.—*Le Rucher Belge*, 4. [We can scarcely believe that the copper vessel could impart enough poison to the syrup as mentioned. We should doubt it very much. The syrup could not have been in the vessel more than an hour; and during that short time there could not have been enough copper salts absorbed to give any taste to the syrup, let alone killing bees. While we would not call in question the chemical analysis, it would be our impression that the copper poison must have been received from some other source.—ED.]

THAT BEES can be fed scientifically so that better queens can be reared in a dearth than in a flow, p. 355, is something new to me, and I'm glad to accept it as true. Allee samee, for us every-day chaps that can't feed scientifically, it's a boon to have dandelion so plentiful as to give us good queens a month earlier. [Yes, we again submitted this item to our queen-breeder, Mr. Pritchard, and he reaffirms his previous statement, that he can rear *better* queens under the stimulus of *scientific* feeding than under the stimulus of a honey-flow that varies all the way from a very heavy flow to a light one. A heavy flow is pretty apt to upset his queen-rearing operations altogether. A medium or a moderate one he says is all right, but he can not *regulate* it. For cell-building, the bees need a moderate and continued supply of food—not an intermittent light and heavy amount. He would rather have an actual dearth of honey than to have a flow that is irregular, going from light to heavy.—ED.]

THERE MAY BE good reason for covering most of a section with a carton and using two-inch glass in shipping-cases, but there is a strong reason that should not be lightly thrown aside for three-inch glass with the section fully exposed. It's the matter of making a show. To be sure, a case is stronger with two-inch than with three-inch glass, and it is still stronger with all wood and no glass. But an experience of years says that with three-inch glass the case is strong enough, and the beauty of a pile of honey in double-tier cases with three-inch glass has a money value that must be reckoned with. [You say that an experience of years shows that a case with three-inch glass is strong enough. That may be true in your experience; but it is doubtful whether a shipping-case can be too strong for the average bee-keeper. You usually ship your honey by the carload. If you do not, you put it up properly in carriers. If you could see how some of the comb honey is put up and shipped by some producers you would say a case can not be too strong.—ED.]

BEE-KEEPING IN CALIFORNIA

WHITE SAGE UNCERTAIN; ORANGE YIELDED LITTLE.

Four weeks ago I reported a fifty-per-cent loss for this section of California. Since that time, conditions have been ideal for the best results; strong colonies have gained rapidly, and the weak ones in proportion.

The black or button sage should last two weeks longer, by which time the white variety will just about be at its best. The white sage is always uncertain as to its yield; and since the buttom sage has already passed its prime, and since weak colonies are just now getting into the supers, we can not possibly expect a large crop. However, if the white sage should yield well through June it will not be hard to get two extractings after June 10 from this source, which would add greatly to the California crop.

We had no great results from the orange crop this year; but if the bees had been in a normal condition the yield would have been tremendous; for the season has been most favorable for orange secretion, and bees have been able to fly during almost the entire period, which is seldom the case.

Taking it all in all, even if every condition should prove favorable from now on (May 26), it would still be difficult for California to turn out a crop of sage honey equal to our average crops for sage-yielding years.

Redlands, Cal. P. C. CHADWICK.

BLACK SAGE AND WILD PEA YIELDING.

Mr. Chadwick's report from Redlands, in the May 15th issue, is correct. So far as I can learn, the same conditions exist throughout this county—Los Angeles. Now that the season is on, I find the button sage is not yielding. The hills are red with the bloom, yet not a bee is in sight. They are working some on the black sage, also on the wild pea—I refer to the Calabasas district. Three weeks will tell the story.

T. ARCHIBALD.

Los Angeles, Cal., May 27.

EIGHT FROSTS IN MAY.

On May 24 we had a white frost, with the thermometer at forty degrees. This made no less than eight frosts during May, although the days were generally warm. May 21 the thermometer reached 96.

I lost fifty per cent of my bees, and I believe the cause was the poor season last year and the failure of the bees to raise young bees at the right time to carry the colonies through the winter. Most of my bees that died were in an outyard which I had bought and had not yet requeened. Although all of the hives contained honey, the queens were of the common sort and all ages. At my home yard, where I had Italian queens not over two years old, all colonies came through in good condition, and will average fifty pounds of sage honey per hive. I am on the northern limit of the sage, and the conditions are somewhat different from those of Southern California. I expect to test some Carniolans this year.

Paicines, Cal. GEORGE WM. MOORE.

ADVERSE WEATHER CONDITIONS.

We had an abundance of bloom, but nothing but cold, cloudy, and windy weather; and even this morning, May 26, we nearly had a frost. The black sage and wild alfalfa are going out; and although the white sage is just beginning, if the weather does not change soon we shall have no better crop than last year.

It is very hard to get accurate statements as to conditions. I knew of one man who had 500 colonies, and there was a report that he was doing very well. When I went to see him, however, he had taken off but little more than one ton of extracted honey. I have taken, so far, 18 cases of extracted honey from 250 colonies. The colonies do not get very strong, as there is so much loss this cold weather. I have not had enough swarms to make up for the winter loss.

Fallbrook, Cal. E. LAURITZEN.

WEAK COLONIES IN THE FALL CAUSED THE GREAT LOSS.

This is an off year again, with but a quarter to one-fifth of a crop. We had no late rains, and hot winds took the surface moisture. Bees came through in a very weak condition. Many thousands of colonies were lost through spring dwindling with hives and supers full of honey. The supposed cause is that the season of 1910 was a failure, and a lack of pollen or stimulative late breeding. Bees were too old to go through the winter, and were found dead in small clusters the size of a hen's egg. One or more combs of brood were started the size of a man's hand, which perished from lack of warmth. Many of these clusters were in a putrid state from moisture from the dead bees and sweaty combs.

Many of the weakened colonies that came through seemed to have been affected from the continuous wet and chilly weather, and eventually died out. From my observation and experiments I am convinced it was spring dwindling from causes mentioned. I have never known this to happen here before. My loss was over 150. Every apiary near the coast came through in good condition, as the coast section has the beans and gum-trees for late stimulation; but the bulk of the bees are in the interior, where the great loss occurred. Some apiaries were entirely lost.

Piru, Cal. M. H. MENDLESON.

CROP FROM ORANGE AND BLACK LOCUST.

I secured a fine crop of honey from orange and black locust, and at this date it continues very good. We had an average of nine gallons of extracted honey per colony.

Chico, Cal., May 9. S. J. MORRISON.

Bee-keeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

ANOTHER COÖPERATIVE ASSOCIATION.

Another progressive Western State (Idaho) is coming to the front by organizing a coöperative honey-producers' association to handle bee supplies and sell honey. The association will be modeled after the Colorado Honey-producers' Association. When we have one or more successful producers' associations in each State, a combination of these will produce an effective national organization. Get busy there, "Down Easters."

CROP PROSPECTS GOOD.

Bees were swarming and building up fast in the Arkansas Valley early in May. Fruit-bloom was abundant throughout the State, and the bees built up well on this. All the wild flowers seem laden with nectar, and this is a favorable omen for the heavier yielders, alfalfa and sweet clover, during June, July, and August. The only limit to the crop will be the heavy loss of bees in parts of Colorado, especially in the northeast, where from fifty to eighty per cent of the bees perished during the past winter.

The water of Boulder Creek is rushing past the grass-covered bank on which I sit as I write on these hot June days. The snow is melting high up on the range, thirty miles to the west, and down comes the snow water to fill the irrigating-ditches in the valley, to trickle about the roots of the alfalfa, and then, absorbed into the tissues of this luxuriously green legume, finally fulfil its mission in the purple blossoms as delicious nectar to be sipped by the bees. Alfalfa bloomed the last of May this year, and the bees are doing well, though the number of colonies in Northern Colorado is much less than last year. Eight or ten cars of bees were shipped to Idaho and Oregon from Boulder Co. last spring.

QUEENS AND THEIR WORK.

The eggs of queens vary more in proportion to their size than those of the different breeds of hens. I have a Caucasian queen that is laying eggs twice as large as the average egg of a queen. What per cent of a queen's eggs are fertile, and what per cent hatch is obtained among the best queens? We should know more of the ability of our queens if they confined their energy for just one day to one side of an empty comb. I have several queens that have laid over 3000 eggs on one side of a comb, and not over 20 cells filled with honey or pollen. Were these cells filled with honey or pollen before the queen could lay in them, or did the eggs prove unfertile, and, after they were removed, did honey and pollen occupy the cells?

I have a few queens that show great egg-laying ability, but many of their eggs never hatch, and the hives do not fill up with bees as do others whose queens have no more combs with eggs in them. Something is wrong when a hive will always have eggs, but never any commensurate amount of larvæ and capped brood.

SMOKE AT THE ENTRANCE.

I do not practice blowing a little smoke in at the entrance of the hive, and I do not agree with the editor that it is all right. A hive of bees bringing in five pounds of honey a day will lose nearly a pound of bees by being disturbed with smoke at the entrance, and will be all torn up inside the hive. Suppose you go through fifty hives a day: *there* is a loss of fifty pounds. It is possible to puff a little smoke (a very little) in at the top when raising the cover, and go through the manipulation without disturbing the field-workers.

I note also that Mr. Townsend does not use a veil—that means more smoke. I say more veil (and more gloves if necessary) and less smoke in our bee operations, especially during the honey-flow. I think too much smoke is responsible for the loss of many a good queen. With gentle bees neither smoke nor veil need be used. Deliberate movements when working over the hive will be better practice than some of the habits the professional bee-keeper falls into. One of the difficult things to learn is to speed up operations at all times except when over the hive of bees with the cover off.

NEW FOUL-BROOD LAW.

Colorado bee-keepers have reason to be grateful, for, although the governor suffers still from pen paralysis, caused by vetoing appropriations to State enterprises, the foul-brood bill escaped his wrath and received his approving signature. Whether some boyish recollections of the charmed nectar of the honey-bee caught legislators and governor unaware, we shall never know; and, in fact, we were so long in knowing the result at all that a very disabled and disheartening report crept into this department in the June 1st issue, the hurried night letter failing to reach the press in time. But nothing matters, now that we have the law with a chance for strong honest work in bracing up Colorado's bee interests. Instead of county inspectors we now have a State inspector working under the supervision of the State Entomologist, who will hire deputies when necessary, and conduct investigations in bee culture, honey-plants, etc., besides taking hold of the problem of foul brood and other bee diseases. Best of all, $2500 has been appropriated to carry on the work. The law is modeled after the Ohio plan, but will not take effect until about August 4.

NOTES FROM CANADA

J. L. BYER, Mt. Joy, Ont.

Page 325, June 1, I am made to say that there was abundance of nectar in the plum-blossoms. That should read, instead of "plum-trees," "willow-trees," as the former is not plentiful enough in our section to cut any figure in nectar production.

A few days ago, while visiting a bee-keeping friend, I was asked if black bees are not worse than Italians for balling their queens. He thinks that this is the case; but I can not agree with him in the matter. Any way, the colony that did the deed this forenoon was pure Italian, and one of the gentlest in the apiary. They were handled very carefully, and did not seem to be in the least excited; that they would ball their queen never entered my mind. After I had looked over the combs once I happened to glance down on the bottom-board, and there was the queen, encircled in a ball about as large as a butternut. I picked up the ball and plunged it into a watering-trough that happened to be near; but something had happened in the short time she had been balled, as she seemed unable to move her legs at all. Close examination failed to locate a sting in her body, and I am at a loss to know what happened. While she was not quite dead when I left her on top of the frames, I certainly expect that she will be by to-morrow.

The season of 1911 will be remembered by bee-keepers here in Ontario for some time for its humidity and remarkably sudden changes in temperature. The spring was cold and backward, then the warmest May on record, accompanied by little rain, followed. After a late spring the clover came on with a rush on account of the great heat, and began to bloom abnormally early. As a result it is very short on the ground; and, until a few days ago, prospects were that it would soon dry up.

Every thing was parched and dry; but about a week ago rains came, and at present, June 13, the ground is soaked. Whether this will make a difference with the alsike remains to be seen; but at any rate no honey has been stored up to date. In white-clover localities I predict a good yield if weather turns favorable, as the heavy rains general over the Province are bringing out the bloom in good shape. Unfortunately for us, we have very little white clover as compared with many other sections. Just why this is the case I have often wondered, as our soil is second to none in Ontario.

Judging by recent issues of the *British Bee Journal* we may thank our stars that we have nothing worse as yet on this continent in the way of bee diseases than the two kinds of foul brood, bad *enough* as they are. I refer to the prevalence of the "Isle of Wight" disease, as a large part of the publication spoken of is filled with reports, etc., concerning this veritable plague to the bee industry. So far they have not the slightest idea as to the cause of the disease, nor have they any data of an authentic nature to prove that any affected stocks have been cured of it. In the absence of any proof as to how the disease is transmitted, certainly it would be wise on the part of American bee-keepers not to import any bees from infected countries. Be it understood that the so-called "Isle of Wight" disease of bees differs radically from the brood disease we have to deal with, as the former attacks the adult bees, while the diseases we have to contend with are restricted to the brood. It would be the natural supposition that there would be grave danger in importing adult bees from an infected district; but of course this is only a guess on my part, for I really know very little about the characteristics of the disease.

A few days ago I received a short note informing me of the death of W. Z. Hutchinson. At no time has the news of the death of any one outside of the family circle so shocked us as when the sad intelligence came to our home. W. Z. Hutchinson had many friends here in Ontario, and he will be sincerely mourned. For the past few years I have had considerable correspondence with him; and, while admiring him for *many* splendid traits in his character, his unselfishness and optimism stood out pre-eminently at all times. No doubt he had his trials, like all other mortals, but he never made others miserable by constantly dwelling upon them. More than once we have received inspiration from his splendid editorials, to say nothing of the sunshine that always illuminated the few private letters it has been my privilege to receive from him. While at the Albany convention it fell to the writer to help draft the resolution of condolence and sympathy that was sent to Mr. Hutchinson when he was at the hospital; and from the reports received shortly afterward we were led to believe that he was on a fair way to recovery; hence the surprise we experienced when we heard of his death. The sincere sympathy of many bee-keepers (all who have met him, in fact) here in Canada will go out to the bereaved family; and although the kind father, husband, and friend has passed away from things earthly, yet his memory will remain for many years in the hearts of thousands of bee-keepers who have learned to love and respect him for the many good qualities he possessed, and for the sterling integrity of the man, always exemplified in every business transaction, no matter with whom he was dealing. His place as editor of the *Review* will be hard to fill; and in the home, and in the hearts of his friends, there can never be a substitute.

Conversations with Doolittle

At Borodino, New York

HOW TO USE THE LANGSTROTH HIVE TO ADVANTAGE.

"Which is better—the eight-frame hive or the ten-frame?"

"There is a difference of opinion in this matter. In this twentieth century our most practical apiarists do not depend upon natural swarming for increase, so that what was known as the contraction system has become largely a thing of the past. The general trend is now toward the ten-frame Langstroth hive. A few advocate the use of but a single-story brood-chamber at all times, so far as the frames go, only section-supers being used above, and they claim that this ten-frame hive is too large at times, and too small at other times. This might possibly be so with one who considers the ten-frame brood-chamber as a fixture at all times of the year. But what is there to prevent making this hive smaller by use of dummies, if necessary, or larger by using another hive under or on top?

"The advocates of small hives, almost to a man, favor feeding in the spring as a stimulation to brood-rearing. If the queen must be coaxed by feeding in this way in the spring to lay to the best advantage, then it would not be well to have a lot of empty comb in the hive in which to store this feed. But the majority of those using the ten-frame hive claim that frames filled with honey are quite as good as dummies for protecting the cluster, and they have the advantage of making the bees feel far richer than does daily feeding, so that these frames of honey furnish an incentive to the bees to put forth more effort toward the rearing of brood than can possibly result from feeding. Hence the large hive gives the brood at the right time, with the least possible expenditure of labor."

"Then why is a still larger hive ever considered necessary?"

"Large hives at the right time, and large hives in the proper shape, mean rousing colonies of bees, other conditions being equal. They prevent swarming, and a large surplus crop is the result. But the ten-frame hive, when used with only a single brood-chamber, soon becomes so filled with brood and bees that, with the honey and pollen it contains, the bees contract the swarming fever, and this is not favorable for a large crop of comb honey. For this reason the brood-nest should be enlarged at the proper time to prevent the swarming fever, just a few days before the bees would be seized with it.

"A day or two before the bees become crowded for room, select a hive that is in proper condition, and, after removing all the combs not having brood in them, which will generally be only the two outside, substitute empty combs. Over the colony a queen-excluder should be used, and above this another hive-body. Insert in this hive-body three empty combs, or some only partly filled with honey, setting these on the side of the hive nearest you. One of the combs just taken out of the brood-nest, two more combs empty or partly filled with honey, and the other comb just taken from the brood-nest may then be put in, and, lastly, three more combs partly filled with honey. When all have been properly spaced, close the hive.

"The problem of swarming will be reduced to a minimum by using a ten-frame hive in this way for breeding purposes, thus giving the queen plenty of empty comb in which to deposit eggs, and providing an abundance of honey for brood-rearing, and a place to store whatever surplus may come in before the main honey-harvest arrives. The plan has the following advantages: While the queen is using the cells in the empty combs intended for egg-laying, the brood emerges from the other combs, thus giving her more room; all honey in excess of the amount required by the bees and brood, is stored in the frames above; and the surplus of bees have a place to stay, all in one home, without being crowded. In this way an extra amount of surplus is obtained in these combs above. All honey that is not used by the colony goes into this upper hive; otherwise it would have to go into the brood-chamber, or perhaps would not be gathered at all. If stored in the brood-chamber, it clogs the brood-nest and crowds out the queen. It also places honey along the top-bars, above which the bees are loath to store during the main flow when the section supers are put on, and the colony is in an ideal shape for the supers of sections at the beginning of the surplus honey-flow.

"When the time comes for putting on these supers, a contraction plan far different from that of the past can be followed, which is simply a change in the order of the hives, putting the one above on the stand below, and on top of this the sect on supers. Examine the brood-chamber until the queen is discovered, then place her at the entrance of the other hive, into which she will immediately run. Shake the bees from two or three of the combs of brood; close this hive, and allow it to remain at one side near the hive now having the queen. By night the larger part of the field bees will have gone with the queen, but enough will remain with the brood to care for it properly.

"Ten days later this hive of brood should be placed on the opposite side of the hive containing the queen, which again fills up with a new force of field bees, the hive having the queen. Eleven days later, at which time the worker brood will have emerged, the bees should be shaken from the combs in front of the hive having the queen, and all will be in the best possible shape to finish up a large lot of section honey. The broodless combs should be placed on top of some weak colony which will keep them until fall. They can then be stored away for use again the next year."

W. Z. HUTCHINSON.

Bee-keeper and Publisher.

BY DR. C. C. MILLER.

In the galaxy of brilliant bee-keepers who have died within the last few years, none, perhaps, were better known in this country than W. Z. Hutchinson, editor of the *Bee-keepers' Review*, and for many years special correspondent of this journal. In our last issue, page 353, we attempted to give only a brief sketch of his lifework; but the prominence of the man, and the further fact that he was a brother-editor, led us to believe that a further write-up of his life and work should be made by some of his old friends—those who had seem him rise from a position of obscurity to one of prominence. We selected among the number, Dr. C. C. Miller, Prof. A. J. Cook, R. L. Taylor, and A. I. Root. His life history as seen from these various view-points is exceedingly interesting; and we feel sure that our readers will be glad to review them. The sketches appear in the order in which they were received.—ED.

On Decoration day, May 30, 1911, while the thinned ranks of the old soldiers were on their way to lay their floral tributes on the graves of their departed comrades whom the grim reaper, Death, had gathered to himself, that same grim reaper made a gap in the ranks of bee-keepers that can never again be filled, when he gathered to himself the creator of *The Bee-keepers' Review*. Although Editor Hutchinson had rounded out his threescore years he seemed only to have just reached his prime—just ready best to carry on the work to which he had devoted his life. What his loss means to the inner circle of that home that was so dear to him can be left only to conjecture.

William Z. Hutchinson was born in Orleans Co., N. Y., Feb. 17, 1851, and when he was four years old his parents took him to Genesee Co., Mich., in which county the remainder of his life was spent. He spent his growing years amid the primeval forest, where the ax made a place for a home, and with his father's family experienced the privations and hardships of the early settlers. Along with that, however, there was not lacking the joy of the wild life of the woods, of which the city boy knows nothing, and many a happy hour was spent in trapping, hunting, etc.

A passion for machinery was turned to good account by his making, on a turning-lathe of his own construction, spinning-wheels and reels, and for a few years of his teens he made quite a business of selling these in the surrounding country.

At 18 he began teaching winter schools; and at one of the places where he was "boarding around" he found a copy of King's "Text-book" on bee-keeping, and learned that 50 colonies of bees were down cellar. The reading of that book, the sight of the rows of hives in the cellar, and the examination of an American movable-comb hive, were enough to kindle an interest which was not lessened by a visit to the same place during the next swarming season. Although he did not actually become a bee-keeper for many months, his interest never flagged, and was increased by visits to bee-keepers, and by reading all the bee literature he could get hold of.

Woolen-mills were established, and he found the market for wheels and reels for home use disappearing. It was on a June day afternoon when he made his last sale at the house of a farmer 16 miles away, and, instead of starting immediately for home, he solicited the privilege of remaining over night, partly induced thereto by the sight of a neat array of hives. The farmer was Mr. Clark Simpson. Mr. Simpson had an only daughter. Young Hutchinson concluded she was the "only" one for him, and in due time she became Mrs. Hutchinson.

In 1877 Mr. Hutchinson began to put to practical use the store of bee knowledge he had been gaining by becoming an actual bee-keeper with four colonies of bees. Increasing these he for some years made a business of producing comb honey. For a time he did quite a business in the commercial rearing of queen-bees. In later years, in company with his brother Elmer, he was quite extensively engaged in producing extracted honey, with out-apiaries in the raspberry and willow-herb regions of Northern Michigan, the increase in numbers being in accord with his well-known slogan of the past few years, "Keep more bees." He wintered bees in about all the ways that bees are wintered.

These varied experiences were all helps in what he felt was his chief lifework, the editing and publishing of *The Bee-keepers' Review*. This he founded in 1887, at which time he moved to the city of Flint. Other bee journals have been started since that time, 24 years ago, only to be suspended after a longer or shorter time; but *The Bee-keepers' Review* had elements in it that would not let it die. Like his book, "Advanced Bee-keeping," the *Review* appealed more especially to experienced bee-keepers, and in some respects filled a place all its own. It was strongly marked with the personality of its editor, and when reading in it of the personal experiences of Mr. Hutchinson one could almost imagine he was listening to a face-to-face talk of the writer.

Mr. Hutchinson had a genius for discovering available correspondents, and thus getting into print what otherwise would never have come to the light. In typographical make-up the *Review* was a model. Its editor took more pride in a new set of type than in a new set of clothes for himself. A talent for photography, well developed, was made to yield its tribute to the beloved *Review*. One picture especially will always be remembered, not because it was in any way connected with bee-keeping, but as a work of art, and as giving a glimpse of his more intimate home life. It shows two of his grandchildren eagerly listening to "grandpa" telling them stories. One who looks at it will look long. Looking at that picture, and recalling the man it represents, one does not wonder that the stricken wife should say of him, "A better man, I believe, never lived, nor a kinder husband and father." Tall and erect, he was a conspicuous fig-

ure at bee conventions, where more would have been heard of him had he been less gifted as a secretary and reporter. Sitting, sometimes with little apparent attention to what was going on, he was quick to seize every point of importance, and thus to give a condensed report of real value. Several years in succession he was honored with the secretaryship of the National Association, and also of his own State association.

The immediate cause of Mr. Hutchinson's death was anemia. The operation that had been performed to relieve an acute condition was entirely successful. For a time he rallied, walked about some, and even went up town. On that day it happened to be cold and windy. He contracted bronchitis, from which he never recovered. In his weakened condition he gradually went downward; and although every thing was done that surgical and medical aid could render he began to grow weaker and weaker. But never once was he discouraged. He remarked to his dear wife, shortly before he became unconscious, "I don't know about the *Review* for June; but I guess I will let it go this month, and may be next." He thought that, by so doing, he would be able to recuperate enough to take up the work again; but he kept getting worse until he became unconscious; and, shortly after, he passed away.

Not a member of any church organization, he did not hesitate to express to intimate friends a belief in Jesus Christ, and a grand future for all those who have tried to do right. Hardly any thing less than Christian fortitude would have enabled him to bear with calmness afflictions that would have crushed almost any one else in his place.

THE TESTIMONY OF A LIFE-LONG FRIEND IN THE PERSON OF PROF. A. J. COOK.

It is with great sorrow and exceeding regret that I learn of the demise of my friend of more than a quarter of a century. A very brief acquaintance led to a thorough appreciation of the sterling qualities of Mr. Hutchinson, which was strengthened in all of the succeeding years. No one could know him and his work without convincing proof that he stood in the very front ranks of our bee-keeping fraternity. His quick intellect, coupled with his close attention to details, won for him, at the very start, phenomenal success as a queen-breeder. To this, apiculture owes its great good fortune in securing his life-long service in its development, He was temperamentally exact and methodical, transparently honest, and if I were to select one word to characterize our brother it would be genuineness, At conventions, going to and coming from them, at his home, at my own home, and in visiting together bee-keepers, I was much with him. He was delightfully companionable, and always alert for any new idea or suggestion touching the interests of the work to which he was so entirely devoted. His quick apprehension and terse, clear-cut style as a writer, made him a most reliable exponent of all that was latest and best in the theory and practice of his beloved art. His book and journal, the *Review*, were always vital and virile, for he reached for the best, and gave it to his readers so simply and clearly that all understood and profited. The *Review* was a power from the first, and its influence grew rapidly as his readers came to know the sincerity and absolute integrity of the man. He and Mr. R. L. Taylor were great friends, much together, and singularly alike in their unselfish desire to promote the highest and best interests of bee-keepers and bee-keeping.

Such all-around men as was Mr. Hutchinson are all too rare; and with thousands of others all over our broad land I sincerely mourn his too early leave-taking, and tender my heartfelt sympathy to his wife and daughters. May the good Father help them to bear this overwhelming loss.

Claremont, Cal.

A FRIEND'S TRIBUTE BY R. L. TAYLOR.

The demise of W. Z. Hutchinson, editor of the *Bee-keepers' Review*, has made a chasm in the bee-keeping fraternity of this country wider than we are often called upon to witness in our brotherhood; and not only because of this, but also because of the fact that he was taken off, so to speak, in the midst of his days when ordinary good health would still give him promise of many vigorous years of fruitful and effective labor, will his death be widely and deeply deplored.

By no one, perhaps, will this be more thoroughly realized than by myself, who have been personally acquainted and had personal intercourse with him, practically, during the whole of our bee-keeping life. I first learned of him more than thirty years ago through his writings in GLEANINGS; and as he lived in the adjoining county, but a convenient drive from my own home, I took occasion, about thirty years ago, to pay him a visit. I found him pleasantly located in a fine tract of country near the village of Rogersville, in Genesee Co. He was not at that time engaged very largely in the apiarian line, and even that was largely in queen-rearing, but he was full of enthusiasm; and since that time, though he has suffered many vicissitudes, his enthusiasm has never waned. He was always reticent, seldom or never laughed, but was remarkably even-tempered, and happy in his family relations. In my own relations with him he has done me many kind turns, and has done them voluntarily when there appeared to be no reason to expect him to trouble himself to do them.

To be near transportation facilities he removed to the city of Flint after a time, and, in pursuance of his doctrine of "specialty," which he has latterly so strenuously proclaimed, he gradually, as he could, increased the magnitude of his apiarian interests; but with all his enthusiasm for the business of bee-keeping he had a still stronger taste, long kept latent, for something in a literary line. He longed to be editor and publisher.

As a result of this desire he founded the *Bee-keepers' Review* against multitudinous warnings and advice. For several years he had a hard struggle; but his unyielding persistence won, but not without his judicious editing and careful selection of topics so that it became a power among the more careful and thoughtful bee-keepers.

Lapeer, Mich. R. L. TAYLOR.

W. Z. HUTCHINSON AND SOMETHING ABOUT MY FIRST ACQUAINTANCE WITH HIM.

BY A. I. ROOT.

The first issue of GLEANINGS was dated Jan. 1, 1873; and I need hardly tell you that when I started out *another* bee-paper I bent every energy (I was then only 33 years old) toward making it a success. I worked and planned for it, not only day and night, but I left no stone unturned. I hunted up the most successful bee-keepers in the land, and got in touch with Quinby, Langstroth, Adam Grim, and J. E. Hetherington, so far as I could, and scanned every letter I received, with the view of making it a help in developing and exploring the new industry and science. Some time during the year 1877 a young schoolteacher in Michigan sent me some articles for our journal, subject to my approval. By mere accident I have run on to an extract that tells what I wrote to that schoolteacher.

Friend Hutchinson:—We usually have more matter on hand than we can make room for in GLEANINGS; yet we think we can use the articles you have sent, and have credited you $3.00 for the same.

Dec., 1877. A. I. ROOT.

In a letter later he says:

How well I remember the thrill that went to the very center of my being as I read these words! It was the first money I had ever earned with my pen. W. Z. HUTCHINSON.

Perhaps I should explain to our readers, that the articles for which I credited friend H. the three dollars were not only nicely and carefully written, but well punctuated, and the sheets were arranged in the most convenient manner for the compositor; but they contained real, sound, honest, and practical ideas, evidently written with the view of helping the brotherhood.

From an article he wrote for publication in GLEANINGS I extract the following:

I am a young man who has just bought and partly paid for a small farm. My wife and I are working hard to finish paying for our home, and we sometimes have to figure pretty close in order to obtain my "bee fixings." For instance, I had long wished for the back volumes of GLEANINGS, but had never seemed to have the money to spare to buy them. At last, however, by going into partnership with a neighbor, and earning my half by getting up a club, they were obtained.

In spite of financial difficulties under which I commenced bee-keeping, I have prospered in it exceedingly well; perhaps my love for the business has had something to do with my success. I sometimes wonder if I do not think *too* much of my bees. For instance, I wore a suit of clothes last spring until I was ashamed of them, in order to save money to buy a swarm with an imported queen. What do you think, Novice? Do you think it is possible for a bee-keeper to be *too* devoted to his business?

And there is one thing more that I should like to ask Novice, and that is, don't you think it is a good thing for some of us enthusiastic young bee-keepers that we—well, haven't *any* bank account? If we had, we would probably buy a whole lot of bees, all the "modern improvements," and then — why, then go into "Blasted Hopes," to be sure.

There, my first year's "experience" is finished, and if it has helped any one else in his "first year's experience," it has fulfilled its mission.

W. Z. HUTCHINSON.

Rogersville, Mich., Nov., 1878.

From that time on, for fully ten years every number of GLEANINGS contained one or more articles from "W. Z. H.," as we used to call him for short; and I think that, for most of the ten years, his articles occupied the first page of GLEANINGS, under the heading of "Notes from the Banner Apiary."*

During his busy life he invented and successfully carried out many things now in practical use among bee-keepers. He was among the first, if not the very first, to make a practical home-made foot-power buzz-saw. This was fully illustrated in GLEANINGS.

He and I met frequently at conventions, and have always been on the most friendly terms. When he ceased writing for GLEANINGS, and started the *Review*, these friendly relations were in no way marred. From first to last his communications bore the stamp of honesty and sincerity. During the almost forty years that have passed since I made his acquaintance, although there have been many jangles and some severe criticisms in print and elsewhere, I can hardly remember hearing of any one who criticised in any way our good friend W. Z. H. In showing up humbugs and frauds, your humble sevant has received his full share of clubbing right and left—especially when he has broken up some scheme to defraud bee-keepers; and very likely I have sometimes been unwise, and may be a trifle too severe. W. Z. H., both through GLEANINGS and since then through the *Review*, seems to have chosen a happy medium in these matters, and to have preserved to a remarkable degree a dignified and gentlemanly attitude.

How we shall miss his tall, upright, manly form as he stood up before us at conventions! He never made long talks, and he never got into jangles; but, no matter what was going on, whenever he took the floor, with that well-known beaming smile on his face, the room was stilled without any rapping by the president.

The last real good visit I had with Mr. Hutchinson was when he took some sketches up near the cabin in the woods during maple-sugar time—see pages 659, 660, 661, and 662, issue for June 15th, 1905.

May the Lord be praised that such a man as Mr. Hutchinson was permitted to enter the ranks of bee-keepers, and to labor for them as faithfully as he did during his busy life.

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* It is a little singular that the A B C book was started almost simultaneously with Mr. Hutchinson's first article, "My Experience, No. 1," in GLEANINGS for Jan. 1, 1878. The book was first sent out in small form for 25 cents; but the call for it was so great, and additions were made to it so constantly year by year, that it eventually attained to its present size.

General Correspondence

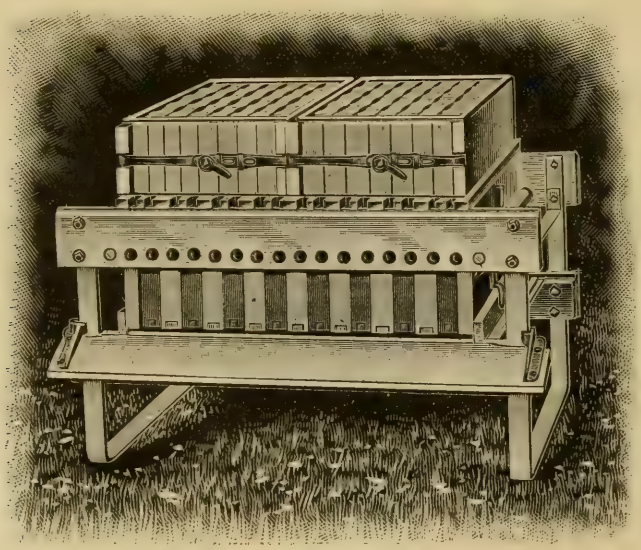
THE ASPINWALL NON-SWARMING HIVE UP TO DATE.

BY L. A. ASPINWALL.

Since your delineation of the Aspinwall hive in GLEANINGS some time ago, important changes have been made, which, with two seasons' experience, have resulted favorably, both as to cost of construction and the practical results to be obtained.

When first described in the *Bee-keepers' Review* and GLEANINGS, the cost according to my judgment was an insuperable barrier to its general introduction, notwithstand- the product was double that from colonies in ordinary hives, and although pressed on every side by inquiries for hives, I did not feel justified in making any, even for testing purposes. That was something I could do in my own yard.

The slatted separators in the supers of my hives cost as much as or more than the lower story or brood-chamber with its furnishings. The hive as now constructed has no separators, either slatted or plain, and is adapted to either the T super or those composed of section-holders. All together it is nearly as cheap in construction (taking into consideration that four supers are used) as the ordinary commercial hive.



THE ASPINWALL NON-SWARMING HIVE.

While there was a degree of uncertainty as to the absolute control or prevention of swarming with my former type of hive, thus far perfect success has been achieved with my latest pattern.

The elimination of separators in the supers, and the use of slatted frames equal in width alternating the brood-frames, has made if possible to place double the number of sections directly upon the brood-frames, all of which are in perfect alignment with the bee-spaces below.

With my former type of hive, the lack of a sufficient number of sections in immediate proximity to the brood-combs was where it fell down — only the foundation contained in 35 sections as a working surface to prevent swarming absolutely. We now place 70 sections in close proximity to the brood, and withal no separators to hamper their workings or attach burr-combs to.

The question will naturally arise as to the product being commercially uniform in appearance and weight. Thus far the results have been satisfactory. Two supers of 35 sections each, the bee-spaces of which are in perfect alignment, and in accordance with the workings of the colony in nature, afford a uniform and equal distribution of warmth throughout the supers. In addition to this, the use of supers in pairs admits of reversing from side to side to equalize further the work of comb-building.

When the supers are about half filled, a reversal, placing the outer side of each at the center, or place of greatest warmth, results in beautifully filled sections. This feature, including the perfect alignment and consequent elimination of separators, has made the construction of a non-swarming hive possible; and I sometimes wonder why it should have consumed so many years of my time, including thousands of dollars.

I must here give expression to the fact that unexpected changes are brought about by invention. Referring solely to hive construction, I have been compelled to abandon the plain sections in favor of the beeway. However, I do so gladly, inasmuch as it has enabled me to accomplish greater success in the much sought-for object than ever before.

Jackson, Mich., May 23.

[Mr. Aspinwall, as our older readers know, is an inventor of some note, having designed a large number of successful farm implements in connection with the potato-growing industry. Prominent authorities have called swarming the bane of modern bee-keeping. This may not always be true, but certain it is that any plan for controlling swarming is welcome.—ED.]

BEE-KEEPING FOR BEGINNERS, ILLUSTRATED.

Uncapping Combs by Hand and by Machinery; the Ferguson Uncapping-machine Given a Trial.

BY E. D. TOWNSEND.

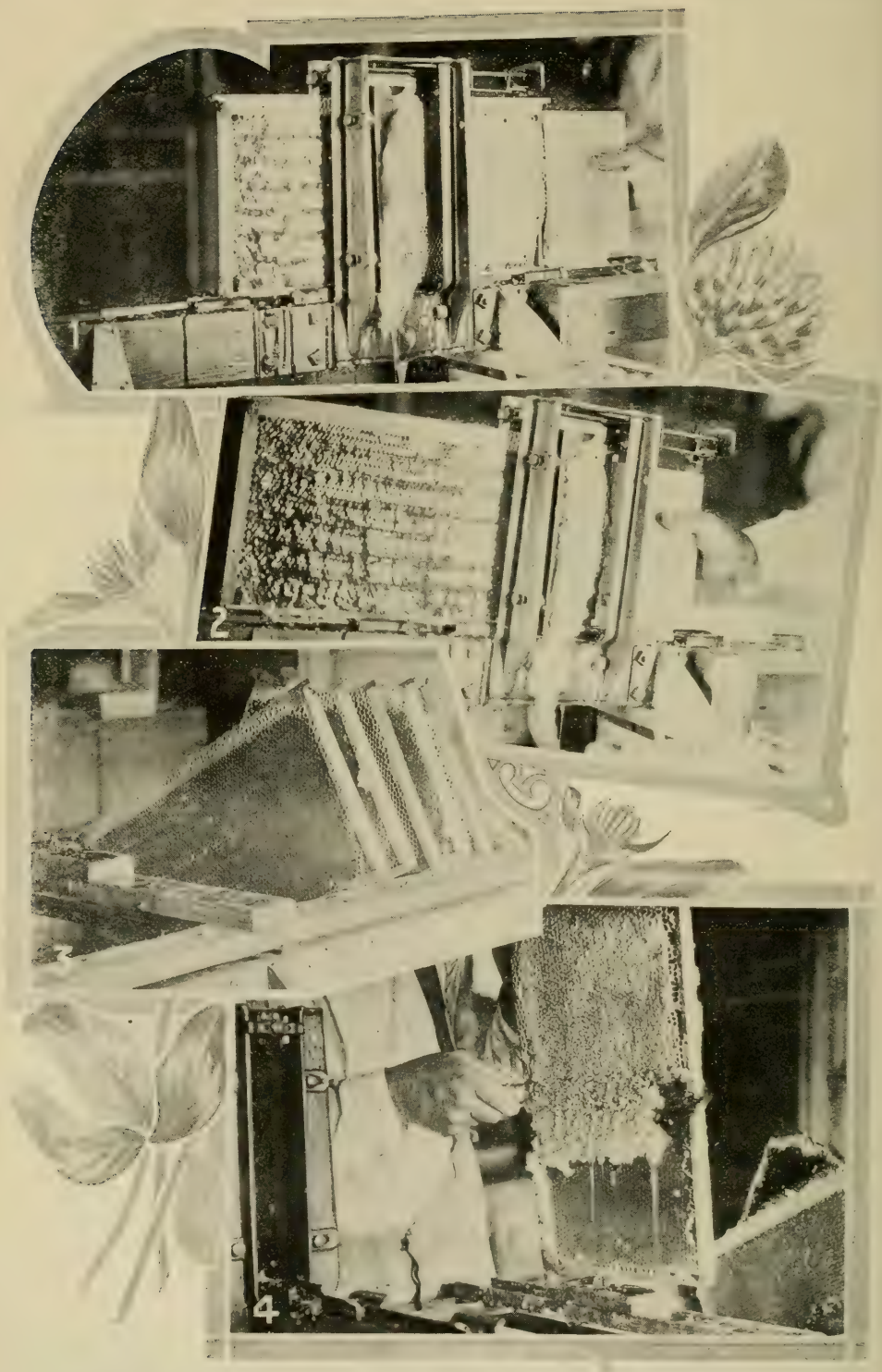
The uncapping of combs in a workmanlike manner is an art that few can pride themselves in. True, almost every one who has had some years of experience in the production of extracted honey does fairly well with the uncapping-knife; but the common fault, especially when the short Bingham knife is used, is to pay attention only to that part of the comb that is sealed. The brace-combs built on the edges of the deep top-bars are usually untouched, and these, with the unsealed portions of the comb, are thus left more prominent than the parts that were uncapped; consequently, in the extractor the centrifugal force drives these prominent parts into the wire of the comb-basket, and so mutilates them that considerable honey is held back. Then if the combs are new and tender, those portions uncappe ddeep will be pushed out against the basket of the extractor with such force that they are likely to be broken, and bulged out of shape. Wiring the extracting-frames is a great help, and we do not think of giving the bees a single frame unless it is wired, and fitted with a full sheet of foundation. This pays well in many ways.

Fig. 4 shows the correct position of the uncapping-knife as used by the writer, as well as the position to hold the comb that is being uncapped, and the pivot that the frame turns on. This pivot is placed on a cross-piece nailed to the top of the McIntyre uncapping-box so that the cappings fall from the combs direct into the box. The same arrangement is used on the capping-melter so that the cappings fall direct on the melt-



GRANDPA HUTCHINSON TELLING STORIES TO HIS GRANDCHILDREN.

Bruce, the little boy shown above, was too ill to go to the funeral; but he said to his grandma that he was going to die just as soon as he could, so he could see his grandpa again. He thought grandpa was about perfect, for he always said he was going to be a good man like grandpa. It is said that a child often has the power to read character beyond that of an adult. In this case, what a tribute! The loving eyes of those grandchildren—no words can portray the love and admiration that they show. Grandpa was very proud of that picture, and well he might be.—ED.



UNCAPPING COMBS IN A FERGUSON UNCAPPING-MACHINE AND BY HAND.
An inexperienced man can do as much with the machine as an expert can with the ordinary hand-knife.



WHITE-CLOVER FIELD IN TEXAS. — SEE BEE-KEEPING IN THE SOUTHWEST, LAST ISSUE.

ing-pan. The knife should be held so that the beveled edge is parallel with the surface of the comb, thus throwing the lower edge away from the comb, and separating the cappings that are cut loose from the uncapping surface below. The combs should be tipped over to the right, or toward the knife, so that the top of the frame will be about three inches out of perpendicular. In this position the cappings as loosened will fall clear of the uncapped surface. A common fault of the beginner is to hold the comb so nearly perpendicular that most of the loosened cappings fall back on the uncapped surface. It usually takes up more time to scrape off these loose particles than it took to uncap the whole comb in the first place, and the cells are not left in as good condition to extract after being thus fussed over with the knife. It is important that not a single particle of loose capping falls back on the comb below the knife.

As the engraving shows, we use the long improved Bingham knife. The shank is wide so as to give a firm hold for the thumb and first finger. The knife should be gripped close to the blade, the first finger and thumb extending down on the shank to give more leverage. When the knack of holding the knife in this way is acquired, the work is much easier than if the handle alone is held.

Some, when uncapping, begin at the top of the comb and cut down. We have never followed this method enough to become very expert, so I will describe only our own way. We start the knife at the lower end of the comb, and, by means of the long blade, uncap the whole width at one operation. As the blade is only half an inch longer than the width of the comb, it is evident that, were we to push the knife rapidly, and take long strokes, some portions of the comb at each side would be missed. Instead of taking long strokes, therefore, we work with quick short strokes, and uncap the whole comb the first time over.

At two of our yards last season we tried the Ferguson uncapping-machine, invented and manufactured by L. R. Ferguson, Harvey, Ill. With suitable frames this machine does not clog any more than an ordinary knife. Figs. 1, 2, and 3 show that the work is well done when conditions are favorable. When the honey is at the right temperature to extract well, the combs run through this machine as if greased, both sides being uncapped at once. We set the knives an inch apart, this thickness being just right. The uncapped surface of the combs is much more even, as will be seen in Figs. 2 and 3, than on those uncapped by hand. An inexperienced student that we had with us last season, with this machine uncapped about the same amount of honey as could one of us having experience with the Bingham knife, and did a rather better job besides.

The majority of our extracting-frames are of the unspaced kind. The top-bar is $\frac{7}{8}$ inch square, and the end and bottom-bars also $\frac{7}{8}$ wide. These frames have no projections at any point; thus, when the uncapping-machine is set so as to leave the comb an inch thick, the knives miss the frame by $\frac{1}{16}$ inch. We had no trouble in uncapping combs in frames with thick top-bars, for we simply removed the upper knife on each side, the rest of the knives being left to uncap the comb as usual. If desired, the upper knives on each side might be spaced a little wider. Some of the combs uncapped in the machine broke loose along the



Fig. 21.—One of W. S. Hart's bee-sheds, East Coast, Florida; orange-trees in the foreground; shed thatched with palmetto leaves.

under side of the top-bar, and some were depressed, so that the knives did not reach all of the cappings, requiring some hand work later with a regular knife; but if the combs were to be uncapped in the machine year after year, I think nearly all of them would be drawn out evenly, so that the machine would do about all the work.

The Hoffman frame, or any frame having projections of any kind, will not work in this uncapping-machine as made at present. To my notion, this is the worst drawback about the outfit, for there are but few frames that it will handle.

Remus, Mich.

BEE-KEEPING IN FLORIDA.

Some Representative Bee-men of Florida.

BY E. G. BALDWIN.

Continued from last issue.

If length of time in keeping bees in Florida were taken as the criterion, then Mr. William Sylvester Hart, of Hawks Park, East Coast, holds the palm of being the oldest inhabitant in the industry. He began keeping bees in Florida in 1876—never kept them anywhere else. That means 35 years of continuous bee-keeping in one State. Originally drawn to the peninsula by the orange industry (a native of the Granite State) he has made an enviable name for himself as a grower of fine citrus products, principally oranges. The well-known and deservedly famous Hart's Tardiffe orange was originated by him. His Indian River oranges always win the tip-top market price. Very early in his career in Florida he saw the possibilities of bee-keeping as an accessory pursuit to his groves. So well has he succeeded at both that he stands as high among the apiculturists of the country as among the horticulturists.

He read Langstroth's work through three times, and then bought bees. Seldom owning more than 125 colonies at one time, he has made them count in results. He uses the ten-frame L. hive, and full sheets of foundation, not wired. His honey sources are saw palmetto and gallberry mixed, for the first crop, and cabbage palmetto and black mangrove mixed for the second crop. The proportion of the last-named honey is about one-third palmetto and two-thirds mangrove. The two honeys, palmetto and mangrove, are so much alike that they can be classed together, making a strictly first-rate article. Mr. Hart has startled the apicultural world by some of his yields per colony and per apiary. Among the worst enemies of his bees he rates the common moth, and ants (see former article). Forest fires also do him much harm, destroying large areas of the saw palmetto in his neighborhood. His apiary is shown in Fig. 21; his honey-house in Fig. 22. There is an accuracy and finish about all he does that is very noticeable. He is an exceedingly busy man, overrun with a vast correspondence, and in many lines of activity he is as ardent a worker as many in their specialty. Readers of GLEANINGS will do well not to write personal letters to Mr. Hart, as the answering of them would make unnecessary inroads on his time and energy, even allowing that he had the time for it. Most of his short cuts in apicultural lines have already been given to the public in the agricultural and bee papers for 35 years past. He thinks (and justly) that he deserves freedom from the burden henceforth. Any State would feel honored to have him on

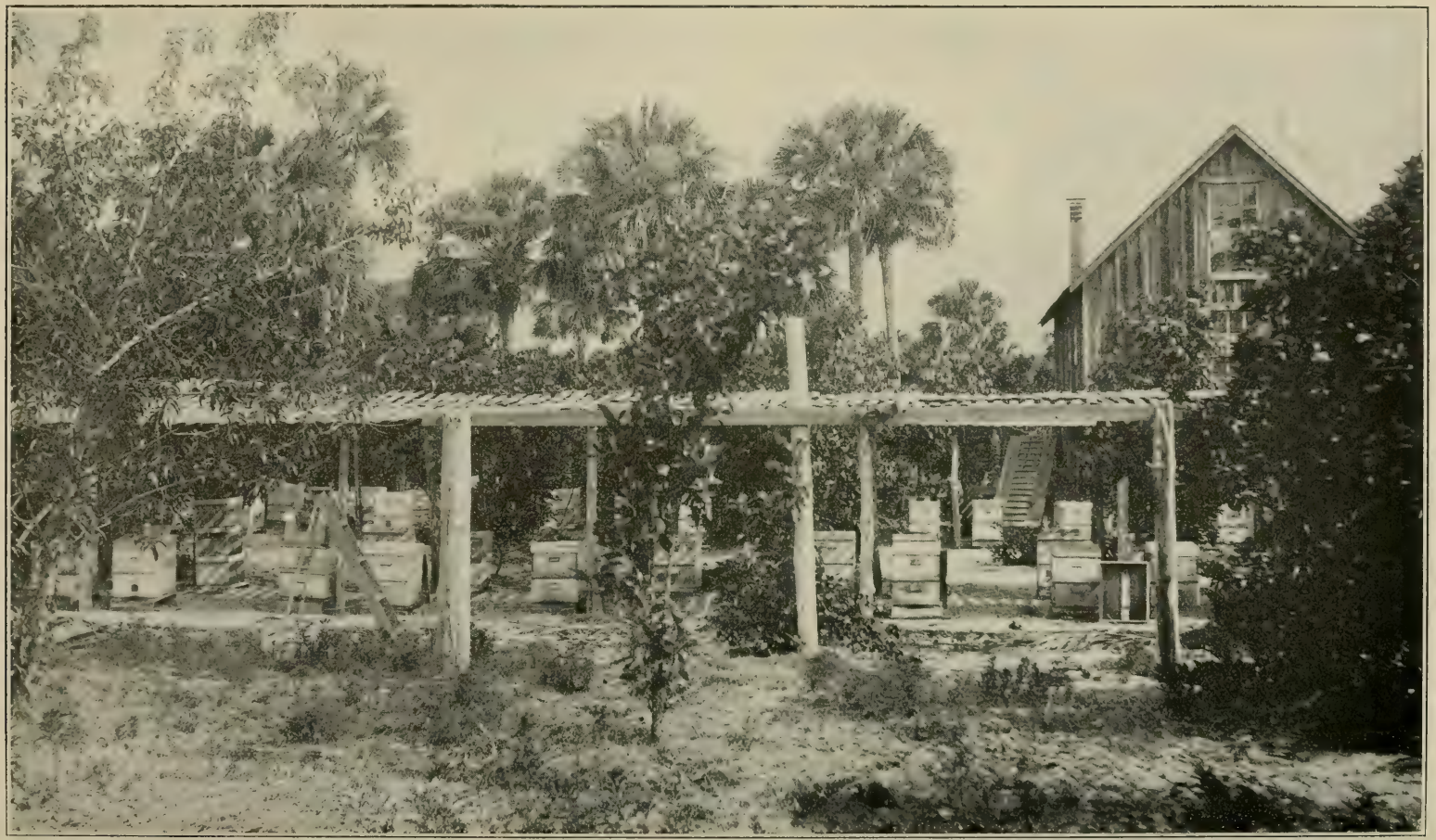


Fig. 22.—Honey-house and part of apiary owned by W. S. Hart, showing orange, peach, kaki, and cabbage-palmetto trees.

her list of citizens. Florida is proud that she has this man among her greatest bee-men and must useful citizens.

Unlike the former, Mr. E. B. Rood, of Bradentown, did not engage in honey-production till winter freezes drove him to something else that would bridge over the chasm. As he says, "I came to Manatee Co. a poor frozen-out orange-grower from Volusia Co." He has built up from almost nothing, and that in only eleven years; has educated his four children, and made prominent success in bee-keeping. It was the marked success in orange honey of Mr. A. F. Brown, then of Glenwood, Fla., that drew Mr. Rood's attention to the possibilities of bees for a livelihood. He now owns and operates nearly 400 colonies in eight yards, or an average of fifty colonies only, to a yard. This may seem a small average to some of the uninitiated in the mysteries of Florida bee-keeping; but practical experience has determined his number, and proved it about right. Mr. Rood says he could keep many more colonies in an apiary were it not for the forest fires. His apiaries average three miles apart, and are run for extracted honey alone. Comb-honey production in Florida is, as he well remarks, "too costly, because of the expensive paraphernalia necessary to handle it properly. If not kept in a warm and dry place, it soon 'sweats' or 'weeps,' and shipping it north is hazardous because of the distance." This is the universal sentiment, with a few marked exceptions. Mr. Rood speaks in the highest terms of the work of Mr. E. D. Townsend, of Michigan, and says he has learned much from him. His motto is, "Do not fuss with your bees." The best results with least labor are his aim.

The honey sources of his locality are wild pennyroyal, orange, gallberry, saw palmetto, mangrove, and cabbage palmetto, with some little from wild sunflower and goldenrod. He uses the ten-frame L. hive, because he wants large hives for breeding, and for supers in which to ripen the honey. He believes thoroughly in ripening the honey on the hive. Mr. Shumard is also a firm advocate of this practice, and better honey than these two men produce it would be hard to find. So much can be said for the practice.

The climate of Florida will not tolerate a poor honey. Half-ripened honey, or even that which is a little less than fully ripe, so soon tends to ferment that absolute maturity is about the only safe method to pursue. The honey *must* be ripe to keep. He, like most bee-men here, uses full sheets of foundation in the brood-nest.

Mr. Rood is peculiarly a victim of overstocking. When he began to make some little success with his bees, letters came in at a lively rate from men in the North. One man from New York wrote to him, asking if there was still unoccupied territory near him. Mr. Rood replied that there was; and after some correspondence had passed between them the man came down from the North. Mr. Rood entertained him, and showed him about. The man declared all the time that he would not encroach upon the territory already occupied by Mr. Rood. After he went away, however, the man went up State, bought out an apiary, and moved them to Bradentown and located them forty rods from him. Then he began forming out-apiaries, till now he has a string of *six*, practically all in Mr. Rood's territory. Next a man from Michigan moved in and started an apiary of fifty colonies forty rods from his house, and has now begun an outyard. Another man, from Ohio, has begun on the other side of Mr. Rood, less than half a mile away, and reports that his brother is soon to come, and that they together are going to start a line of outyards and show the Florida folks "how to keep bees." Besides these, two more men from New York and another from Michigan have started in close by, and a man from Wisconsin has 250 colonies just over the river. All these are practically within Mr. Rood's territory. This is imposition with a vengeance, and makes one almost wish for some legislation to protect a bee-man in his locality rights—if he has any. I would *not* advise any one contemplating an apiary in Florida to locate in Bradentown nor near there. Mr. Rood, in self-defense, has also taken up trucking and other things, in recent years.

De Land, Fla.

To be continued.

HOW ARTIFICIAL SWARMS ARE MADE IN SWITZERLAND.

From the Schweizerische Bienen-Zeitung.

BY F. GREINER.

The colonies which are to furnish the bees are fed the night before the swarm is to be made. Seven combs with the adhering bees are taken out of as many different colonies as is deemed best—one, two, or more; but the queens are left in their respective hives. A vital law, "bees must be filled with honey," is faithfuliy observed; honey is poured upon the top-bars of the seven frames, which hang temporarily in an empty hive-body. When bees under natural conditions cast a swarm, each bee takes with it a full load of honey. Hungry bees, like men, are ill-tempered. They are not apt to stay in an empty hive. The feeding is continued until there is ample evidence that the bees can not hold more.

At this moment they are brushed from their combs into an empty box by means of a stiff damp feather, never with a brush. Six pounds of bees are considered sufficient for a swarm. The box containing the bees is placed in a cool dark room, a bottle of warm feed given them, and they are left until the next day.

When exposed to the light the following day, a dozen or more uneasy bees may be noticed buzzing against the screen. They are given their liberty, and again the box is placed in the dark until a queen can be brought. A baby-nucleus hive is taken in-

side a room, and the cover with the adhering frames pulled out and placed on the table upside down. A little smoke is given at one end of the frames, and watch is kept of the other. When the queen runs out upon the table she is covered with an introducing-cage until she runs up, when the entrance is closed with a piece of dry candied honey the size of an egg. The bees in the box are now jarred off, and the cage with the queen is placed quickly inside with them. The bottle is filled again, and the whole returned again to the dark room.

Thus they are left for 48 hours. The theory is that bees in this condition, without comb, and well filled, will accept a queen more quickly than if divided by combs. Toward evening of the fourth day the swarm is hived into permanent quarters with eight frames filled with foundation.

In case honey is not coming in fast, feeding of the bees is continued until the combs have been completed and are sufficiently filled with stores.

Naples, N. Y.

THE SECTIONAL HIVE WELL ADAPTED TO THE PRODUCTION OF FANCY COMB HONEY.

Some of the Advantages of the Shallow-frame Brood-chambers.

BY S. D. HOUSE.

The four most important essentials for the production of comb honey are—a location with a good flow of nectar; a practical beekeeper; a strain of bees bred for the production of comb honey; and the hives and fixtures. The predominating factor is the beekeeper, as he will combine all the other factors to his own advantage, and his success will be measured by his own ability and energy. Many practical men are slow to adopt new principles and devices, for they do not give enough thought to the fundamental principles involved to secure the full benefit to be derived therefrom. There are many meritorious inventions of hives and fixtures, and methods of manipulation, that are allowed to go almost unnoticed by bee-keepers, or tried in such a meager way that no real test is made.



Fig. 1.—The shallow brood-frame as used by S. D. House.

Over twenty years ago I became convinced that a shallow brood-frame was a necessity to the producer of fancy comb honey; and I made a test, using about twenty hives containing shallow frames—one style built by Mr. F. A. Salisbury. This hive was constructed for outdoor wintering. It had closed-end frames, double-walled sides with a dead-air space between, and a bottom-board of double thickness with an entrance cut in between, allowing the bees to enter under the frames. The frames were about 4×19, outside measurement. I used these hives three seasons, but failed, because of a number of difficulties. I could winter only a small proportion of the colonies in these hives, and I could not get them to build up in the spring; but in spite of all this, these hives demonstrated their value for the production of fancy comb honey.

I next built 100 sectional hives, 14¼ inches wide



Fig. 2.—Two colonies during alfalfa flow in August that had been reduced to a single section of the brood-chamber on June 15.

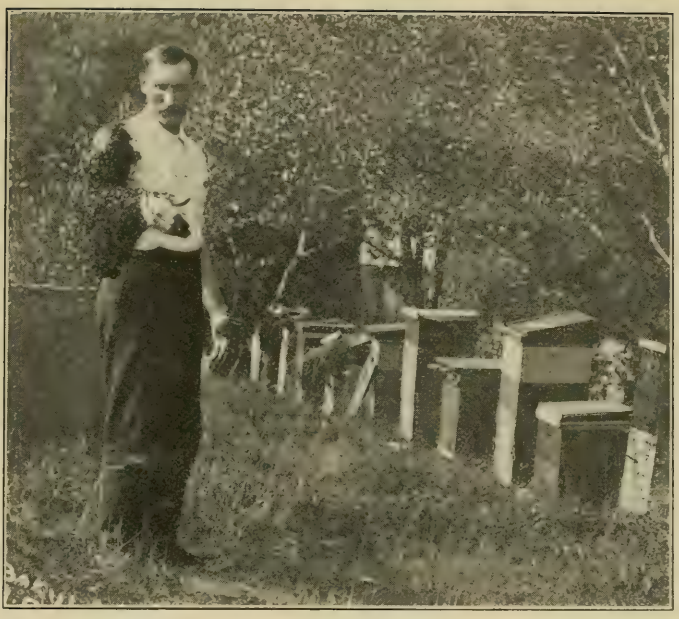


Fig. 1.—Mr. B. F. Schmidt, of Buena Vista, Iowa, with a swarm on his arm. In spite of the fact that this apiary is located in the shade of an orchard, Mr. Schmidt finds it a good plan to use shade-boards, and to raise the hives from the bottom-boards as shown in the next engraving.

and 18 inches long, with the frames hanging crosswise. These frames were 5⅛ 11½, inside measurement—11 to each section, and two sections for each colony in winter. I have in use something like 7000 of these shallow frames, Fig. 1, and they have proven to be very satisfactory, both during winter and in the spring when the colonies were building up for the honey-flow! The Salisbury frame was too shallow to hold honey enough above the cluster to carry a colony through the cold weather. Undoubtedly my inexperience was responsible for some of the failures that I made with this first frame.

THE USE OF THE SECTIONAL HIVE AND THE SHALLOW FRAME.

In a moment's time, with the sectional hive we can provide a very large brood-chamber or a very small one by adding to or taking away one or more sections. For instance, if a colony is below normal strength it may be given a single section in the early part of the season, thus reducing the brood-chamber to the requirements of the colony. Again, a good colony just entering fruit-bloom needs more room; but to add a full-depth brood-chamber above would do more harm than good, for the volume of such is too large for the bees to maintain the proper temperature for brood-rearing. Thus the bees have to cluster more closely than they do before the extra room is given, which reduces the brood-nest instead of enlarging it. If half the space, or, in other words, a single shallow section of a hive be given, the colony will be able to occupy it.

The sectional hive plays a very important *role* in the production of a large crop of fancy comb honey. By means of it we give the bees sufficient room to keep them from getting the swarming fever when they are gathering honey at the opening of the main flow. At such a time I take away all but one section of the brood-nest by smoking

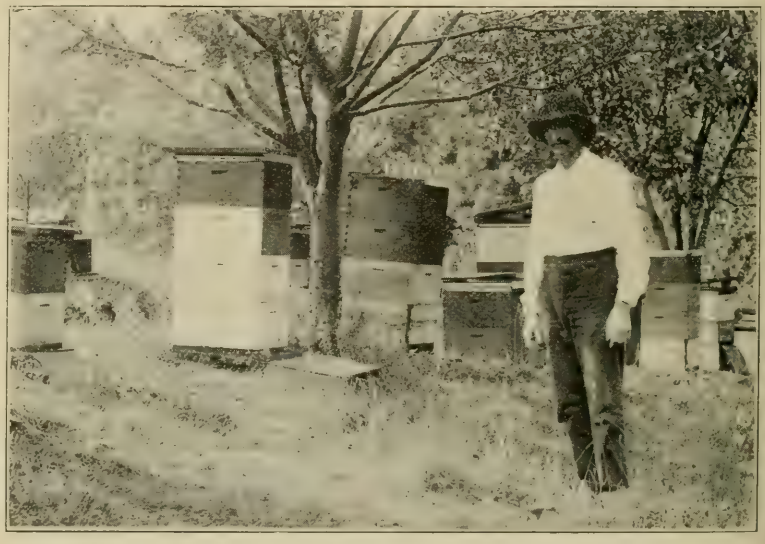


Fig. 2.—A swarm that clustered in a convenient place for hiving.

the bees down or shaking them, and then give comb-honey supers to take the place of the brood-sections removed. The single section of brood left is large enough to maintain the strength of the colony. Fig. 2 shows two colonies in August during the flow of alfalfa which were reduced to a single section of brood on June 15. Each has two comb-honey supers finished, and three were removed from each one on July 10. Usually from the 1st to the 10th of August we take away all comb-honey supers and give sectional brood-combs for the colonies to build up and store in for winter from fall bloom of goldenrod, asters, "queen-of-the-May," snakeroot, etc.

The sectional hive has this advantage also: After a colony has been breeding in a large hive, one can easily reduce brood-rearing to a minimum at a time when bees should be building comb instead of raising a family of consumers; for all bees, in excess of the loss, hatched during July, are of no value unless in a buckwheat location; therefore, retarding brood-rearing during the white-honey flow is of benefit to the colony.

The queen will occupy a small brood-chamber so completely that the best honey will not be stored in the brood-combs. After the white-honey flow is over, and the second section of brood-combs is given, egg-laying having been retarded for two months, the queen will occupy the combs very rapidly, and the bees that hatch from this time on are the ones that live through the winter. This plan gives a colony about twice the number of young bees hatched in September that can be obtained from an eight-frame Langstroth hive worked in the usual way, and about a third more than the ten-frame hive would yield. A large colony with considerable honey in the brood-nest does not show the same zest for brood-rearing as does a colony of medium strength.

Another strong point in favor of the sectional hive is the bee-spaces between the two sets of frames, which makes possible a passageway for the bees to reach their stores without moving over or under or around the cold ends of the frames. The honey should be, and usually is, in the upper sections, which will hold from 30 to 35 lbs. The lower section, being mostly empty, affords an ideal brood-nest for successful wintering.

Camillus, N. Y.

PRODUCING EITHER COMB OR EXTRACTED HONEY WITHOUT SWARMING.

BY B. F. SCHMIDT.

In order to produce the finest comb honey, the apiarist must have all colonies very strong, and the bees must be taught to work in an extracting-super before any comb-honey supers are given. When all colonies are working strong in the extracting-supers, and the honey-flow has well started, the extracting-super should be set back of the hive-stand, and all the brood taken away from the brood-chamber below, except one comb where the queen is found laying. Leave this one comb in the brood-chamber, and in place of the others removed put in combs drawn out the year before from full sheets of foundation. After the cover is put on, all the bees should be brushed in front of the entrance. Then after sundown, when all the bees are in, I remove the cover with as little smoke as possible, and put on the comb-honey supers containing full sheets of foundation and sections. I generally put on two supers at a time, although this depends on the strength of the colony. One who has tried it will be surprised to see how the bees go to work and draw out the foundation in the sections. I remove all the brood but one frame, in the manner stated, to give the queen laying room. A colony having a young queen, with plenty of empty combs for laying, will hardly ever swarm.

With the brood that I remove I strengthen weak colonies, and occasionally place some of it in extracting-supers to coax the bees above.

With this plan I have been able to produce the finest comb honey, and I have had but very little swarming, although I have generally used shade-boards, or blocked up the hives one or two inches from the bottom-boards to provide extra ventilation in the hottest weather.

To prevent swarming when colonies are run for extracted honey, plenty of drawn comb should be on hand, or, of course, full sheets of comb foundation will do. By extracting the combs as fast as they are sealed, and giving the bees plenty of comb space all the time, they will keep right on working without swarming.

In the engravings showing the bees on my hat and arm, a number of four-story colonies will be seen. The two lower bodies (eight-frame) I use for brood, while the two upper ones are the extracting-supers. I have my apiary in a young apple-orchard where there is just the right amount of shade.

North Buena Vista, Ia.

HOME-MADE CAPPING-MELTERS.

A Successful Outfit for Disposing of Cappings; the Result of Considerable Experimenting.

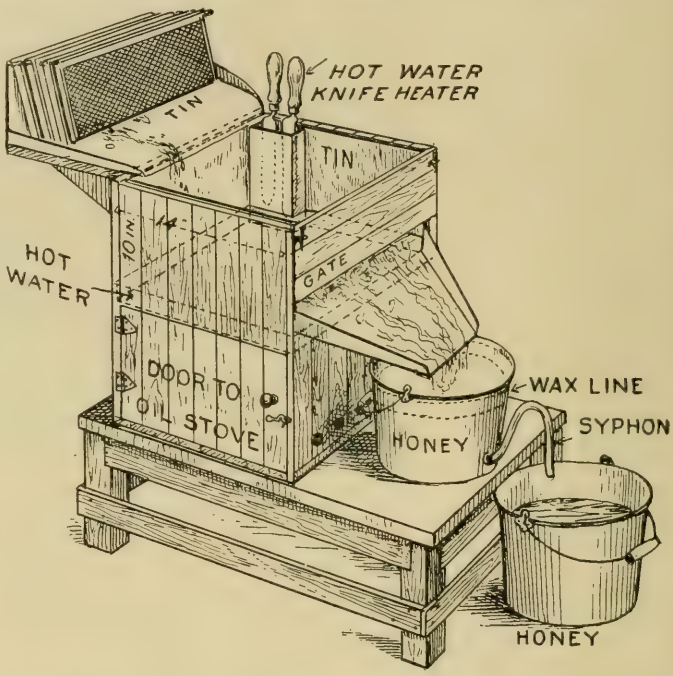
BY G. W. HAINES.

I have made several capping-melters; but the last one, which I used at the home apiary, worked the best. In the winter I usually make whatever I need the next season, and last February I made five new melters like the one here described, one for each out-apiary.

The first melter I ever made had a small tin tube for the wax and honey to run out; but I found this would clog up and cause the honey to overheat. I kept putting in a larger and larger tube until I finally left the whole front of the melter open; then my first machines held so much water that it

took entirely too long to start work, and, besides, required too much heat. My last one is just right in this respect.

The melter as shown in the illustration is 14 inches square, and there is a 1½-inch space for water, which space communicates with the square tube shown in the corner, which I use for filling and for heating the uncapping-knives. There is no water along the sides of the can, as I have found this unnecessary. I have three or four braces in the water space at the bottom to prevent the heavy cappings from sagging down in the middle and forcing the hot water up out of the filling tube.



As shown in the engraving, I have the melter almost entirely surrounded with a wooden jacket to confine the heat. I have found that a two-burner oil-stove provides enough heat in view of this wooden jacket. The tank rests on iron braces so that there is no wood that comes in contact with the stove, and therefore no danger of burning. Some of the small particles of wax pass over into the separating-pail before they are melted, but this does no particular harm, as I always remelt the wax any way, to get it in shape for market.

At the outyards the honey from the separating-pail passes over into a can on the floor, but at the home yard it runs direct into the strainer and is then pumped over to the tanks with the rest of the honey.

The two-inch opening clear across the front of the melter is ample in size, and I have never known it to clog. The back of the melter is about 2½ inches higher than the front, to give a good fall. With this much slant, large pieces of comb, etc., might pass over unmelted, and so I have a wooden gate that swings across the front, coming within two inches of the bottom, as stated. This is hinged so I can turn it back out of the way when I wish to remove the melter from the box.

In spite of the precautions I have taken to confine the heat, I find that the stove makes the room a little warmer; but practically all of our extracting is done with a power outfit, and a fan is always running, so the higher temperature makes no particular difference.

Mayfield, N. Y.

[The principles of this capping-melter are along the right line; but we would suggest that 14 inches square of heating surface for melting the cappings is hardly enough to take care of two people uncapping. When a power extractor is used, unless the combs are kept very long in the machine it will take two people with a knife to keep up. Such a machine as here shown will become congested. The scheme of the wax-separator is the same as that employed by F. R. Beuhne, of Australia.—Ed.]

EXTERNAL CHARACTERISTICS OF AMERICAN AND EUROPEAN FOUL BROOD.

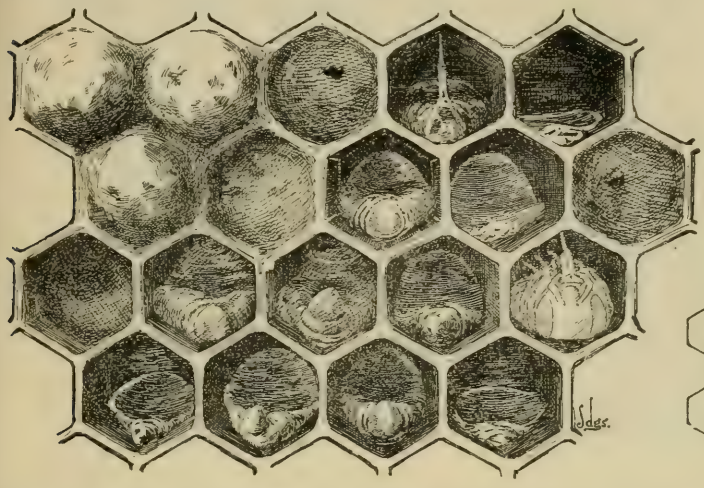
BY E. F. PHILLIPS, PH. D.

[For a good many years efforts have been made to photograph diseased brood and reproduce the exact appearance of the cappings, the diseased larvæ, etc.; but a photograph fails to show clearly the distinguishing features of disease. In other words, a comb containing chilled or starved brood may have all the outside appearances of disease, so that many, seeing the photograph only, would be deceived. The Bureau of Entomology of the United States Department of Agriculture has just issued (May 6, 1911) Farmers' Bulletin 442, on the subject of "The Treatment of Bee Diseases." The illustrations in the form of carefully made pen drawings being ahead of any thing we have previously seen, we at once asked permission to reproduce them for our readers, and the following is an extract from this bulletin, with the illustrations that go with it.—Ed.]

AMERICAN FOUL BROOD.

American foul brood is frequently called simply "foul brood." It usually shows itself in the larva just about the time that the larva fills the cell and after it has ceased

feeding and has begun pupation. At this time it is sealed over in the comb (Fig. 2, *a*, *b*, *f*). The first indication of the infection is a slight brownish discoloration and the loss of the well-rounded appearance of the normal larva (Fig. 2, *l*). At this stage the



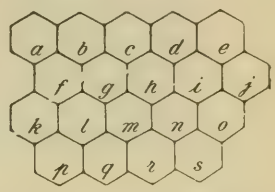


Fig. 2.—American foul brood: *a*, *b*, *f*, normal sealed cells; *c*, *j*, sunken cappings, showing perforations; *g*, sunken capping not perforated; *h*, *l*, *m*, *n*, *q*, *r*, larvæ affected by disease; *e*, *i*, *p*, *s*, scales formed from dried-down larvæ; *d*, *o*, pupæ affected by disease. Three times natural size. (Original.)

disease is not usually recognized by the bee-keeper. The larva gradually sinks down in the cell and becomes darker in color (Fig. 2, *h*, *m*), and the posterior end lies against the bottom of the cell. Frequently the segmentation of the larva is clearly marked. By the time it has partially dried down and has become quite dark brown (coffee-colored) the most typical characteristic of this disease manifests itself. If a match-stick or tooth-pick is inserted into the decaying mass and withdrawn the larval remains adhere to it and are drawn out in a thread (Fig. 3), which sometimes extends for several inches before breaking. This ropiness is the chief characteristic used by the bee-keeper in diagnosing this disease. The larva continues to dry down and gradually loses its ropiness until it finally becomes merely a scale on the lower side wall and base of the cell (Fig. 2, *e*, *p*, *s*). The scale formed by the dried-down larva adheres tightly to the cell and can be removed with difficulty from the cell wall. The scales can best be observed when the comb is held with the top inclined toward the observer so that a bright light strikes the lower side wall (Fig. 4). A very characteristic and usually penetrating odor is often noticeable in the decaying larvæ. This can perhaps best be likened to the odor of heated glue.

The majority of the larvæ which die of this disease are attacked after being sealed in the cells. The cappings are often entirely removed by the bees; but when they are left they usually become sunken (Fig. 2, *g*, *c*, *j*) and frequently perforated (Fig. 2, *c*, *j*). As the healthy brood emerges the comb shows the scattered sunken cappings covering dead larvæ (Fig. 4), giving it a characteristic appearance.

Pupæ also may die of this disease, in which case they, too, dry down (Fig. 2, *o*, *d*), become ropy, and have the characteristic odor and color. The tongue frequently adheres to the upper side wall and often remains there even after the pupa has dried down to a scale. Younger unsealed larvæ are sometimes affected. Usually the disease attacks only worker brood, but occasional cases are found in which queen and drone brood are diseased. It is not certain that race of bees, season, or climate has any effect on the virulence of this disease, except that in warmer climates, where the breeding season is prolonged, the rapidity of devastation is more marked.

EUROPEAN FOUL BROOD.

European foul brood was formerly called "black brood" or "New York bee disease." The name "black brood" was a poor one, for the color of the dead brood is rarely black or even very dark brown. European foul brood usually attacks the larva at an earlier stage of its development than American foul brood, and while it is still curled up at the

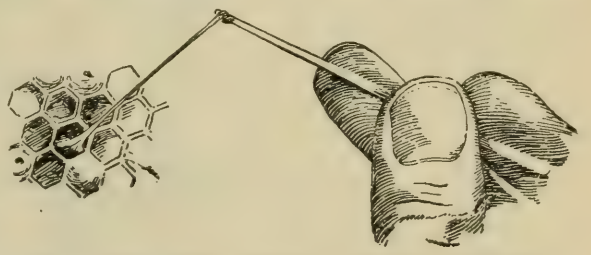


Fig. 3.—The ropiness of American foul brood. (Original.)

base of the cell (Fig. 5, *r*). A small percentage of larvæ dies after capping, but sometimes quite young larvæ are attacked (Fig. 5, *e*, *m*). Sunken and perforated cappings are sometimes observed just as in American

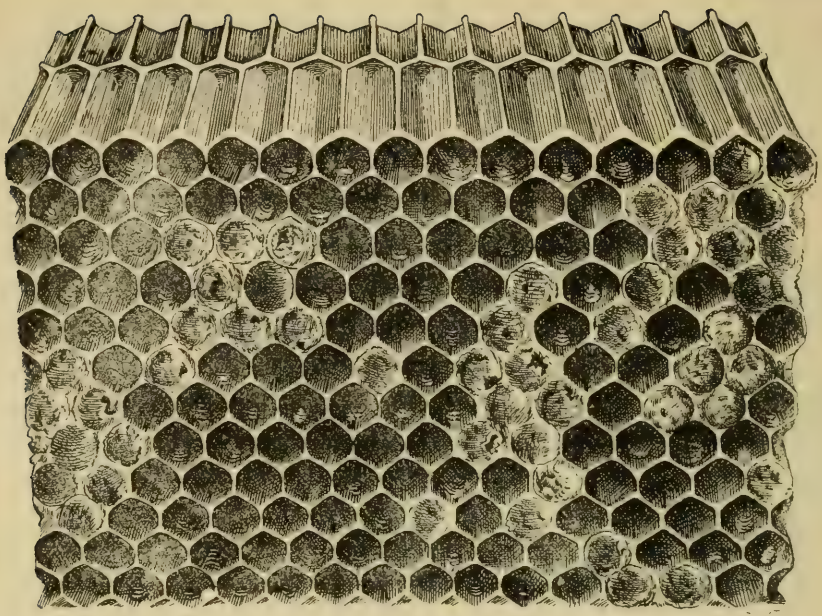
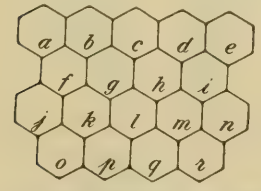


Fig. 4.—American foul-brood comb, showing irregular patches of sunken cappings and scales. The position of the comb indicates the best way to view the scales. (Original.)

foul brood (Fig. 2, *c*, *g*, *j*). The earliest indication of the disease is a slight yellow or gray discoloration and uneasy movement of the larva in the cell. The larva loses its well-rounded, opaque appearance, and becomes slightly translucent, so that the trachæ may become prominent (Fig. 5, *b*), giving the larvæ a clearly segmented appearance. The larva is usually flattened against the base of the cell, but may turn so that the ends of the larva are to the rear of the cell (Fig. 5, *p*), or may fall away from the base (Fig. 5, *e*, *g*, *l*). Later the color changes to a decided yellow or gray, and the translucency is lost (Fig. 5, *q*, *h*). The yellow color may be taken as the chief characteristic of this disease. The dead larva appears as a moist, somewhat collapsed mass, giving the appearance of being melted. When the remains have become almost dry (Fig. 5, *c*) the tracheæ sometimes become conspicuous again, this time by retaining their shape, while the rest of the body content dries around them. Finally all that is left of the larva is a grayish-brown scale against the base of the cell (Fig. 5, *f*, *h*), or a shapeless mass on the lower side wall if the larva did not retain its normal position (Fig. 5, *n*, *o*). Very few scales are black. The scales are not adhesive, but are easily removed, and the bees carry out a great many in their efforts to clean house.

Decaying larvæ which have died of this disease are usually not ropy as in American foul brood, but a slight ropiness is sometimes



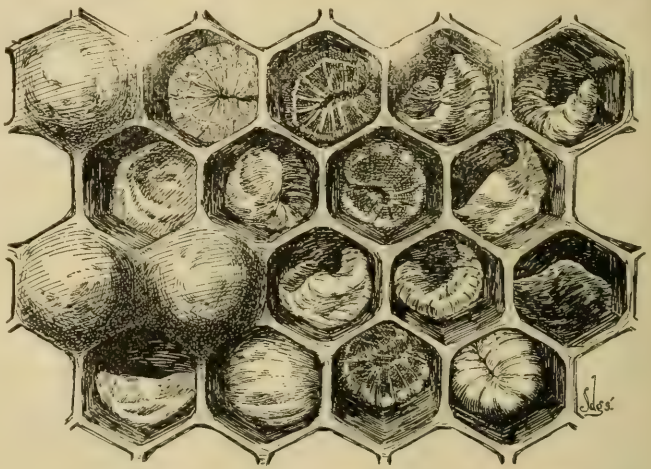


Fig. 5.—European foul brood; *a*, *j*, *k*, normal sealed cells; *b*, *c*, *d*, *e*, *g*, *i*, *l*, *m*, *p*, *q*, larvæ affected by disease; normal larvæ at age attacked by disease; *f*, *h*, *n*, *o*, dried-down larvæ or scales. Three times natural size. (Original.)

observed. There is usually little odor in European foul brood, but sometimes a sour odor is present, which reminds one of yeast fermentation. This disease attacks drone and queen larvæ* almost as quickly as those of the workers.

European foul brood is more destructive during the spring and early summer than at other times, often entirely disappearing during late summer and autumn, or during a heavy honey flow. Italian bees seem to be better able to resist the ravages of this disease than any other race. The disease at times spreads with startling rapidity and is most destructive. Where it is prevalent a considerably larger percentage of colonies is affected than is usual for American foul brood. This disease is very variable in its symptoms and other manifestations, and is often a puzzle to the bee-keeper.

THE TRUTH ABOUT ALFALFA IN NEW MEXICO.

Why New Home-seekers should Investigate before they Invest.

BY O. B. METCALFE.

On page 257, April 15, Mr. H. Robinson states that alfalfa is a sure thing around Roswell, because there is an abundance of water from the artesian wells. No one made the statement that alfalfa would be likely to die out in New Mexico for lack of water. While we used to grow little else here in the Mesilla Valley than alfalfa, because of a scarcity of water, now every farmer who can get the money to put in a pumping-plant is plowing up as much alfalfa land as his plant will water; and the more progressive are saying that, when the assessments from the big dam come in, some other crop must be found which will pay more per acre than alfalfa. If this statement brands me as a knocker, all right. I want to see this country developed and advertised for what it is, but I do not want to see it boomed until it is like a balky horse that every man has to sell for three times his worth in order to get his money back. Land shoved up to this point is close kin to watered stock; and the bad part of it is that *that* kind of water will not make crops grow on the land in exact proportion to the amount applied.

The articles on Florida lands, by Mr. Root, are just what I wish the editors of all the good journals could take the pains and time to get out for New Mexico. I was very glad to see the article in the April 29th, 1911, issue of the *Saturday Evening Post*, by Emerson Hough, on "Irrigation as It Is." I hope the article will not keep eastern home-seekers from coming out and taking the land for what it is worth. It is all right at that, and we want them all as neighbors and fellow-workers; but I for one wish that they might all come with their eyes open.

A DASTARDLY WAY OF FIGHTING PARCELS POST.

While in Las Cruces a few days ago I was talking to a friend who keeps a store there, when a man came in with a petition which he was taking around to all the merchants in town to be signed. My friend refused to sign it, and told me, after the man had gone, that it was a petition to be used in fighting parcels post, and that some of the merchants in Las Cruces were signing it. I wonder if this kind of work is being done in the East also, and what organization is footing the bills to have such a petition circulated.

Mesilla Park, N. M.

[GLEANINGS has always tried to state the facts about any new territory—especially to tell all the bad things—so that the unsophisticated will not rush into a new locality only to experience bitter disappointment and the loss of every dollar they ever had. It is an awful thing for one to find himself stranded in a new country among strangers, the victim of real-estate men who ought to be serving a term in the penitentiary. Many and many a time have we seen these poor people with their families on the verge of starvation, scarcely able to get the necessary food to hold body and soul together, without a penny to get back home again where they might have their old job among their friends. It is cold comfort to be told that they were just ordinary suckers — that they should have known better.

On the other hand, there are vast areas of undeveloped country under the stars and stripes where thousands can find health and wealth. We know of a number who, under the doctor's orders, were just barely able to make a living in the North, sold out every thing they had, and went down to Florida and obtained a new lease of life, and enough to live on. Generally these lucky ones feel that they have "struck God's country," and they are grateful to the great Father because he has made for *them* a land flowing with milk and honey, where *they* can live and prosper.

As we have said repeatedly in these columns, no one should go into a new territory with his family and all his belongings until he has gone there first and investigated. If he has no money he should be sure to get hold of a steady job and thus have some means to support his family that can come later. If one is in ill health, and can not live long in the North, and has neither money nor muscle, he may perhaps get some friend who is already located in the South to find something for him that he can do. If he can not make such connection he had better die north among his friends than to starve to death among people who do not know him, and who might shun him if he is afflicted with the white plague.—ED.]

*The tendency of this disease to attack queen larvæ is a serious drawback in treatment. Frequently the bees of a diseased colony attempt to supersede their queen, but the larvæ in the queen-cells often die, leaving the colony hopelessly queenless. The colony is thus depleted rapidly.

Heads of Grain from Different Fields

Room for More Bees in Idaho.

In reply to Wendt Brothers, page 240, March 15, I will say I was more fortunate than the writer of that article in securing a homestead, for I got a claim with bee-range attached, and there is still vacant land in the same township; but it has been withdrawn from entry, so I was informed by the Boisé land office, Feb. 11th, some time after I wrote the letter which appeared in GLEANINGS for March 15. This is now known as segregated land, and will probably come in under a reclamation act at some future time.

In regard to the overstocking of our bee-range, I do not think we are hurt yet, or have any cause for alarm. A Colorado man landed a carload of bees in our midst a few days ago, and was shown a good location. This man shipped here just because he wanted to move somewhere, and Caldwell looked good to him on the map.

No one should move his bees here, nor anywhere else for that matter, without first making a personal investigation; but I fully believe that, under existing conditions (a few scattering foul-broody colonies in the hands of careless farmers or inexperienced people), if this whole bee-range were occupied by competent bee-men it would be a matter of only a short time when all foul brood would be wiped out; but as it is, we are too few in numbers to make our presence felt. We have a very good foul-brood law, but no appropriation with it, so the inspectors get no pay, and, consequently, they do but little work. I do not know of a worse-infected apiary than that of our worthy inspector at the present time; but, as before stated, he gets no pay, and can not be expected to work for nothing.

I am not a locator, neither am I advertising bee-pasture; but if Wendt Brothers are getting crowded it may be they could find room for a few colonies in this neighborhood; and if they are good foul-brood fighters we will give them a hearty welcome and render every assistance possible. I know of but two locations in the United States where a good man and a few clean bees would not be welcome—Imperial Valley, Cal., and Parma, Idaho.

Caldwell, Ida., May 1. J. E. MILLER.

Bees for the Southland.

In your talk about a different bee for the South, you hit the nail square on the head. I have known it for four or five years, although I had it impressed harder on me last fall than ever, when colonies of 100,000 bees dropped to 10,000 in 30 days on aster, there being no brood hatching to take their place. All would have died out if we had had a hard winter. We must do something in that line or quit.

Wallsend, Ky., May 29. O. R. WEAVER.

Sweet Clover: Putting the Horses on the Witness-stand.

Replying to your favor of the 23d, asking for a report on our sweet-clover results, I will say that we sent up, in addition, to the seed purchased of you, some 60 lbs. that we purchased cheap of a bee-keeping friend of ours here. We gave instructions to lay out eight small experimental plots, and the rest to sow out through the pasture. Instructions were given to inoculate as much as possible with what soil could be obtained. We are stirring up a hornets' nest among some of the farmers; but we always win—*by feeding sweet clover to their own horses.*

We will report results to you as they become noticeable, and you will probably have some nice orders for seed from us along in the fall if this is successful.

Peoria, Ill., May 24. W. R. CONE.

The North Texas Bee-keepers' Convention Report.

April 5 and 6, 1911, the North Texas Bee-keepers' Association met at Enloe, with a good attendance. After a call to order by the president, and invocation by W. H. White, the president appointed a committee to draft a program, as none had been arranged. While it was being drafted there was a general hand-shaking, and an opportunity to get acquainted.

After the program had been handed in, there was one of the most lively and enthusiastic discussions that we have had for many years. The following was discussed: "Why keep bees?" "Location and arrangement of the apiary."

At 1:30 P.M. the following subjects were discussed: "The Inhabitants of the Hive;" "How to Begin Bee-keeping;" "Swarming, and How to Control;" "Feeding Bees—the Proper Feed, and how to Feed;" "Enemies of Bees."

At the business session on the second day, J. M. Hagood, Enloe, was elected president; J. R. Scott, Brookston, First Vice-president; J. W. Traylor, Lake Creek, Second Vice-president; W. H. White, Greenville, Secretary, W. T. Moore, Enloe, Chaplain.

Greenville, Texas, was selected for the next place of meeting.

"Honey-plants of North Texas," "Honey from Cotton," as mentioned in the A B C of Bee Culture, page 131, was discussed.

A resolution was offered and adopted, "Be it resolved by the North Texas Bee-keepers' Association that the statement as a whole, made by the A B C and X Y Z of Bee Culture, page 131, concerning cotton honey is erroneous, and misleading."

"Comb Honey," "Extracted Honey," and "Marketing Honey" also received due share of discussion.

[The item in regard to cotton honey has been marked for correction in the new edition.—ED.]

Is it Safe to Clip Queens When there are Lizards in the Grass Around the Hives?

I notice in your A B C book you strongly advise clipping the queen, in order to prevent her leaving the hive with the swarm; also that the queen is often found in the grass in front of the hive, trying to fly, while the swarm is in the air. In this country we have in our apiaries a great number of lizards that would soon pounce on a queen or a bee as soon as it strikes the ground, and devour it in an instant. Considering this, would you advise clipping our queens?

MAKING INCREASE RAPIDLY, LEAVING HONEY OUT OF CONSIDERATION.

In making new colonies I am using the following method: When a colony is very strong I am taking out three frames of capped brood with the queen, and placing them in a nucleus box, taking care to leave uncapped cells and eggs in the original hive. Within three days I find the queenless colony begins to draw out queen-cells, and set about rearing a queen. In this way I think the queen reared in the original colony is much stronger than one raised in a nucleus. I should like very much to hear your opinion on this matter, and will appreciate any suggestions you may make as to the best method of increasing numbers of colonies (honey being no object) for several months, as we do not have to consider winter stores in this country, as the forest here is all honey-producing.

Ponce, Porto Rico. W. K. ANDREWS.

[Under the conditions named, it would certainly be unwise to clip the queen. We would, therefore, advise the use of Alley traps, or just plain drone-guards.

Your method of increase would, we think, be satisfactory. For a general method of increase we would recommend the plan given in Alexander's book.—ED.]

Trouble in Transferring.

Since reading the letter of V. A. Texera, page 187, I have been desirous of writing you with regard to the matters set out in said letter, but have been putting it off from time to time. However, the inquiry of M. Lucy Fritz, page 283, has finally impelled me to write the letter I have been wishing to write.

Two other people and myself tried the plan of transferring set out in the two letters above this spring, and in each case, except one, the outcome was very disastrous. To make plain what we did, I herewith set out the way each of us, acting independently of the other, transferred some colonies: We took a new hive with frames with full sheets of foundation. We then found the queen and put her, together with some bees, in the new hive; then put on a queen-excluder, and, on top, the old hive. In every case, except one, the bees deserted the queen and stayed up in the old hive; and the spring, being

cold and rainy, the queen soon died. The bees did not touch the frames in the new hive.

The one case that was successful was where some comb with brood was put in the new hive, and in that case the bees did not desert.

I know of another case last summer where bees were transferred along in August after the plan suggested on page 283, and it was successful too.

So it would seem that the plan suggested on page 283 will not work unless some brood is also put in the new hive, or unless the weather is very warm. I offer these suggestions so that some other beginner like myself may possibly be spared a very disheartening experience.

Louisville, Ky. R. P. DIETZMAN.

Weight of a Jelly-tumbler of Honey.

How much honey will an ordinary jelly-tumbler hold? What will it weigh, and what should it sell for? I should also like the same information concerning the No. 25 jar.

Hartford, Ct. L. W. ADAMS.

[There seems to be no stated amount of honey in an ordinary jelly-tumbler. We have seen a great many which ran from six to eight ounces, although we believe the average package holds about seven ounces. The No. 25 jar is supposed to hold practically 16 ounces.—ED.]

Queen Found Wingless in the Spring.

The best-working queen in my apiary this summer is wingless. When she went into winter quarters last fall she had wings. On my first examination this spring I found that they were gone. Will you explain the probable cause of her losing them?

New Haven, Ct. ELMER A. DENT.

[When queens are balled they are often crippled, and it is not strange to find them with their wings partly gone. We presume that the queen mentioned in your letter of June 5 was balled, but it seems strange that the bees should have thus attacked the best queen in your apiary. It is possible that you will find that they will supersede her this season.—ED.]

Drones: what Becomes of them in an Alley Trap.

Should drones be destroyed by the use of the Alley trap? When? Is there danger of destroying the queen in doing so?

Suffolk, Va., May 29. W. T. BAILEY.

[Undesirable drones, when caught in the upper chamber of the Alley trap, will starve to death very shortly.

There is no likelihood that the queen will go up into the upper chamber of the trap with the drones unless she attempts to emerge with a swarm. In that case sufficient bees will cluster around her and feed her. We have known queens to be kept in this way for days at a time.—ED.]

Capacity of the Gravity Strainer.

Mr. E. D. Townsend:—I should like to inquire if you consider *one* of your new settling-tanks, of the size you describe, sufficient for a large apiary, where an eight-frame extractor run by power is used. Also, would it not be more desirable to construct the same of heavy tin instead of using galvanized material? I think this tank must be a great advance over the old style.

Altamont, N. Y. W. D. WRIGHT.

[Mr. Townsend replies:]

We have never tested this tank for more than 3000 lbs. per day, and this by hand power. I have no doubt, however, but that this size of tank would handle considerably more than this amount. The impurities in honey will separate very readily at a temperature of 85 or 90; and as the temperature falls, separation is slower.

Knowing something about extracting with power, I think honey could be extracted quite clean from the combs, at such a low temperature that separation would be very slow. With our hand-power extractors we have always had good success with the separator at any time when the weather was suitable to extract. In other words, this tank will do its work at any temperature when the cheese-cloth strainer will work.

We empty our honey from the extractor into the tank in large pails. Were this honey pumped, or the tank arranged below, so the honey would run direct from the extractor into the tank, the separator would work faster.

The descriptions in the journals were intended for the 98 per cent of bee-keepers who, like ourselves, use hand power. Some little experimenting will be necessary where power is used and larger quantities put through this tank in a given time. Try two tanks of this size, and fill them both before beginning to can. Then draw off three cans from the first-filled tank, allowing the other to stand while refilling this first tank. Now draw three from the other, and so on through the day, and I am quite sure you will have your honey in good shape, and no fussing with strainers.

Tin would be better than galvanized steel. While all of our tanks are made of the latter, we shall use tin hereafter. Tin is easier to keep clean; but the main point is, honey is not injured, if allowed to stand in tin, as it is in galvanized steel.

When through extracting at a yard, all the gates of our galvanized steel tanks are left wide open, and the honey allowed to run out into other receptacles. But everything that we order in the future will be of tin.

Remus, Mich. E. D. TOWNSEND.

Bees Sting Orange-grower's Horses to Death.

The enclosed clipping from our county paper may interest Eastern bee-keepers contemplating the exploiting of orange nectar in the San Joaquin Valley. The temptation to secure a crop of orange honey is indeed strong. It is the only bloom which can give a good yield of table honey until late in the season. On the eastern side of the hills, and fast extending beyond, are numerous groves of bearing trees, while hundreds of acres newly set out join them on the west. The writer, a tenderfoot of six months' residence, found this temptation irresistible, and is located about 80 rods from the scene of the accident. An apiary of about 300 colonies is about 40 or 50 rods from a young grove where the trouble occurred.

Here is the clipping:

"A most peculiar occurrence took place near the Bonnie Brae orchards last Tuesday forenoon when an angry swarm of bees lit on and stung a span of horses belonging to Cliff Dungan so badly that both of them died a short time afterward.

"Not only were the horses stung, but the driver, a man named Hardin, was set upon by the bees and badly injured, Dr. Dungan being called to care for him. . . . . Some of the bees lit on the man and team and began to sting. This caused the horses to rear and paw, and this attracted many more of the insects until the poor animals were covered with stingers. The man ran away and saved himself, but the horses did not try to run, and could do nothing to save themselves. . . . The orange-growers in the past have been troubled considerably by marauding bees; and should a few more occurrences of this kind take place they will probably take some drastic action against them."

As nearly as I can find out, those working there, and some further, had been annoyed for some time by flying bees but no swarms. One of the number wore a bee-hat while 80 rods away. Smaller annoyances are the gathering of bees around pumping-plants for house and irrigating purposes, frightening and sometimes stinging people.

The facts in regard to the stinging of the man and horses can not be positively stated. The man with the team, I am told by one interested, saw nothing resembling a swarm, but simply flying bees going to the groves near by. After the fracas they settled in a bunch near by, something like a swarm. The constant handling of frames in looking for disease, shaking for extracting, etc., keep bees in bad temper; but perhaps this accident was entirely owing to the fact that the bees in great multitudes flew in one direction right over the grove to a ninety-acre grove of large trees in full bloom. The scene of the accident was a young grove lately set out, and bees not working on it to any great extent.

Exeter, Cal., May 24. J. B. COLTON.

[This whole affair is a most unfortunate one, of course, and one to be greatly regretted; but the circumstances, not the bees, should have the blame. It is safe to say that an accident of this kind is not likely to occur again in many years; but at the same time bee-keepers should do all in their power to prevent robbing or any thing else to get the bees badly stirred up.

The orange-growers can not afford to get along without the bees. Any "drastic action" would injure the orange industry more than the bee industry.—ED.]

Our Homes

A. I. ROOT

Whatsoever a man soweth, that shall he also reap.—GAL. 6:7.

And Jesus answered and said unto them, I tell you that, if these should hold their peace, the stones would immediately cry out.—LUKE 19:40.

You may have noticed, friends, that we are having quite a few lay sermons; and some of these lay sermons are stirring the world. I gave, a short time ago, one from our Mr. Hallock; and this, it seems, has helped to stir up a sermon I am going to give you from an editor of a daily paper. I am not surprised at these telling protests from the people. It has seemed to me for some time that, if politicians and men of great wealth continue to hold their peace, as we have it in the second of our texts above, the result would be, in the language of the Savior, that the very stones in the pavements would begin to cry out. I have a good friend who reads GLEANINGS away off in Phoenix, Ariz., and he introduced the speaker to our American people. And now I take great pleasure in giving to the world a sermon that, for potency and pungency, and especially cutting truths "right from the shoulder," has seldom been excelled in any of our temperance talks and crusades, so far as I am acquainted with matters:

Mr. A. I. Root:—The Anti-saloon people of Maricopa Co., Arizona, are in the midst of a campaign against the saloons and liquor interests. What their chances of success are I have not been a resident here long enough to say, but hope the saloons will be put out of commission. Any way, it will be decided on the 18th of this month—April.

At the time this campaign started, there was in course of construction the Adams Hotel, a $300,000 building. Mr. J. C. Adams, the main stockholder, is, I believe, the son of a minister; but as a threat and protest against the Anti-saloon campaign he stopped the work and turned all the men off, saying that a hotel would not pay if built in a dry town. It is reported that his mother is heartbroken over the stand he has taken. We suppose that saloon money has paid him to do this.

The leading daily paper (*The Arizona Gazette*, of Phœnix, which claims to have the largest circulation of any paper in Arizona) has come out straight with the Anti-saloon League against the whisky interests, although by so doing they are making strong enemies of all those who side with the liquor business, and have even been threatened with boycott, etc.

After reading your Home paper in GLEANINGS for April 1st, where you mentioned the Adolphus Busch incident, we copied said piece and sent it to the *Gazette*, asking if they could use any extracts from your piece in the Anti-saloon campaign now in progress. I herewith send you a clipping from the *Gazette*, showing how they used the same. They also wrote us a letter, thanking us very much for the article.

Phœnix, Ariz. J. I. & G. E. MORGAN.

The following is the extract referred to:

THE SALOON MUST GO.

Down in Binghamton, N. Y., lives a man named Jones. This man is a manufacturer. He is engaged in making scales, which he ships all over the country. Years ago he adopted an advertising slogan, and that slogan has become a by-word in every part of this great country. Every newspaper reader has read, "Jones, he pays the freight."

Voters of Maricopa County, who pays the saloon freight?

For the past several days the saloon people have been regaling us with stories of their beneficence. They have told about the taxes they dump into the city treasury; and they strongly intimate that, if it were not for the saloons, Phœnix would be a total loss with no insurance.

Of course this is all humbug, and the ranker sort of humbug at that. The expense of the saloons, as every intelligent man knows, is vastly greater than the amount collected in taxes. To be explicit, it is $42,000 a year greater for this city alone.

But who pays this revenue? Do the saloons pay it? They don't contribute a dollar of that sum.

That money is the price of drunkenness. It is the price of poverty and want. It is the price of wrecked homes and hungry children. It is the price of broken manhood and broken hearts. It is the price of promises broken, of vows unfilled. It is the price of degraded womanhood. It is the price of crime, of misery, and of want. And the heart-broken wives and mothers, and the poor underfed children—they are the people who pay this tax.

When Judas Iscariot betrayed the Savior with a kiss he performed an act of effrontery that has but one parallel in the world's history; and that parallel is furnished by the saloon man when he walks over the broken hearts of his victims, dumps *their* money into the city treasury, and with a smirk that would do credit to the arch hypocrite himself says, "See what I am doing for your town."

Yes, Mr. Saloon Man, the people of Phœnix see what you are doing for this town. They see it every time they take a look at Whisky Row. They see it every time you send another victim to the penitentiary. They see it every time you furnish another inmate for the insane-asylum. They see it at the crowded poor-farm. They see it at the county jail, where twenty-eight of your product were sent in a single day. There is no doubt about it—the people see what you are doing for this town.

What is said to have been the most elaborate golden-wedding anniversary ever celebrated anywhere in the world took place in Pasadena, California, March 7, with Mr. and Mrs. Adolphus Busch as the central figures.

The most beautiful and costly of the presents was a diadem presented to Mrs. Busch by her husband. It is described as a crown of gold studded with diamonds and pearls, and valued at $200,000. It was made in Frankfort, Germany. The reports state that at the wedding feast at the Busch mansion Mrs. Busch was crowned, and given a seat beside her husband, on a miniature throne.

The presents received by the couple were worth $500,000. Who paid the freight?

Adolphus Busch is one of the wealthiest brewers in the United States; and, having made his millions in beer, he has gone to the prohibition town of Pasadena to live. His beer is sold all over the country. It is sold in Phœnix. The men and women and children of this city helped pay for the diadem with which his wife was crowned. But you don't notice the wives of any of Mr. Busch's Phœnix customers wearing diamond-studded crowns, do you?

Here is the way T. P. Hallock sizes it up:

"For the brewer's wife, a crown of diamonds; for Jesus Christ, a crown of thorns; and what of the wives of the drunkards who have so generously poured their pennies, dimes, and dollars into this wife-crowning brewer's purse? Will *they* wear golden crowns?"

Rev. Charles F. Aked, one of the greatest preachers in this country, who recently left New York to go to San Francisco because he thought he could do more good in that city, says:

"Gather together into one view all the people you have ever known or seen or can think of who love the church better than the saloon; and all the people you have ever known or seen or can think of who love the saloon better than the church. If it could be done, no living human being upon this earth, who is capable of connecting two ideas, would ever need to read one single printed page of argument, either upon the 'Fruits of the Liquor-traffic' or the 'Evidences of Christianity.'"

Dr. Aked is a member of the board of trustees of the Anti-saloon League of New York.

But T. P. Hallock, who wrote the paragraph quoted above, is not an Anti-saloon League man. He has no connection with that organization. So far as the *Gazette* knows, he is not connected with a church. He is a business man; but he is a business

man who sees, as not every business man sees, the horrors and infamies of the saloon traffic. Mr. Hallock is advertising manager for The A. I. Root Co., Medina, Ohio.

Adolphus Busch helped make Whisky Row; and the patrons of Whisky Row helped make Adolphus Busch, and helped pay for that diamond-studded crown. Was it a fair exchange?

They say that crown cost $200,000.

Was that all it cost?

That is only a small part of the purchase price. It cost the lives of men and women. It cost the happiness of countless homes. It cost ten thousand times its price in ruined manhood. It cost the self-respect of boys and girls. It was paid for in the tears and heartaches of wives and mothers.

Where did that money come from?

Was it not counted out under the red lights of the tenderloin? Was not its clink heard in the houses of shame? Was it not thrown down on the saloon counters in Whisky Row? Did it not come from the pockets of honest toil? Were not the food and clothing of innocent children sacrificed that the wife of a millionaire brewer might wear that diamond crown?

Saloon-keepers of Phœnix, go on with your work. Prate about the taxes you pay. Howl your hypocrite chant of personal liberty from the housetops, if you will. Take the last penny from the husbands and sons of heart-broken women and children. Continue your work of making paupers and criminals. Buy up all the newspapers you can. In the name of decency and purity, don't let Whisky Row go down. Entrap the boys as you have done in the past. Ply your trade to the limit. There is room in the penitentiary for a few more criminals. There is room in the asylum for a few more insane. There is room at the poor-farm for some more paupers. If the money you get out of it is worth all that, exact your pound of flesh; but just as certainly as the God of justice lives, a day of reckoning is coming.

It has been written, that "whatsoever a man soweth, that shall he also reap." The *Gazette* has never been inclined to preach. It leaves that for the men trained to the work. But it is a fact in nature that a man pays for whatever he does. Some time, somewhere, the debt must be canceled. Some time, somewhere, there must be a reckoning. Every time you send a murderer to the scaffold you sign a note, payable some time and at some place. Every time you break some woman's heart you sign one of those notes. Every time you darken the mind of a man you sign one of those notes. You are signing some of those notes every day of the world, and some day they are going to fall due. That is a law of nature, and all the legislatures in the world can not repeal or amend that law.

Meantime, Mr. and Mrs. Adolphus Busch have their $500,000 worth of presents.

Who paid the freight?

Amen and amen to the above sermon, and may God be praised for the man who wrote the above, and who is not afraid of the brewers and distillers with all their millions. The above terrible arraignment of the liquor business illustrates the wonderful truth in the second one of our texts. When God's servants, the clergy (and may he bless them each and all), fail to lift up their voices, the laymen will be impressed by the Holy Spirit, like the stones in the street, to cry out.

By the way, I want to apologize right here for saying my good friend Mr. Hallock was not, so far as I knew at the time, a member of any church. It transpires on further acquaintance that he has been for years a member in good standing in the Baptist Church. He married a young woman here, a few years ago; and as she was a Methodist, in order that they might worship God together he became a member of that church.

May the Lord bless his message, as well as the one that comes from the editor of the *Arizona Gazette*. I hope it see to copied far and wide.

SEARS, ROEBUCK & CO., MONTGOMERY WARD & CO.; AND SIMILAR INSTITUTIONS.

Over thirty years ago, as some of our older subscribers will remember, quite an excitement was caused throughout our land by what was called the "counter store." If I am correct, it came out of what was called the "bargain counter"—a fashion merchants had of putting things on a special counter at a very low figure in order to get them off their hands, and sometimes to start an excitement by offering some article of common need at an unprecedentedly low figure. As I have "kept store" more or less all my life, I was very early attracted to the idea of furnishing things at a very low figure providing the demand was sufficiently large to warrant close margins; so when the five and ten cent counters started up I was ready to go into it with enthusiasm. Previous to that time it used to be the fashion to sell most little articles for 5 and 10 cts.; and where a thing cost, say, 4½ cts., we usually sold it for a dime, especially in jewelry stores, where they usually have a greater profit than grocers, druggists, etc., usually receive. Things that cost a dollar a dozen, or, say, 8 cts., were sold for 15, as we thought 2 cts. or a little less was hardly profit enough on a ten-cent article. Well, I very soon "set my wits to work" in deciding how many useful articles could be squeezed on to the five and ten cent counters, say by buying them in gross lots or still larger amounts. I think I was one of the first, if not the first, to offer these useful articles by mail and get out a catalog. When it came time for our county fairs a suitable tent was put up on our fairgrounds, with circular counters around the outside. For clerks to take care of the traffic, the girls from our factory readily volunteered; and the thing was so well managed that we sold several hundred dollars' worth of five and ten cent articles as fast as the girls could hand them out and take in the nickels. All this was written up and pictured in GLEANINGS something over thirty years ago. Of course, there was a big protest on the part of the stores and groceries because I had cut prices down to such a mark that nobody could "live." But the thanks of the *people* more than overbalanced these grumbles. To illustrate, a newly married couple would come into the store. The young wife (like a butterfly going from flower to flower) would go around picking up kitchen utensils she was sadly in need of; and when she found the article was only 10 cts. instead of 25, it was just fun to see her face light up; and when the young couple went off with a whole outfit, and had *some* of their money left, it was worth more to me than the small profit I made. Of course we had, later, the 25-cent counter, then one for 50, 75, and $1.00. Finally, however, the growth of the honey business became such, and my health failing at the same time, I reluctantly gave up that line of traffic. One reason was that it seemed absolutely necessary that I should be in the open air as much as possible, and

so I took up gardening, berry-growing, etc., as you may remember.

What brings all of this to mind is that I have only lately noticed that Montgomery Ward & Co., and Sears, Roebuck & Co., have taken up something along the same line, with this difference: They have a list of articles at 2, 4, 6, 8, and 12 cts. each. With their vast wealth and facilities they are well prepared to astonish the world with their bargains. Let me name a few of them that we have recently purchased of Sears, Roebuck & Co.

The asbestos stove-mat that we used to retail at 10 and 15 cts. is now offered at 2 cts. A very pretty nickel-plated stove-lifter is 2 cts., a nut-cracker, a cake of scouring soap, recipe-book, hinges for screen-doors, and a mouse-trap, at the same figure. Just think of it! a few months ago I thought I was giving our people a tremendous bargain by offering these same mouse-traps for a nickel; but now we have one just as good for the ridiculous sum of only 2 cts.

There are so many of the articles I can not mention them here; but I want to give you one more illustration of what I find on that two-cent counter. The door of my incubator cellar is like the usual sloping cellar-doors. Every time I go down to look at the incubator this door is opened and closed, and I soon found it considerable fatiguing labor. On this two-cent counter I found a coiled steel spring. In a twinkling the spring was hooked to the cistern near by, and the other end to the cellar-door. When the door was open the spring pulled it up against the cistern and held it so the wind would not blow it over with a "whack." When shut down so as to close up the cellar, the spring so nearly balanced the weight that it came down very quietly, and a very little effort with one finger threw it up again. That coiled spring that cost only 2 cts., I verily believe was worth to me *$2.00;* and when I wanted a dozen of them so as to have one in each poultry-house door, I got the whole dozen for only *21 cts.* On this two-cent counter there are beautiful nice bright tin cups, pretty good-sized tin pans, beautiful little funnels, corkscrews, can-openers, chalk-lines, fish-lines, etc. On the four-cent counter I found a finely made steel punch that has a better temper than any other punch I ever had. There are also neat and handy screwdrivers, putty-knives, garden-weeders, fish-lines (84 feet long), egg-beaters, and beautiful japanned steel fire-shovels. Let me pause a minute. The fire-shovel your wife is using is old and rusty, and banged up by long use. Suppose you take it in one hand and have one of these new japanned fire-shovels in the other hand. Ask the good wife how much she will give to have the old one cleaned up and polished like the new one. Well, it can be done for only 4 cts. in this way: Toss the old one outdoors to be used in the garden, and give *her* the new one. The latter will do very much better work because the ashes or any thing else will slide right off, leaving it bright and clean. On this four-cent counter are very pretty tin wash-basins, tin pans of various sizes, a very pretty tin pail with a cover, a nice japanned dust-pan, and a most beautiful bright japanned baking-pan. Let me digress again.

Mrs. Root wanted a bread-pan of a certain size to fit our little oven. We went to different hardware stores, but they did not have the size wanted, but we took what they had, although it was so rusty that a lot of time was spent in the vain effort to scour it up so as to look decent. They would not throw any thing off the price *because* it was rusty. I think it cost 15 or 20 cts. Well, now, this *four-cent* pan was made of better stock, much finer workmanship, and is as bright and clean as a silver dollar. You can find on this four-cent counter also a very pretty small-sized mason's trowel; a dozen lamp-wicks; a very useful pair of scissors; a dozen shoelaces, etc. On the six-cent counter there is quite a useful assortment of wrenches; and on the farm it is exceedingly convenient to have wrenches in different places. There is also a two-bladed pocket-knife for 6 cts., and it is a pretty good sort of knife too. A spring tape 60 inches long, nickel-plated, is also on this counter. You can carry it in your vest pocket, and it may be worth a dollar to you. For 12 cts. you can get a great lot of different kinds of tin-ware; a six-quart covered pail, and saw and frame for sawing metals; tea-kettle; coffee-pot; dinner-pail, and a pair of pliers.

By the way, I forgot to say in the proper place that I purchased a pair of pliers for handling gas-pipe for only 6 cts., that has been worth to me more than I can tell in handling the small gas-pipe in our poultry-yard that carries the water to the eleven different yards. This gas-pipe plier cost only 6 cts. For 8 cts. there is a still nicer one, nickel-plated.

Now, the above is only a brief glimpse of the bargains to be found in these books. They are sent to anybody free of charge; and with the aid of this catalog you can tell in a minute just what you *ought to pay*, or about that, for any article needed in the home. Every little while we find traveling men and sometimes tradesmen who are so lacking in conscience that they will not only charge double price, but treble and quadruple—whatever the traffic will bear. The "spectacle fiends" often get *ten times* the proper price for a pair of glasses—that is, they succeed in getting $2.50 for a pair of spectacles that should be just 25 cts. Now, these catalog books will post you on every thing. Not only that, as a rule they suggest the *best* brand of goods for the least money; and on all these new things that are coming up they keep you posted. And last, but not least, they say, "If for any reason whatever you are dissatisfied with any article purchased from us, we expect you to return it to us at our expense. We will then exchange it for exactly what you want, or will return your money, including any transportation charges you have paid."

And they carry it out to the very letter. I do not know whether the heads of these great firms are professing Christians; but they seem to have discovered that the Christianlike way of doing business is the best advertisement that the world has ever discovered. Let me give you one illustration:

Some years ago I wanted a fur cap. I asked Montgomery Ward & Co. to send me two caps, saying that I would return one of them at my own expense. You see I wanted the privilege of examining both before deciding. Well, I returned one of them, and paid the postage on it; but just as soon as it was received they sent back the postage. Just for the fun of it I made a little protest, saying that I wanted to *try* the two caps, and asked only for the privilege of making a change, and therefore it was my *duty* to pay return postage. They replied that it was their custom to pay charges on *any* thing returned, no matter what the circumstances were.

Considerable has been said through the papers about the duty of everybody patronizing his own town. I have heard both sides of the case fully argued; but it seems to me that every American citizen should have the privilege of purchasing *what* he wants *where* he chooses, and as he chooses. Last winter I showed some of my neighbors the things I had bought for 2 cts. each. One of them remarked, "These things at our hardware stores would cost 10 cts. each." Another neighbor declared that *15 cts.* would be the price, and he would not get as *good* an article even then. Now, when I say this I do not mean that our Florida hardware men charge more than do our merchants up here in the North; and when we come right down to the important question, I can not understand *why* hardware men, and especially those who run "racket stores," do not send and get these two and four cent goods, put them right out in sight of their customers, and charge double the price that they pay for them to the Chicago houses.

One more point before closing, and an exceedingly important one it is. It is worth a big lot to be able to return something that, for sufficient reason, you would rather not keep. Here is a case in point: My neighbor bought a quantity of oil for his automobile. I think it cost him 60 cts. a gallon. When he discovered it was not suitable for that particular machine (and he discovered it in a very short time), the local merchant was very much averse to taking it back. He afterward got a very much better oil for his purpose, of Sears, Roebuck & Co. for only *30 cts.* These institutions I have mentioned take every thing back so cheerfully and willingly, standing all expense, that customers feel ashamed to trouble them, and I think this is one great reason why so few goods are sent back.

A SEARS AUTOMOBILE WITH SOLID-RUBBER TIRES.

My brother in Michigan has been running one of the Sears automobiles for the last few months. It cost (with top) only $365, and has solid-rubber tires instead of pneumatic like mine in Florida. Well, after running the machine through mud and sand, both up hill and down, for a good many miles over the Michigan country roads, I am very agreeably surprised to find solid tires almost as easy riding as the pneumatic. When going at a pretty good speed over loose gravel there is a sort of chatter or rattle that pneumatic tires entirely prevent. But when we take into consideration not only the expense but the *annoyance* of punctured tires, especially when they get to be a little old, I believe I will give the preference to the cheaper solid tires, or rather, perhaps, to the somewhat more expensive *cushion* tires. The machine in question has given no trouble so far at all; and it is so much quicker to start than a horse and buggy, to say nothing of the greater speed; and as it never gets tired, it begins to look as if the Sears automobile were really cheaper in the end than a horse and buggy; and last, but not least, when not in use it costs nothing. While there my brother received a telegram calling him to look after some property in Arizona. Now, while he is absent, say for a month or two, no such preparation has to be made as is needed with a horse; and it is the same way with my automobile down in Florida. It may be locked up, and it stands there without expense until it is wanted once more; and when wanted it will be just as ready to go as when it was running every day.

HIGH-PRESSURE GARDENING

By A. I. Root

"HIGH-PRESSURE" APPLE-TREES, SANDY VETCH, ETC.

My brother, J. H. Root, is at present located near Fennville, Allegan Co., Michigan, right on the east shore of Lake Michigan, where fruit-growing is such an industry. Well, while there on a visit we were speaking of sandy vetch, and he remarked that a lady who owned a forty-acre fruit-farm, almost next neighbor, was growing sandy vetch largely. He said, also, that we must certainly make her a visit, because she was one of the most progressive fruit-growers in that region. Her excellent foreman showed us over the place. It was just after a big rain, and he said he wanted to look over the farm anyway. I noticed when he started out he picked up a nice bright, light, and clean hoe. It was just such a one as I have at home, that I want in my hand whenever I go around to look over the crops. Well, very soon I found a field of several acres of sandy vetch and rye. The vetch was in bloom, and presented a

very pretty sight. They sow the vetch and rye together along in August or September. The vetch stands the frost and freezes of winter just about as well as the rye; and in this respect it is certainly a wonderful plant.

Before we started out, my brother informed me that this lady had a Baldwin apple-tree that bore 14 barrels of apples last season, and that these apples were sold right on the ground for $4.50 per barrel. Of course, I wanted to see that apple-tree. It was about as large an apple-tree as I ever saw, in perfect health and vigor, and bearing quite a crop of apples again this year, notwithstanding its wonderful feat of last season. I believe it is generally agreed that the Baldwin seldom or never bears a big crop *every* year; but here is an exception. While I am about it, let me remark that we took a rule and measured the spread of the branches. Measured one way the limbs make a spread from tip to tip of almost 50 feet. Across the other way it would be about 40 feet. Of course the tree had had careful and judicious pruning. The whole orchard is sprayed five if not six times every season.

And now about fertilizers. For four years past, a heavy crop of sandy vetch and rye has been plowed under every season; and that is all the fertilizer the tree has received. The vetch and rye had just been plowed under at the time of my visit — the first week in June; and our friend with the light hoe, as we passed along, dug up the vetch and rye close to the trunk of the tree where the plow could not get near enough to turn it under. This vetch and rye make excellent cow feed — especially the vetch, or feed for any kind of stock. In fact, it formed a great chunk of nutritious legume, for the plant is a legume, after the fashion of the pea family. But it is not only hardier than any pea, but I should imagine, by the way the cows grab for it, that it is also more nutritious. I can not quite understand why sandy vetch, especially where it grows as it does in the sandy soils all over Michigan, is not more grown for feed and for a cover crop.

This crop of 14 barrels was all firsts. Besides these there was a barrel or two of culls, and some cider apples. With their method of fertilizing the orchard, and pruning and spraying, they have very few seconds. I think my brother said that in sorting over about 40 barrels of apples they had only one or two barrels of seconds. There were other Baldwin trees in the orchard that bore 9 or 10 barrels; perhaps a few that went 11 or 12; but only this one had made *14 barrels* of firsts. Just think of it, friends! over $60.00 for the apples on a single tree! Don't you think you could afford one or two apple-trees on your premises? and after you get them, don't you believe you could scrape up enough energy to give these few trees "high-pressure" care and cultivation?

I suppose the sandy vetch, or winter vetch, as it is sometimes called, is especially adapted to sandy soils. It is grown to some extent in Florida, although I do not know how much. There is some growing now on my Florida premises if the excessive rains and hot weather have not killed it. I will tell you more about it further on.

Although Michigan is a great apple State, I found apples bringing from five to ten cents apiece all over Michigan. In Traverse City I found some wine-saps at 40 cts. a dozen, but they were rather small. They came wrapped up in paper, packed in bushel boxes. I did not learn where they were grown. Just now there is not only a scarcity of apples, but potatoes, old and new, are rapidly coming up in price. Around Traverse City the farmers informed me that potatoes were bringing only 25 cts. a bushel. At the same time in Grand Rapids they were from 90 cts. to a dollar. Every little while, notwithstanding our wonderful facilities for transportation, we find this state of affairs. Why does not somebody start a movement to make a still shorter cut between the "producer and consumer"? Buy up a carload of potatoes in Traverse City and run them down to Grand Rapids, or, still further, down to Cleveland and Toledo, and get double or treble your money. I suppose one difficulty now is, that, after the carload of potatoes reaches the point where the scarcity has occurred, they might meet a sudden "slump" or drop in the market.

WEED SEEDS — GETTING BAD ONES ON YOUR FARM.

While looking over that beautiful farm, in one particular corner not far from the barn we were surprised and pained to see a great number of thrifty docks; and when I asked for an explanation the manager said that at one time they were short of hay, and purchased a load or two that, unfortunately, contained dock seed. The horses and cattle sorted out the good hay, and the docks were allowed to get over into the bedding, and then out with the manure. The cost of eradicating those docks would be ever so much more than the hay was worth; and that is one good reason, if not the only one, for growing all the hay and every thing else on your *own premises* that may be wanted for stock. Just one more incident that was new to me but may not be so to others:

There was one pet cow on the farm that gave a large amount of milk — I do not remember just how much; but the manager said when the weather was bad, and he had plenty of time indoors, he was in the habit of giving this cow a good currying and rubbing every day. This the pet cow greatly enjoyed; and not only that, she gave an extra quart or more of milk every day that she had this thorough currying all over. Now, I do not know exactly how much time this currying takes, and perhaps a quart of milk would not be sufficient to pay a man for doing it every day; but, notwithstanding this, it is a valuable suggestion. I have before reminded you that the pet hen, or, if you choose, the *happy* hen, is the one that makes a big record in egg-laying; and the

Gleanings in Bee Culture

Published by The A. I. Root Company, Medina, Ohio

H. H. Root, Assistant Editor
A. I. Root, Editor Home Department
E. R. Root, Editor
A. L. Boyden, Advertising Manager
J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX JULY 15, 1911 NO. 14

Editorial

We shall be pleased to get more reports from those who have tried the steam-heated uncapping-knife. If you have one, let your brother bee-keepers have the benefit of your experience.

CARBOLIC-ACID SOLUTION FOR THE PREVENTION OF ROBBING.

In this issue our correspondent Mr. J. E. Crane speaks of the value of a carbolic-acid solution for the prevention of robbing. If what Mr. A. W. Gates, of Hartford, Ct., says of it is true (and we have no reason to question his word) the intelligent use of the drug will prove a great boon to bee-keepers. We would respectfully ask Mr. Gates and Mr. Crane to describe exactly how they use it in order to get the best results.

OUR MOVING PICTURES.

One of our subscribers objects to the way our artist has been grouping some of our "moving pictures." He characterizes some of them as "jumbled-up messes without head or tail." We looked over some of our late grouping, and see that the vital part of each picture is preserved. Where the pictures overlap we have covered up only that portion that is unimportant, or already shown in another picture in the same series. Each picture in the group is numbered, and our correspondents are instructed to refer to each figure of the group and explain what it all signifies. But the real object in grouping is to save space. If any of our subscribers have been confused by our grouping we hope they will tell us, for we always court fair, honest, and frank criticism.

THE LARGEST EXTRACTOR IN THE UNITED STATES OR CANADA.

Mr. R. F. Holtermann, of Brantford, Ont., is the owner of the largest extracting-outfit in the United States or Canada, if not in the world. It is a twelve-frame automatic reversing extractor run by a gasoline-engine; and in connection with the extractor, and geared to it, is a centrifugal honey-pump that does the work of lifting and carrying the honey to a tank overhead or to one side. This makes it possible to have the extractor on the floor of the extracting-house—not elevated above it. In the bottom of the machine is a Holtermann strainer, and the top is covered with a protecting shield.

The editor has been invited to see this whole thing in operation—that is, providing the railroad company will deliver the outfit to him in time. At the last report the machine was lost somewhere in transit.

MAKING OUR GOODS CORRESPOND WITH OUR ADVERTISING; IS THERE SUCH A STRAIN AS GOLDEN-ALL-OVER BEES?

On page 439 of this issue Mr. J. E. Taylor handles this whole proposition in a most masterly manner. In this particular case the question all hinges on what is meant by "golden-all-over Italians." Several of our advertisers, without the least thought of defrauding, have used various catchy phrases in describing their strains of bees—phrases that are not ordinarily misleading or misunderstood. The facts are, we have seen a few specimens of "golden-all-over Italians," and some more of strictly five-banded bees, in a colony that was advertised and sold as five-banders. But when a customer receives some beautiful yellow bees, 30 per cent of which we will say are five-banders, 60 per cent four-banders, and 10 per cent three-banders, he is usually quite well satisfied, because the so-called five-banders, as a lot, present a most striking contrast in color and markings to the ordinary three-banded leather Italians. He is so well pleased with the *general effect* that he makes no complaint. Indeed, he does not even notice the disparity between the four-banders and five-banders. In the same way, a customer who orders and buys golden-all-over Italians is usually quite well satisfied if there is a large predominance of yellow in his bees. But as our correspondent, Mr. Taylor, says elsewhere, if one advertises "golden-all-over Italian bees" he ought to make the explicit statement that they are not yellow all over, but only in part.

In the same way those of us who advertised a long-tongued strain of Italians might come in for a fair share of criticism. While we

might advertise to sell queens producing long-tongued bees, the facts are that not *all* queens from a long-tongued mother will show the abnormal development advertised. It is almost impossible for a queen-rearer to duplicate the characteristics of his breeding queen. The fact that Nature has designed that there shall be promiscuous mating among the drones, explains how sports showing "extra yellow" or "long tongues" revert back to normal in spite of us. It was for that reason, several years ago, we discontinued advertising long-tongued bees. When we lost the old original long-tongued breeding queen we found that her daughters were not quite equal to the mother, and the granddaughters showed a still greater departure, until the great-granddaughters went back to the original type. If we could control the male parentage a little better we might be able to produce golden-all-over Italians and five-banders that would be true to name, and not bees that show a sprinkling of three, four, and five banders.

It ill becomes us to criticise any of our queen-breeders who have been advertising in our columns; but "poetic license," if we may use the term, has been carried too far. We might as well admit the fact, first as last, that many of us if not all of us have been living in glass houses. If so, is it not about time for us to start a reform all up and down the line? We are not dictating what our advertisers shall say; but may it not be just as well to substitute the names "golden Italians," or "extra golden Italian"? These terms are flexible enough to admit of variation and yet make no misstatement; and until we can control the male parentage, none of us can guarantee golden-all-over or five-banded bees, although it is possible, as we have said, to pack a mailing-cage full of each class of bees out of extra-yellow stock.

DIAGNOSING AT THE ENTRANCE; HOW TO DETERMINE THE CONDITION OF A WHOLE APIARY IN A COUPLE OF HOURS.

In this issue two of our correspondents — G. M. Doolittle and S. D. Chapman — refer to the possibility of diagnosing the internal condition of a colony by certain manifestations at the entrance, or by a glance over the tops of the frames. Some years ago, as our older readers will remember, we wrote a number of editorials showing the feasibility of ascertaining the condition or needs of a colony without going down into it or removing a single frame. While an accurate knowledge can not always be obtained in this way, yet a busy man of experience will approximate conditions in any particular colony when the bees are flying well. For example, in the height of the honey-flow some colonies will need supers, and others additional supers if they already have one. To open up the hives to determine whether the bees need room means a lot of work and time. We have found that we have been able repeatedly to tell by the flight of the bees at the entrance whether the colony in question needed any more room or not. For several seasons, as a matter of experiment during the honey-flow we have tried the plan of running an outyard by making only two or three visits a week, and spending an hour or two at each yard. We found we were able to give each colony the attention it required, largely on surface indications. If in doubt we opened up the hive. At the close of the season's work scarcely a colony had suffered from a want of proper attention.

But the beginner may ask how we can tell by the flight of the bees whether they need room or not. If we see them streaming in and out like hot shot, and appear to be laden when they come in, and the record on top of the hive shows the colony was given a super a week previously, we conclude it needs more room, and we set an empty super beside it.

The next hive does not seem to show much activity at the entrance—that is, the bees are not flying much if any. We pass this. The next colony is doing a little better, but not a great number of bees are flying. We pass this. The next hive shows a stream of bees going in and out. We lay an empty super beside it. The next hive, a powerful colony that was working strongly a week ago, has a lot of bees clustered in front. Bees are going to the field, but in a sort of listless way. Right here we may expect swarming-cells; some Italian colonies, instead of going into the super, will jam honey in the brood-nest. In this case we find the combs are "honey-bound," and very little capped brood and queen-cells in all stages of development. We destroy the cells, uncap the honey, and put into the super a section or two started from some other colony. We smoke the bees at the entrance, and say, "You fellows get busy and clean up the dripping honey from your combs."

It may be that this work was done too late; but many times it has the effect of starting the bees at work in the super.

We again begin our rounds of the hives. The next colony shows a roar of bees at the entrance; but the bees are not going in any particular direction — just flying aimlessly around in front. This is a clear case of playspell on the part of the young bees. We pass this hive for the time being, and so on through the whole apiary. When we get through we have, perhaps, a dozen or so colonies with empty supers along beside them. With smoker in hand, and a hive-tool, we lift the covers of all colonies in one row at once. We drop the hive-tool and smoker, then proceed to put the supers on, and finally cover each one of the colonies. In some cases we put the super under, and sometimes we put it above a super already on the hive. In the same way we treat other colonies in the other rows.

We now come back to the colony that was having a playspell. They have quieted down; but as they do not seem to be flying heavily to the field, we pass them. In two

or three days we come back and go over the apiary again, spending perhaps an hour in watching the flight of the bees, and opening up here and there a hive to confirm surface indications at the entrance.

In this connection it may be said that, if the entrance diagnosis does not satisfy, the cover is lifted, and then we determine whether the bees have room enough without pulling out a frame, by looking at the tops of the frames. If they are bulged and whitened, we put on the super; if not, we replace the cover. When making examinations from the top, it may be necessary to smoke the bees down as our correspondent, Mr. Chapman, says in this issue, before we can see enough of the combs to determine what is needed.

When the season draws to a close, entrance diagnosis will determine better than any thing else when the nectar supply is beginning to fail. The bees fly to the fields, but come back lightly loaded; act a little nervous; as the season progresses further, there will be here and there colonies pushing the drones out of the hive. There is no need of looking down into the colony; for when it is time to kill off the drones, the honey-flow is surely approaching an end, and, of course, no more supers should be put on. It may be that some of the others may have to be taken off. In the production of comb honey, the effort now should be to finish what work has been begun, if it is not already too late.

There is another indication at the entrance that is very reliable in determining whether a colony is doing much in the supers. Along in the evening, or just about dusk, pass along the hives and listen to the roar of the bees evaporating honey they gathered during the day. The bees that are roaring the most are the ones that gathered the most honey; but in noting this surface indication we must take into account the strength of the colony and the source. Bees will gather much more honey in a given time from basswood or buckwheat than they will from clover. This fact has an important bearing on how soon the bees will need more room. Clover, unless very abundant, is a slow all-day yielder.

Both Mr. Doolittle and Mr. Chapman determine to some extent whether a colony has a laying queen around by the presence or absence of bees coming in laden with pollen. This is quite a reliable diagnosis in the spring or early summer. There are many more entrance indications, but we will leave the rest to be discussed by our correspondents.

HONEY-CROP CONDITIONS.

THERE is not much new to report since our last issue except this: Recent rains in some localities have started clover up again, and honey has been coming very slowly from this source. Basswood is yielding in many places, and apparently there will be more of this rich honey this season than usual. The conditions along the Mississippi River, taking in Iowa, Illinois, Nebraska, and Kansas, are not much improved. The drouth has been severe in this section. Late reports from Michigan and New York show that some clover and basswood will be secured. Taking it all in all, while the crops this year will be larger than last year, prices will remain firm. We should rather expect a slight upward tendency than otherwise until about the holidays, when prices will begin to sag slightly.

HONEY REPORTS.

The following are a few scattering reports that came in too late for our last issue, and have been gradually accumulating since:

The weather keeps good so far for late honey.
Riverside, Cal., June 21. CRESNER MFG. CO.

There will be no white-clover honey to speak of in Southern Wisconsin. Basswood opened up nicely. We hope for a good run.
Bridgeport, Wis., June 21. HARRY LATHROP.

Bees are robbing; no supers on yet; no white clover. White clover is our only crop, so things look bad for this year.
Ripon, Wis., June 19. ARTHUR J. SCHULTZ.

No early flow on account of drouth. Fine basswood bloom, but no nectar coming in. Therefore no prospects for yield this year.
Miami, W. Va., June 26. JOHN D. THOMAS.

The crop outlook is rather discouraging; no white clover to speak of in this part of our State this season. My own bees are located near a few acres of alsike clover on low land, and I am getting so far a fair yield from that source. The honey crop here will not be enough to supply the local demand, I think, at this date.
Darlington, Mo., June 22. GEO. H. CURL.

Bees came through the winter in good condition, but dwindled down badly during March and April, but have built up in fine shape for the honey-flow from basswood, which is the best in ten years; but as there is nothing else to work on, our honey crop will be short unless we get a fall flow.
Bertram, Iowa, June 26. H. C. CLYMER.

The honey-flow is very poor to date. The future depends on the weather. The honey is light amber; very little white honey. The crop is not as good as last year.
Chamberino, N. M., June 24. B. B. FOUCH.

Clover in this section is a failure so far. Basswood has bloomed full, and is yielding quite a little honey. It looks as though there would be about half a crop.
Boston, Mass., June 23. H. H. JEPSON.

As one-half to two-thirds of the bees in this immediate territory are dead from starvation, and very little blossom from the first cutting of alfalfa or sweet clover, there was nothing for them to subsist on. There will be almost no crop of importance. With what bees are left there may be one-fourth to half a crop. It is very discouraging to the apiary people; and if this continues it practically eliminates an industry that has been of importance in this locality.
Denver, Col., June 26. THE BARTELDES SEED CO.

The bees got a good crop of basswood honey. There was no white clover this year. It has been very dry in Iowa.
Anthon, Ia., June 28. G. W. NANCE.

The drouth from which most parts of this State have been suffering was partly broken by a nice rain Sunday. However, the ground was so dry that another good rain will be necessary in a few days to give any material benefit. Some parts of the State received no rain Sunday, but it appears that they were few.
Des Moines, Iowa, June 27. THE A. I. ROOT CO.

Prospects for a fair crop in this locality are favorable. Basswood and sumac are just opening; good colonies have two supers nearly full; clover is scarce; sweet clover will be on a week later.
Athens, Ohio, June 26. J. C. ATKINSON.

There is not sufficient honey produced in this section to make a market. Nearly all of the honey consumed here is shipped in from Yakima or Southern Idaho, and we believe that sometimes California honey is also sent in. The orchardists of Eastern Washington and Northern Idaho are now becoming interested in bees as an adjunct of the orchard, and we hope in time that it will have a tendency to change the condition so that the honey for the Spokane market will be produced here.
Spokane, Wash., June 27. SPOKANE SEED CO.

The honey-crop condition is better this year than last in this section. While the clover flow was not heavy, it has been lighter in previous years. There is practically no basswood honey taken in this vicinity, the heaviest flow this year being from early fruit-bloom and locust. The bee-keepers locally experienced a very hard winter, the majority losing the greater number of their bees from starvation, thereby having a large number of empty hives left over, which cut the orders for supplies down considerably.
Baltimore, Md., June 26. RAWLINGS IMPLEMENT CO.

Our honey crop here is a total failure. My 100 colonies have not a single super finished. We do not get a fall flow. Temperature runs over 100 every day; vegetation is about all burned up. I think the clover is all killed.
Holden, Mo., July 6. J. M. MOORE.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

BEES are quite sensitive to cool winds. Half of my hives face east and half west. On a cool morning, with a light breeze from the west, I found bees hanging down more or less at the entrance in 43 hives facing east, and in only two facing west.

ALLEN LATHAM read that Straw, p. 322, which says that .003 per cent of formic acid in honey means one part in 333. Then he wrote: "How would one part in 33,333 strike you? Would not one in 333 be rather tough on the stomach?" Of course, he's right. And I had an idea I was pretty reliable in figures!

JUNE 15, No. 77 swarmed with the old queen and a virgin. That's the first time I ever positively knew such a thing to happen. I suppose cells were started for swarming, then the dearth made the bees give up the notion of swarming; but for some reason they did not, as usual, destroy the queen-cells. Then when these matured, the swarm issued.

"DO QUEENS lay unfertile eggs?" p. 383. Sure, they do. I had one queen which laid eggs, and none of her eggs ever hatched. But such cases are *very* rare. It is possible that there are queens which lay bad eggs in part, but I suspect the average queen never lays an egg incapable of hatching. [We hope you are right in your last statement, but believe you are wrong.—ED.]

"DURING the flow of alfalfa" is a phrase used on page 403 that seems to refer to New York State. Do let us hear more about it. On only one or two occasions have I seen bees on alfalfa here. But I've always had a hope that, through some change, it might get to yielding. Does it yield at Camillus as well as out west? [Yes, and yields well. Mr. House will have something to say about it.—ED.]

IN A COLONY where, for the past 21 days, the queen has been laying the same number of eggs daily, about 14 per cent of the cells that she has occupied will contain eggs; 26 per cent will contain unsealed brood, and 60 per cent sealed brood. Early, when laying is on the increase, the proportion of eggs and open brood will be greater; and when laying slackens in the fall the proportion of sealed brood will be greater.

CHR. BOESCH, *Schweiz. Bztg.*, 258, lauds this way of making an artificial swarm: Take from a nucleus the laying queen with one or more frames of bees; put it into a hive and fill up with full sheets of foundation. On this put a bee-escape, and over it put one or several supers that you are about to harvest. The bees unite kindly, and the queen is never harmed. Mr. Boesch imprisons three days, and feeds. Some experience of my own makes me prefer to give more bees and omit the imprisonment and feeding.

THE BEST thing for killing ants of any kind is arsenic in syrup. The commercial ant-pastes are made so strong in arsenic that the foraging ants are killed almost immediately, leaving the rest of the family in good health. Make it weak, one to two parts of arsenic in 800 of syrup, and large quantities will be carried to the nest and the whole colony slowly poisoned.—*American Bee Journal*, 168.

MAG. PONS, *L'Apiculteur*, p. 201, reports bee paralysis very destructive in his region. He thinks the disease is conveyed from one adult bee to another in the same hive. Healthy colonies that rob out diseased colonies remain healthy. A swarm hived on combs on which a diseased colony died remains healthy. He cured in this way: Every half-hour for three days he brushed the sick bees off the platform and threw them far away. After the third day the cure was complete.

IT IS SAID, p. 361, that Dr. Miller "has for years used a 24-lb. section-case." That might be understood to mean that I had never fairly tried any thing but a double-tier case. For years I used 24-lb. double-tier, made specially to order. Then, in order to be in fashion, I used mostly 12-lb. single-tier, and some 24-lb. single-tier, and for several years have used no more 24-lb. double-tier until I used some for part of my last shipment. So I think I know how they compare for my own use.

THERE IS a tradition that to crush a bee angers the colony. No one of proper feeling needlessly crushes a bee; but I have yet to see any proof that bees resent the crushing of a bee any more than the crushing of a spider or a piece of paper. [We agree with you, providing that crushing kills the bee or paralyzes it outright; but a bee that is pinched enough so that it will squeal may excite the fury of a good many other bees in the colony. This is particularly true of Cyprians, as we know from some unpleasant experiences.—ED.]

L. S. CRAWSHAW, speaking of correct bee terminology, says, *British Bee Journal*, p. 178: "Dr. Miller, who admonishes D. M. M., would apparently abolish the word 'stock,' and confine us to 'colony.' Yet the term 'stock,' as used in this country, has its definite use as opposed to the term 'swarm,' whilst colony would surely, speaking strictly, include both. But perhaps Dr. Miller will explain." Instead of explaining I want to crawfish. I think I never used the word "stock" as applied to bees, but have hungered for a single word that would mean the mother colony from which a swarm has issued. If "stock" has that meaning in Great Britain, I am only too glad to follow the example, with many thanks to Mr. Crawshaw.

SIFTINGS

J. E. CRANE, Middlebury, Vt.

On page 260, May 1, the editor advises the use of no adjective before the word honey. A good point.

The picture of Wesley Foster's cow, page 248, April 15, shows very plainly that her diet agrees with her, and we believe it would with a very large number of other cows and "horned cattle" if they only had a chance to use it.

A CORRECTION.

On page 293, May 15, I am made to say, "Why is it that among the many *means* found in magazines now, one never sees honey and warm biscuit mentioned for the tea-table?" It should be *menus*, not *means*.

That "bee-sieve" Mr. Greiner tells of on p. 171, March 15, is worth a year's subscription, and I will try to make one at once before I forget about it. Suppose one has a dozen dark queens to look up, and it takes half an hour each, as it often does, several hours' time would be saved when it is most valuable.

BULK HONEY NOT PRACTICABLE IN THE NORTH.

After reading Mr. Mollett's article, page 298, May 15, I came to the conclusion I should become a bulk-honey enthusiast if I lived in the South, where the honey does not granulate; but here, where it will become solid in a few weeks, I rather think our way is the best.

BEES AND HORTICULTURE.

Wesley Foster, after telling of the interest those who keep bees take in other insects asks if it is not just a lttle queer to be interested in bugs, bees, and flowers, page 264, May 1. No, sir; it is not queer at all. But it is queer that our race should have cared for bees so long, and never, until recently, found out the true relationship of bees to flowers, to say nothing of other insects. If the Author of all life has so ingenousfy created all the little creatures we see on every hand, shall we not see his purpose and their use in the economy of nature? I used to wonder, when I saw a little attenuated insect with two wings, of what use it could possibly be; but when we had a scourge of forest worms these insects could destroy them quicker than an army with banners. Let us try "to think his thoughts after him."

SLEEPING OUTDOORS.

In a recent number of GLEANINGS Mr. Wesley Foster tells of an arrangement for sleeping out of doors. More and more is fresh outdoor air appreciated as a means of gaining and retaining health. But one of the blessings of sleeping out in the open air or with open windows I have not seen named, and that is, the enjoyment of the grand concert or chorus of bird songs that begins about 3:30 in this latitude, and lasts for nearly two hours, and is one of the most enjoyable things that come with spring. Indeed, it might also be called an endless chorus, for it begins on our New England coast with the early dawn, advancing westward with advancing twilight until it has crossed the continent, up the northwest coast across Alaska, across the continent of Asia, and still westward until it reaches the broad Atlantic nearly twenty-four hours later. If the birds thus blindly give of their best to the great Author of life, how much more may we who have thought and reason show forth our gratitude for all we enjoy!

CARBOLIC-ACID SOLUTION FOR PREVENTING ROBBING.

"Carbolic Acid in Spraying Solutions Would Have No Effect" is the heading of an article on page 221, April 1, by B. C. Auten, in which he proves to his own satisfaction that the odor of carbolic acid has no effect whatever on the bees. It looks as though he had sat down on me. If I can't get him off I am going to "holler" until every bee-keeper in the country can hear me. Now, I do not suppose that, if bees had "got a going" in cleaning out a hive the odor of a little carbolic acid would stop them; or if thirsting to death that a little odor would stop them; but I do say that, in handling bees when forage is short, and they are inclined to rob, the use of a spray, or sprinkle of a strong solution of carbolic acid, promises to be very helpful in preventing robbing.

For those with few hives who can do their work near night, or those whose yards permit the use of a tent, it may be of little value; but for those who must work almost constantly, without regard to other conditions, I feel that it would prove of great value. Mr. A. W. Gates, of Hartford, Ct., who called my attention to it last year, said that with the use of it he could work with perfect safety with bees, inspecting for foul brood, without regard to whether honey was coming in or not. I tried it with satisfactory results late last year, when looking over my bees. Where the acid was used, robbers would leave a hive almost as soon as closed, and not keep trying every crack and corner for an entrance. I received a letter from him a day or two ago, in which he called my attention to it and its value in inspecting for foul brood. I might add that Mr. Gates is one of the most intelligent bee-keepers of Connecticut. Now, I wish a large number of bee-keepers would try it, not for the purpose of stopping robbing after they get at it in full force, but before they begin, and see if it doesn't prevent it. I wish Mr. Gates might be persuaded to give his experience along this line.

BEE-KEEPING IN CALIFORNIA

P. C. CHADWICK, Redlands, Cal.

TROUBLES FROM SUPERSEDURE.

Out of 25 swarms at the Tremont ranch this season, 24 were superseding ones. This gives an idea of the trouble we have had from queens being superseded, for many supersedures occurred where there was no swarming.

COOL CLOUDY WEATHER THE RULE.

Mrs. Acklin p. 324, June 1, speaks of the cool cloudy weather during orange-bloom. When she has been a resident a few more seasons she will look upon this condition as a rule rather than the exception, though we who are 40 miles further inland do not suffer as much as do those in her locality. Many of the ocean fogs reaching there do not come so far inland, though we get plenty.

A GOOD CROP CONSIDERING THE AVAILABLE WORKING FORCE OF BEES.

There has never been a season, to my knowledge, when the stock of bees remained so low during the entire honey-flow; yet for available working force the results have been very satisfactory. Our failure to harvest a large crop was due alone to the shortage of bees, the strongest colonies having only five to six frames of brood when the honey-flow began in earnest. This, with the constant wearing-out of the field force, seemed to make it difficult to get a full hive of bees.

SOME PECULIAR HABITATIONS OF SWARMS IN CALIFORNIA.

On page 561, Sept. 1, Mr. Calvin S. Hunter gives as a most remarkable incident his experience of swarms entering empty hives. This to us Californians sounds odd, for out here they enter about every thing that is empty—houses by the score, chimneys, rocks, badger-holes, box culverts, etc. One swarm was taken from an old coffin-box from which the remains had been removed and the box cast aside; one from an electric transformer-box on the city lighting system. One entered a five-gallon tin can that had been thrown over a dump, and dirt from above had covered all but the screw-cap hole.

PRICES ON WATER-WHITE HONEY THIS YEAR.

When I contracted my white and water-white early in June at 7 cts. I was elated at the price obtained; but since that time others have sold at 7½ cts. Most of the white brought 7 cts.; earlier some sold for 6 cts.; but the bulk of the crop went at 7 cts. The total crop of white and water-white for the season will not be over half the average for sage-yielding seasons, the orange having contributed but a small amount of the total. It would not be surprising to see a fair crop of amber grades secured in our Southland, though I do not expect this immediate locality to figure largely in those grades, the best late ranges being out of our reach.

COAST VS. INLAND BEE-KEEPING.

Mr. E. M. Gibson's letter, June 15, speaks of my location as the northern part of the State. I am only about 100 miles, as the crow flies, from him, and only 60 north. California is a large State, 700 miles long. San Bernardino Co. is larger than the State of New York. On page 274, May 1, he says he knows of no one who is not back from the coast more than 15 miles who is making a success of bees. This may be true in San Diego Co., but it will not apply further up the coast.

In the same article Mr. Gibson admits he meant to imply that it was the fault of the bee-keepers that they got no more honey last season than they did. That may have been the case in Mr. Gibson's locality, but not so here.

NO SAGE, BUT ORANGE HONEY.

Mr. J. K. Williamson, known generally as the leading bee-keeper in this locality, and a man of 40 years' experience, had one apiary of 250 colonies on one of the finest sage ranges I know of, that did not yield a pound of surplus, while another one owned, by himself and partner, in reach of the orange, yielded several tons. I am glad Mr. Gibson has come to the same conclusion that I mentioned in my article, that it is *better*, not *more*, bee-keepers that we need. He also says, "White sage is the sheet anchor of the bee industry here, although it is a decided amber." With us it is considered only an occasional yielder, and as producing white honey. It has not yielded to any great extent since 1905. That season it was late, and the rains lasted into May. We got two good extractings from it in July after button sage and wild alfalfa were gone, the honey grading water-white, though closer grading was done then than now. This year the bloom will be gone by July 1. We have had to contend with wild alfalfa and wild buckwheat during its blooming period, yet 25 cases I have just extracted from it will grade white. It has yielded more this year than any year since 1905, though only very moderately this year. Mr. Gibson has doubtless not observed closely all the sources of his supply while this plant was blooming.

Honey crop conditions in the northern part of the State are good from alfalfa and clover; no sage; orange, one-half crop; general crop, three-fourths. Market conditions are good, dealers paying 5¾ for light amber; 7 for water-white. Producers are holding for 6¼ for light amber, 8 for water-white.

B. B. HOGABOOM.

Elk Grove, Cal., June 29.

Bee-keeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas

"SHAKING ENERGY INTO BEES."

A good deal was said on this subject at one time, but not much stock was taken in it. There may not be so much in it after all; but in our manipulations in the apiaries we have always practiced shaking the bees up as much as possible, for the purpose of securing increased activity, better work, and, consequently, better results in the end. Have we gained any thing by this imaginary (?) practice?

We began to investigate this matter nearly twenty years ago when we discovered that certain manipulations and handling of the combs, disarranging them in certain ways, and yet not enough to do any harm to the brood, and other factors important to the best welfare of the colony, created a greater activity in the colonies so treated. As a consequence, we have not only continued to practice the method but have advocated it, and we require our assistants each year to do the same.

There is no doubt in our mind that various manipulations at certain times will create greater energy in the work done by a colony of bees than if it is left alone the entire season. Then, to go a step further than this, there can be no doubt that additional manipulations, carefully learned and practiced after years of observation, may add to the advantages obtained from such methods. This has been our experience, and we have profited thereby to such an extent that we do not fail to make use of "shaking energy into bees" whenever advisable. But we do not practice as radical methods as have been advocated by some writers. There is a limit to every thing.

THE WIDE-BEVEL UNCAPPING-KNIFE.

The more we study the question of honey-knives, the more we are convinced that we have not been far off the track in using the common butcher-knife for a number of years. After trying a great many uncapping-knives of different styles, including such flat-bladed knives as the Novice, the narrow beveled-edge Bingham, the old-style Jones, with its bevel extending to the center of the back of the knife, and various common straight-bladed knives, we have once for all settled on a straight-bladed butcher-knife, of which the cutting edge is slightly curved so that it will extend into the frames when uncapping thin combs. They have given us the best of satisfaction; and other bee-keepers who have visited us for the purpose of finding out more about the exact shape and size of these knives, on learning to use them have adopted them. In answer to several requests, exact drawings, made by placing one of the knives on a large piece of paper, have been furnished so that the right kind of knife with the exact shape might be procured by the enquirer.

Our experience, after several years' use of these knives, has proven to us that they are very satisfactory for the purpose, and much more so than any of the unwieldy, bevel-edge knives with crooked or offset handles. Our butcher-knife is much easier to handle. It is just like cutting off steak from a large piece of beef when we uncap our combs. A butcher most certainly would not think of doing this with such an awkward knife as one with the offset handle. The straight-handled knife is easier to manipulate; and its slightly beveled edge extending the entire width of the blade makes it easier to guide smoothly over the comb surface.

A REMARKABLE SEASON IN TEXAS.

During the early months of the year there was an abundance of rain. In fact, there was considerable complaint; for the long-continued wet weather, in addition to the cold damp atmosphere lasting so long, had a bad effect on the bees. The rains were badly needed, however, after several dry years during which we had very little rain. Because of the moisture in the ground, resulting from the rains, the prospects for an abundant crop were most favorable. In most parts of the State the bees built up very rapidly, as the spring flowers were in greater profusion than for many years. The cold damp weather retarded the progress of the colonies in many ways, as the weather was too bad for the bees to get the necessary water and pollen at the time the hives were filled with brood in all stages. And when the main honey-flow began, excessive rains again delayed the work of the bees so much that the spring crop in many places was very short. The heavy and constant rains also had a bad effect on the plants and the blossoms, from which the spring crop was expected, tending thus in two different ways to cut off the honey-flow.

Immediately after the excessively wet spell a most severe drouth followed, and this affected both the bees and the vegetation. During the rainy season every thing had grown very rank and tender; the excessive heat following so suddenly simply burned up the vegetation. The bees were then cut off from doing much work on the fast-disappearing bloom.

At the present time this most severe drouth continues, and every thing is suffering from it. In spite of this, however, we are in the midst of as fine a honey-flow as we have had for several years, and the bees are rolling in honey from very early in the morning until late at night. The source is the *mesquite-trees*, which are loaded with fragrant blossoms. And since the bees have just finished working on the horsemint, the colonies are in shape to store up a good amount of surplus of fine bulk comb honey.

Conversations with Doolittle

At Borodino, New York

DIAGNOSING AT THE ENTRANCE.

"Which is better, to let colonies entirely alone during the year or to be continually fussing with them?"

"Well, Mr. Barber, neither plan is right. No man can become a successful bee-keeper without properly looking after his bees; but this does not mean the overhauling of any or all colonies once a week, nor does it mean passing through the bee-yard once a week and merely looking at the hives. However, an experienced bee-keeper by this latter plan can often tell if it is necessary to open certain colonies to correct any thing wrong. Certain outside appearances which may be discovered from the entrance and outside of the hive of the one colony will tell very nearly about all colonies.

"Suppose it is the spring of the year. You stand and look at the entrance of the hive containing a good queen and a prosperous colony during some fine morning in May. You will see the bees going in and out quite rapidly. You will note that the bees take wing at once after they are out from the entrance, leaving in the air in a straight line and at rapid flight. Then those returning are bearing loads of pollen in their pollen-baskets, or have swollen abdomens from carrying water or nectar for the wants of the rapidly increasing brood and for the colony. If you are to make a successful bee-keeper, such manifestation at the entrance will so impress itself on your mind's eye that you will ever after know just what to expect at the entrance of a hive containing a prosperous colony.

"But if you have never looked inside a colony you can not know just how matters are inside the hive unless you look there as well as at the entrance. Now open this hive; look at the regular order of the brood in the combs; see how the eggs are deposited in the center of the bottoms of the cells; see the eggs are out toward the margin of the combs, little larvæ inside these eggs, larger larvæ still further inward, with sealed brood in the center. Then see how large and nice the mother bee (or the queen as she is called) looks; and if she is a quiet Italian queen see how she is laying eggs. Take out your watch. Note when the second-hand stands at the top, or at 60. Now count as she lays. One, two, three, four, five, six, will be the number during the 60 seconds if she is doing her level best; but if it is only three or four, do not feel badly, for it is a rare thing that any queen does as well as six for many minutes at a time. Say it is four, and that she rests half of the time during the 24-hour day. She will then have laid 2880, and that is not bad at this time of the year, for 3000 eggs is considered the maximum for a daily average.

"Note the pollen. Not more than enough cells having pollen in to fill half a frame. This pollen tells something about the queen. If she is poor, a large accumulation will be found; but with an abundance of brood it is used nearly as fast as brought in.

"Lastly, look at the honey. If there is to the amount of one to one and a half frames full, they have enough to feed that brood for ten days to two weeks.

"Now close the hive. Stop at the entrance of the next one; and if you see the same thing you did before, there is only one thing that you are in the dark about, and that is the amount of stores the hive contains, and this you can guess at by lifting the hive. But as the brood which the combs contain makes the hive quite heavy with little or no honey in it I think it wise to lift the cover, when, by blowing a little smoke over the tops of the combs, it will be readily seen as to the amount of sealed honey there is, in accord with the one we just looked at; and if as much or more, we know about what this colony is also. Now walk in front of each hive, and then look about the stores with each that compares favorably with what we have in our mind's eye, and all such are just as well off as if we handled the colony every two or three days — yea, better. For with every time we open any hive needlessly, we, for the time being at least, destroy the equilibrium of that colony.

"Now observe the actions of weaker colonies at the entrance, then look over one of them as you did the good one, and you will soon understand about them. If you find any colony which does not compare at the entrance with any of these, open the hive, find the trouble, and ever afterward you will know about what to expect. After the supers are on, go amongst the hives and observe the conditions as to the amount of surplus honey stored. This is more easily told from the entrance and a peep in at the top of the supers than are the conditions during the brood-rearing period.

"Where you see from the outside that something is wrong, or that there is something going on inside that you wish to know about, or that you think may be remedied, don't hesitate a minute about opening that colony to find out what you should do to put it in a prosperous condition. If you find something you do not feel equal to, go to your A B C of Bee Culture, Langstroth's, Quinby's, or any other book or books you may have on bees, and make them tell you. Better still, have the matter these books contain so thoroughly in your mind that it will come to you at once what the trouble is while you are still at the colony."

EXPOSING FAKES, ETC.

I like GLEANINGS very much, and am interested in your poultry department. Keep on in your good work of exposing fake poultry "secrets." I have two colonies of bees.

Sacramento, Cal., June 8. A. D. MUNGER.

General Correspondence

WHAT A WOMAN CAN GET OUT OF BEE-KEEPING.

An Address Prepared for the Convention and Field Day for Bee-keepers at the Massachusetts Agricultural College, Amherst, June 6, 7.

BY ANNA BOTSFORD COMSTOCK.

[Among the great treats that we enjoyed at the field-day meet and convention that was held at Amherst, Mass., June 5, was a paper by Mrs. Anna Botsford Comstock, an entomologist from Cornell University, on the subject "What a Woman Can Get Out of Bee-keeping." She will be remembered as the author of a most entrancing bee-book, "How to Keep Bees," as well as of a number of papers on bees; but the one she read before the Massachusetts bee-keepers was one of the breeziest and most charming that we have ever heard. While it was long, the reading of it called forth rounds of applause. The most of us felt, when she concluded, that she could have made it twice as long, for we could have listened to every word of it.

From a purely dollars-and-cents point of view, the paper may not be as valuable as some others that appear in these columns; but from the standpoint of health, rest, diversion, and mind cure, it excels every thing else that has been put into print. We now have the privilege of placing it before a larger "audience" — a privilege that was freely granted by the author and by the college authorities as well.—ED.]

There are so many things that a woman can get out of bee-keeping that I wonder more has not been said or written about it. Professor Gates asked me to speak about bee-keeping for women; and while I know several very successful women bee-keepers scattered over this country, from Virginia to Maine, they are all keeping bees just like the men. They keep their colonies strong, and, taking it from first to last, they are making money from their undertakings just as the men do, and by the same methods. If I were to talk about these women or others who are making a success in bee-keeping it would be as monotonous as Mark Twain's boyhood diary in which for a month the entry each day consisted of "Got up and washed, and went to bed."

What has always interested me most in bee-keeping is the psychic income derived from it, rather than the income in dollars and cents. I do not believe that any one who thinks can associate with bees without learning much from them. And who should learn as much as the woman bee-keeper, since the bee commune is managed exclusively by members of her sex? Here there is a chance to observe how and by what means their success has been attained.

I think the first lesson of all is that no one individual can have every thing and *be* every thing. Perhaps this is the most useful civic as well as social lesson that we women need. Here in our broad, high, and wide America we have had opportunity for development, and with it has come unbounded ambition. With this ambition has come an unwillingness to choose one line of development; we fritter strength and energy by trying first one thing and then another. We are so occupied with trying our wings and with the sensation of flight that we forget that wings are for carrying us and our load to a goal. But the bee, whatever its lot, does what it is meant to do with a singleness of purpose which we may well admire and follow.

Many are the virtues cultivated in those citizens who have the responsibility of a bee commune. The first of these virtues is patience and forbearance. Each bee in the hive is, to say the least, busy. She is intent on doing her particular job; she finds her path obstructed by her many sisters all intent on doing their particular jobs, but does she get cross about it? No. She just climbs over or under or among the moving throng; she pushes and gets pushed with equal good nature, and finally she achieves her purpose without irritation. Her nerves are not on edge because she is hindered; she does not cuff the children nor scold the drones, nor have hysterics because she is annoyed.

Courage is another of the leading virtues of the hive. We find there all kinds of courage — the courage to fight a creature a thousand times as large as the fighter, and courage to die fighting. Then there is that other courage, so much more difficult to attain — the courage to attend to every duty, and to work from early morn until dewy eve until the frayed-out wings no longer give support, and then the courage to die and get out of the way.

Next in the galaxy of virtues is that of unselfishness. The bee considers the needs of her community before her own needs. She will work her wings off for the sake of her sisters; she will die in battle for them; she will starve herself by yielding up her food to a hungry queen. The bee is not self-centered nor introspective. She goes steadily about her business unless interfered with, and she is not wasting time thinking about her own feelings. She does not feel slighted when she issues from the cell a damp and callow young bee, even if no one pays the slightest attention to her. She cheerfully finds her own place and her own work, and she never gets jealous of the queen. In fact, she is an animated mite of unselfishness. I do not know how other women bee-keepers feel; but when I find an old bee with her wings frayed until they can lift her no more, it always gives me a new inspiration to work on and do the best I can and not worry about old age or the future.

Another of the virtues characteristic of the bee-hive is broad-mindedness. The bee is willing to let others go their way without interference. She seeks nectar, but she does not insist that, if she can not have basswood or clover, she will have none at all. She probes the humblest flower with the same enthusiastic attention that she bestows upon the most gorgeous; moreover, she does not resent it if the flower was not

made for her convenience. She works on the salvia and the nasturtium with the same cheerfulness that she works on the clover. She struggles with the jewelweed, and finally succeeds with a buzz of satisfaction. All is grist that comes to her mill. Moreover, she is not fickle. If she is gathering pollen from the poppies she does it without a glance at the pansies; if she is working on the larkpsur she does not see the honeysuckle. She lives up to her side of the bee bargain with flowers; and that is, to work on one kind steadfastly while she is working. Then, too, she learns to bear disaster when she can not prevent it. How many times it has been demonstrated during that barbarous performance of taking up a bee-tree that the little citizens of the bee commune, overcome and overwhelmed, and convinced that there is no use of fighting, have broken open the cells and have filled themselves with honey in an attempt to save what they might, and in a last effort to sweeten adversity to the best of their abilities! I fear too many of the womenkind of our own commune are given to tasting to its depths the bitterness of misfortune.

Of course, industry is a virtue, and the bee has been a shining example set up for human emulation from time immemorial. She begins her labors with the dawn, and continues them until the dark. But it is the ready quality of her industry that appeals to me. She does what there is to do. If she has to feed the children she does it cheerfully. If she has to hang up and make wax, she turns herself into a chemical laboratory with speed and dispatch. If she has to stop cracks she gathers the glue and goes at it. She shows no preference for any special duty. She does not stop to pick and choose, and she does not sulk because her work is disagreeable. All work is honorable and pleasurable in her eyes.

As a corollary to this power of labor she knows how to rest. If the day is rainy she does not fuss and fume because she can not go out. She stays at home peacefully, and recuperates so as to be ready for the strain of labor when it comes. I have known many women to wear themselves out trying to rest. I think they might learn the secret of this great blessing if they would watch their bees.

The bee is also a creature of resources. She does not have to follow the same path forever. I have seen her working with mad intensity on the scarlet sage in the autumn, for she feels it is her last chance to get nectar, and she makes the most of it. The scarlet sage is not a bee-flower. Its tube is long and narrow, and it has no doorstep; but she climbs in some way, buzzing and remonstrating because of the narrow passage as she goes. But some of the corollas of the flowers have fallen off, taking their nectar with them, and she works at these on the ground, taking the nectar from the end of the flower-tube where it was developed—a far more convenient way for her.

Right here I wish to diverge from my topic of educating women by means of bees, and pay a little side tribute to the teacher. During the past two years I have been spending much time watching the bees working upon flowers, and I believe that the story of the partnership between bees and flowers has not yet been half told. Man thinks the earth was created for him. Why? Because he has had the ability to use the earth and the fullness thereof. It is only when cyclones and earthquakes occur, when floods or drouths devastate the land—only when the mosquitoes or the housefly brings upon him a plague, or when the gypsy moth defoliates his forest, that he questions for a moment that the earth was really planned for his own pleasure and profit. His own achievements have confused his mind. Instead of saying that the earth was made for "me" he should say, "I was meant to use the earth so far as I am able." Now, it is the same way with the bees. They are so clever and enterprising, they are such efficient opportunists, that they use many things never meant for them. Many of our long-tubed flowers were specially developed to satisfy the long sucking-tongues of moth or butterfly, or the long beak of the hummingbird. But does it deter the bee? Nay, verily! Watch her working on the nasturtium, the columbine, or the nicotiana, and then dare to say that she has not the triumphant power so honored in the human race. As a matter of fact, most of these long-tubed flowers develop such an abundance of nectar that their tubes are more or less filled with it, and the bee gets what she can by squeezing in as far as she can. And the beauty of it is, she pollenates these flowers quite as efficiently as do the insects for which the flowers were developed. This readiness to make the most and best of every thing is certainly one of the qualities we should attain, even through long striving.

But perhaps equal-suffrage woman has most of all to learn from the bee, for the bee republic is governed by the laws feminine, and what a wonderful republic it is! There the citizens do all the governing without voting; there the kings are powerless, and the queen works as hard as and longer than any of her subjects. Surely the pages of human history contain no account of a republic as wonderful as this. The first thing of all which characterizes the bee republic is the rule of the majority with no minority reports, with no rebellions nor secessions, and the reason for this unanimity is because every citizen in the community is doing what is best for that community, and thinking about nothing else. The bee citizen surely exists for the sake of the bee republic; and, reciprocally, the bee republic exists for the bee citizen. It is my own conviction that my equal-suffrage friends have a most important lesson to learn at this most critical moment when their demands for the ballot are so likely to be granted, and nowhere can they learn this lesson so surely as from the citizen bees. We Americans who love our country have

looked long with misgivings on a citizenship that was gained with so little knowledge of what citizenship means, and with no guarantee of responsibility toward the duties of citizenship. An almost unrestricted suffrage is the great problem that confronts us to-day.

That masses of ignorant foreigners are emptied out of political sacks upon our poor long-suffering polls in numbers that seem likely to smother both patriotism and honesty, is certainly not to the credit of our laws nor our law-makers; and yet the equal suffragists, among whom I have many friends, tell me they wish a vote quite as unrestricted as the present one. The only argument they make is that, since ignorant men vote, why should not ignorant women vote? In other words, the men have made a great mistake in managing our country, therefore let us multiply it by two. Now, a bee citizen would not for a moment be led away by an argument like this. She is not interested in any thing but the good of her community. The privileges of her sex that would endanger her commune she would scorn. She is a patriot and a citizen, first and always. I wish that the equal suffragists would become sympathetic and enthusiastic bee-keepers. I do not know of any other training that would so benefit them or fit them for the duties of citizenship.

In the bee commune there is no voting nor any blanket ballots, nor any corrupted ballot-boxes. Why? Because a bee elects herself to office as soon as she sees that a thing needs to be done. If we all knew as well as the bee does what is good for our nation, and if we should do it with such enthusiasm and unselfishness as characterizes her acts, we should have the millenium, and governments would be done away with as entirely superfluous encumbrances.

When it comes to the home industries, the bee is again a model. She is always a good housekeeper. She sees that the hive is kept clean, that being one of her first duties. There is another one of her house-keeping qualities which I am sure if we should adopt would go far toward solving the servant question. She knows how to do a part of a piece of work, and then trust it to her sisters to finish. She does not feel that she must stand by and boss the job to the end. She does her own part of it just as well as she knows how, and she expects the others to finish it in a like manner. She does not insist that her own notions be followed in the smallest particulars. She comes in some day with a load of wax, and begins making comb. She puts a piece in place, molds it, makes it properly six-sided for a little space, and then what does she do? Does she stand off and look at the next sister that comes with wax? Does she tell her, "Now put that right here, for this is where I left off"? or, "be careful! you are not getting it straight"? No, indeed. She knows that responsibility is the best teacher; nd if that will not develop the right kind of industry, then nothing can. When the woman in charge of the home demands of her servants results, and does not stand over them, nagging them to make them do their work in her own way, she will then have taken a step further forward in solving the almost unsolvable problem of domestic help.

The bee is an excellent stepmother or nurse, or whatever you may choose to call her in this particular office. She attends to the bee babies with great skill and care, although perhaps the ant is her superior in this respect. But she feeds the young on the best kind of food, preparing it for them according to their age and needs. She keeps them clean, carefully watches their development, and when the time comes she caps their cradles. Although they are not children of her own, she knows how to make them comfortable; and her instincts seem to be quite on a par with the mother instinct of which we, as human beings, are so proud in our own race.

Then I should like to say one word about the bee as an artist. The ancients and also the great mathematicians of all ages have written poems and treatises on the building and the perfection of honey-comb. I never take a piece of this exquisite structure in my hand without admiring it; yet there are those those who dare to assert that this perfection of structure occurred by chance! They dare to say that reasonably perfect, alternating, rhombic pyramids, which form the base of honey-comb, are fortuitous. It may be that the angles of the cells are not always exactly perfect; but this proves nothing against the mathematical prowess of the worker bee. It simply proves that she is a practical builder. She is working for the good of her colony, and is not willing to sacrifice every thing for the sake of mathematical precision; and in every case she has proven better than any other creature, excepting man, that economy of storage room for liquid contents, building materials, and mathematical formulæ may coincide. In fact, she has demonstrated in a beautiful way how fundamental and how divine is mathematics. It always touches my imagination that this little winged creature has such a sense of symmetry and beauty. And then her love of color—but that is another story which I have not time to speak of to-day, but which any one may read for himself who will follow the bees about the garden.

The bee must also have some worthy object in life outside of herself. She could never be content to gather nectar simply for her own food; she could never waste her days preening her own dress, nor spend her afternoons playing bridge. As soon as she finds she has nothing to live for outside of herself and her own personal interests she lies down and dies. It is surely enough to touch the heart to witness the immediate change in the attitude of a queenless colony when a frame or two of brood are given them. Their buzz has an entirely different

sound, and their attitude is changed from listless irritability to an intense and happy interest in life.

Now I have spoken something about what a woman *can* get out of bee-keeping, and I will turn my attention for a moment to those things she *does* get out of it. I have watched with interest several women who were successful bee-keepers. Once a man said to another, "I have not met with success in my work," and the other answered, "No one ever *meets* success. If we ever get it we must overtake it." That is what these women have done. They have overtaken success by fair effort, but they did not become breathless meanwhile. Some years they clear a fairly good income, and are very happy over the money earned in a work so interesting and agreeable. This income varies from twenty-five to two or three hundred dollars per year, depending upon the season and the size of the apiary. I have never had a personal acquaintance with a woman who was making her living and supporting her family by bee-keeping, although I have heard of several who do this. In the case of my acquaintances, bee-keeping is a blessed avocation, and I believe that as such it fulfills its highest benefit to women.

It is true that in our farming communities the women get too little of the life-giving air of the out-of-doors. The city boarder comes and stays outdoors all day swinging in the hammock or taking long tramps over the hills; and she sleeps outdoors at night, if possible. But this proceeding seems hardly decent in the country community where I was born and reared. It seems idle to waste one's days in a hammock, and it seems almost scandalous for a woman to be able to walk ten miles. The farmer's wife spends most of her days indoors, and her nights in a bedroom where drafts are not allowed. (By the way, how much she ought to learn by watching the work of the bees in setting up drafts through the hive with their fanning wings!) It is only because there are some duties which invariably call the women of the farmhouse out of doors that keeps them alive. I have often thought that the unhandy well, four or five yards from the kitchen door, has saved the lives of the women who work in the house.

Now, bee-keeping gives the women of the farm home a reason for being out of doors, and at just the season when the world is most beautiful. Moreover, the apiary is always in a pleasant place. One thing which always holds my attention is that, however unattractive the surroundings of the farmhouse, the bees have a pleasant corner in the orchard, or in some other partly sunny spot. Whether they know it or not, the women of the farm home who care for the bees get some good air and some good healthy outdoor labor, and meanwhile they are not troubled vith insomnia. How many a country wife has wondered and resented during her sleepless hours the sound and perfect sleep of her husband when the only reason for this difference lay in the fact that his work was in the open air and hers in the stuffy house.

Then there is another and even more fundamental reason for bee-keeping as a woman's interest. I would prescribe as a means for preserving sanity and sound nerves to the wives and mothers of this country that they each have some avocation which may be pursued steadfastly, even though interruptedly, and that it should be quite apart from household duties. Such a work clears the mind and temper of tangles. It is like the shadow of a rock in a weary land. Half the worries of life crawl away out of sight the moment we really drop them; and often, if we find them again, they seem to have shrunken. There is something nerve-exhausting about the daily treadmill of household drudgery. It always wears on the same nerves; the collar of the housework harness always chafes on the same sore spot. An avocation gives a chance to throw off the collar and give the collar-galls a chance to cool and heal; and bee-keeping is one of the sanest, sweetest, and easiest of these nerve-healing avocations. It is worse than useless for a woman to carry the irritation engendered in the hot kitchen into the apiary, for no living creature is more sensitive to an irritable frame of mind than is the bee; and her way of showing her consciousness of it surely makes the punishment fit the crime. A bee can not be scolded, spanked, nor kicked. The only way to deal with her is to keep the spirit calm and peaceful, the temper self-controlled and equable; and thus it is that the mere work with bees becomes a means of grace.

And, finally, in my judgment, it is bee-keeping as an avocation that is, after all, the most important reason why there should be women bee-keepers. The honey and the money they gain from it are simply useful and welcome incidentals gained while they are laying up health and strength, and cultivating a new interest in life, and gaining in perception and love for God's wonderful world.

BEE-KEEPING IN FLORIDA.

Some Representative Bee-men of Florida.

E. G. BALDWIN.

Continued from last issue.

All along the western coast of Florida, below Tampa, a chain of keys encloses a series of broad bays wherein flows the salt water of the sea, quiet and serene, secure from the winds and waves that often lash the great gulf just beyond the keys. Most beautiful for location on one of these keys is the home of Mr. Isaac T. Shumard, of Osprey. His home is on Cassey's Key, one of the longest in all that region. He is 82 miles below



Fig. 7.—Mr. Shumard and his daughter Florence in one of the outyards.

Tampa. Mr. Shumard is one of the "salt of the earth." He is 62 years young, still sturdy and active, loves young people to devotion (and older ones too), and he loves the outdoor life of the frontiersman, and has much of the spirit of Daniel Boone in him. From boyhood he has loved the bees, and seldom has been without them. Genuine, irresistible hospitality is the spirit of his island home. He has about 200 colonies in 5 apiaries, which he has located on bays and inlets and streams along the mainland in order to make them accessible by his gasoline-launch and lighter. He visits all of his yards in his boat, carrying his extractor, barrels, etc., from one to the other. The writer helped him to extract nearly 1000 lbs. from one of these in a few hours—the whitest honey he has ever seen in Florida. His home apiary (see Fig. 10) he devotes exclusively to rearing queens for early needs in the North. His present location, too, is unsurpassed for correct mating, as the mainland is nearly a mile away, in a bee-line, and few queens

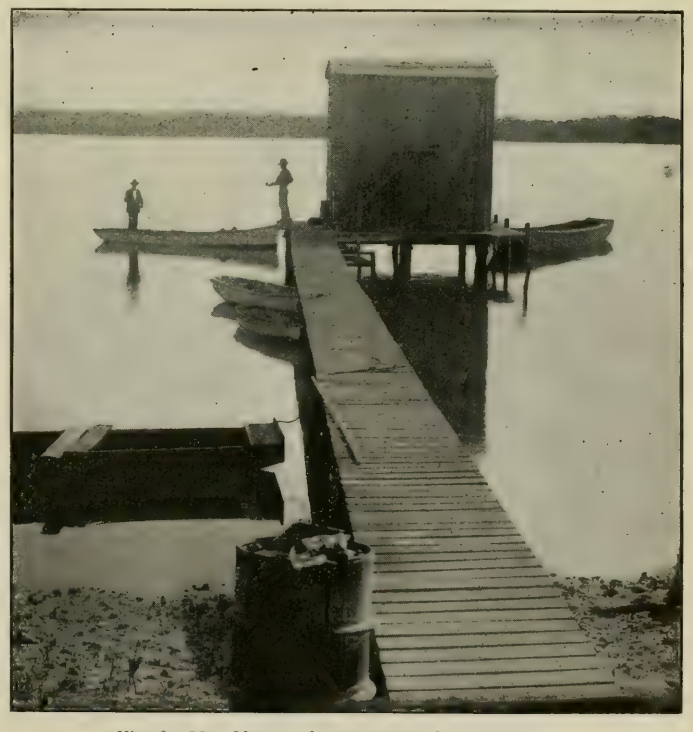


Fig. 8.—Mr. Shumard's ant-proof honey-house.

fly over that stretch of water on their nuptial flight. For 13 years he has kept bees in Florida, seven of them being in his present location. He says that five dollars would cover the cost of doctors' bills for himself and family in all that time. His family, by the way, consists of eight. He has the only really ant-proof honey-house in the State, so far as I can judge (see Fig. 8). It is located over the water, and approached by a 150-foot walk. The only objection to the location of the honey-house is that the salt sea-water quickly corrodes any metal surfaces. He also uses the ten-frame L. hive and produces extracted honey only.

His honey-sources are chiefly saw palmetto, cabbage palmetto, and fall flowers. He comes as near to producing an absolutely *pure* article of palmetto honey as it is possible to secure anywhere. The flavor and color of the palmetto honey that he secures are exquisite and striking. He has no orange honey; suffers heavily from forest fires, as the cattlemen own that part of the country, and their roaming herds are everywhere, for which they burn over the flat woods or palmetto hummocks as often as they will burn. Fortunately it will not burn every year.

Mr. Shumard's hive experiences have been varied. He began with the old American (pictured in GLEANINGS, 1910); soon changed to a hive called the Buckeye (a local name), then to the so-called Hoffman hive (not that of the Hoffman frame); finally he adopted the L. hive as best for all purposes. He uses the narrow top-bars, however, from long familiarity with their use. Friend S. uses only two-story hives in all of his outyards because he thinks that more stories do not permit sufficient bees to fly abroad, but keep them at home caring for the piles of supers, etc. In this it seems to the writer that he makes a mistake; for in the season of 1910 he had many of his outyards fill their hives "chock-a-block" with honey, and then swarm and go. More surplus room, even ahead of needs, would have obviated this loss.



Fig. 9.—A few of the bees from one of the hives of I. T. Shumard.

He is also a genius at getting full sheets of worker comb from mere starters of foundation, and with no splints. I have never seen truer combs nor more regular cell structure than is visible in his hives, and secured without foundation. His secret is to place the frames of starters in small colonies, or in newly hived swarms. He uses no wires, but has never had a comb breakdown in extracting, nor melt down with



Fig. 10.—I. T. Shumard's queen-rearing apiary on Cossey's Key, off southwest coast of Florida, 82 miles below Tampa, in "Palmetto Paradise."

heat, in any yard. A stalwart son and son-in-law help him in his most strenuous seasons, and not least of his assistance comes from his active daughters, especially Miss Florence, who is shown with her father in an out-apiary, in Fig. 7. All the views of Mr. Shumard's apiaries were taken by his old-time friend Mr. M. L. Brewer, of Philo, Ill., called (and justly) "The Camera Fiend." They will rank among the clearest photos ever taken. Mr. Brewer is also a bee-keeper of note. The writer is indebted to him for part of these views.

De Land, Fla.

To be continued.

[The above interests me particularly because it describes so well the island home where I passed two winters, and the spot I have written so much about in our previous issues. I am afraid, however, it presents almost too bright a view of that locality. Although friend Shumard has on the whole been fairly successful in bee culture, he has had some severe drawbacks. When he undertook to raise queens on the island, three serious obstacles stood in his way; namely, the queens and bees fell into the water while they were continually crossing to the mainland. Another was the ant nuisance unless he kept a hundred chickens or more to keep them down; and, lastly, the dragon-fly, although the latter come only occasionally. There have also been long periods of drouth. No doubt many of our readers will recall that two of the pictures given were also in our issue for July 15, two years ago. It may be well to read up the descriptive matter given there while the above account of Bro. Shumard's island is before you.—A. I. R.]

SHADE NEEDED MORE FOR THE KEEPER THAN FOR THE BEES.

A Portable Tent for Use in the Apiary; the Secret of Avoiding Robbers.

BY G. C. GREINER.

In former articles some of our bee-keeping friends have expressed their views on the shade question. Some are in favor of shade, while others claim that bees will do better when exposed to the all-day sun. I can not take sides with either party. I don't believe that shade or no shade has any thing to do with the yield of surplus honey and the general welfare of a colony, providing the shade is not too close.

If an apiary is located in an apple-orchard, or under trees of any kind that are well trimmed below, so that bees can have the benefit of a few hours of morning and evening sun, especially the stimulating rays of the former, I should consider it an ideal location. But if placed in the open I should consider it necessary to have the top of the hive protected against the piercing rays of the noonday sun. This may be either a temporary arrangement, like laying a board



FIG. 1.—G. C. GREINER UNDER HIS PORTABLE TENT.
Mr. Greiner has kept apiaries many years under orchards where part of the hives were exposed to the hot sun, and he has never noticed any difference in results. However, his covers are double with several inches of space between.



FIG. 2.—G. C. GREINER LOOKING FOR A QUEEN.

on top, or a permanent device derived from the peculiar construction of the hive. The hive I use has a properly constructed flat cover (sometimes called honey-board), the usual bee-space above the main frames; and over this, resting on cleats, a telescope cover with several inches of air-space between the two. This forms a positive protection against the melting of combs, and also against the detrimental effects of frosty nights.

Until last spring, when I moved my bees to their present location, I always had shade for them. Although I have moved my bees several times, I was always fortunate enough to have apple-orchards I could use as a bee-yard; but at the same time, in placing my bees at the desired distances, some of the rows or parts of them would have to take the all-day sun. As much as I watched the result I could never notice any difference in the yield of surplus honey. I had extra heavy yields in the shade and extra heavy yields in the sun, and light yields in both places. It seems to make no difference with the bees. They thrive in one place as well as in another; but with the apiarist, who has to do the most of his outdoor work during the hot summer months, it is very different. A little shade, when the thermometer hovers around 85 and 90, is very acceptable.

My present bee-yard is destitute of all shade. I have planted an orchard on the ground, but it will take many years before any shade from that source will be available. To make up the deficiency in a small way, I have constructed a little tent frame and covered the same with a canvas roof. Fig. 1 shows the writer taking his noon rest and watching his bees in the shade of his tent. The whole structure is very light, and can easily be carried to any place in the yard. It is six feet long and takes in two hives, furnishing a shady place for the operator and the colony to be operated on. While it would not be practical to move the tent with us at all times and for all kinds of work, it would be quite an acceptable acquisition in certain cases, when longer jobs at single hives take up our attention. In Fig. 2 the writer is looking for a queen among a row of nuclei.

HOW TO AVOID ROBBERS, EVEN WHEN THERE IS NO HONEY-FLOW.

The tent, as it is, is intended for shade only; but by providing an adjustable curtain of cheese-cloth, or a similar material, it could be easily transformed into a bee-tight bee-tent. But I never had any use for any thing of the kind. No matter what my work may be, by being very careful about leaving any temptation on the ground I have very little trouble with robbers. Even in September I extract buckwheat honey and leave the doors of my honey-house wide open. Of course I have screen-doors, which I keep closed; otherwise I should very likely be troubled with some undesirable company. The secret in preventing robbing with all our outdoor work is simply this: "Don't give the robbers a taste." When taking full combs from a hive I make every move count. I do it as quickly as possible, in a sort of sleight-of-hand way. The few robbers that are following me up hardly know the hive is open before the combs are in the bee-tight comb-basket and the hive closed again; and those that are a little too inquisitive, and follow the combs in the basket, are

caught by closing the lid. I take them with the combs to the honey-house, where they are kept prisoners until I get through extracting for the day. By picking up what robbers I can with every basket I carry to the honey-house, I keep the yard quite free from these pests.

The question would naturally arise, "What do you do with those indoor robbers? how do you dispose of them?" Simply by opening the screen door wide, past the center when I see fit to liberate them. I have no bee-escape to my honey-house, and would not have any under any consideration. To let the bees pass out at any time by means of one of these devices is just exactly what causes trouble. They will soon return and bring another lot of investigators with them, and, before many hours — yes, minutes — my honey-house would be surrounded by a very troublesome crowd. But under the circumstances Mr. Robber has to stay in until it suits my purpose to set him free, thereby preventing all communication between him and the outside world.

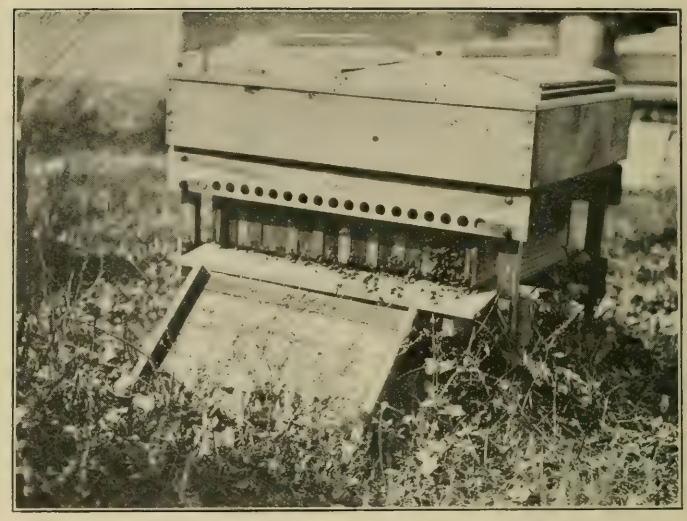


Fig. 1.—One of S. D. House's colonies, in an Aspinwall hive, that produced 120 lbs. of honey without offering to swarm.

My screen-doors are the only bee-escape I use, and they work to perfection. The frame is made of 1⅛-inch stuff, and fits to the door opening on the outside. It forms, with the screen nailed on the outside of it, a sort of inclosure which confines the robbers to the screen, even when the door is partly opened. This enables me to pass in or out, or move my comb-basket one way or the other without a single robber taking the hint that he could gain his liberty by taking the right course.

But I have another scheme of deception. It sometimes happens that the inside robbers have become quite numerous, and attract a large number on the outside—too many to make the passing in and out agreeable. Then I use a second door about three or four feet from the screen. Being a solid door, always closed when not used, and opening on the opposite side from the screen, not a single robber molests me when going in or out with honey or empty combs. The screen being so near it draws their attention in that direction.

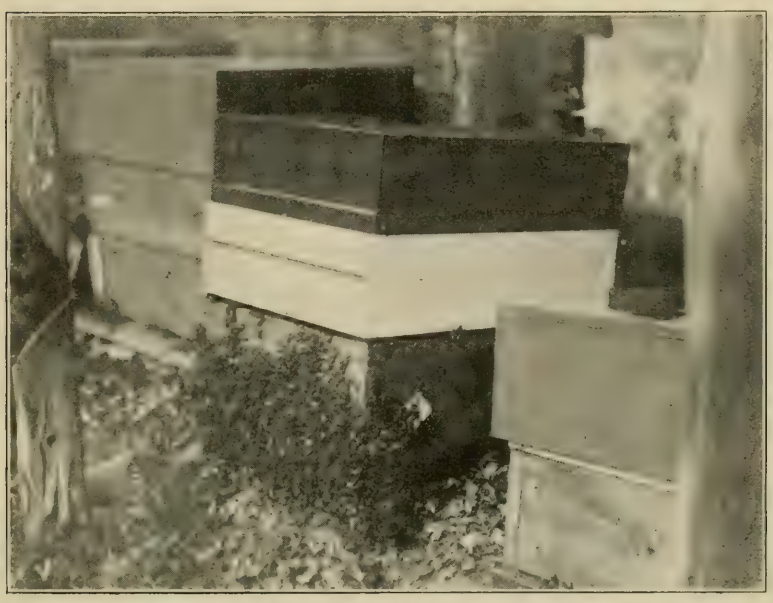


Fig. 2.—Bees actually suffering for want of ventilation.

My comb-baskets, when taken to the honey-house with full combs, are always placed near the



Fig. 1.—Apiculture, short course, Ontario Agricultural College, May 1—6, 1911. Taking winter packing off the hives.

screen; and as soon as the lid is raised, almost every robber will go to the screen. Not one in a dozen will alight on the windows, although some of them are as near as the screen-door. Thus when the screen-door is swung open for the purpose of general liberation, hardly a bee is left inside, and no other bee-escape is needed.

La Salle, N. Y.

ENTRANCE VENTILATION DURING WINTER.

The Advantage of a Double Entrance, One on Each Side of the Hive.

BY S. D. HOUSE.

If we observe the condition and position of bees clustered for their winter sleep out of doors we shall always find them clustered close to the open entrance at the beginning of winter, and they will not abandon that position except to follow up their stores. If we close the entrance three-fourths its length on one side, say the first of November, the bees will cluster at the side of the hive where the entrance is open. Usually bee-keepers close the entrance from the two sides, leaving the opening at the center. As the bees will cluster at the open entrance, or in the center of the hive, they will, before the winter is over, consume the honey in those center combs. They are now compelled to move over to one side or the other, and, later, consume all the honey on that side of the hive. As a consequence starvation often takes place, the temperature being too low for the bees to move over several empty combs to get to their honey on the opposite side of the hive. If, on the other hand, the entrance had been placed at one or both corners of the hive, such a condition would not exist.

If the location is one that is exposed to much wind, and a contracted entrance is desired, it should be closed in the center, leaving an opening at each front corner. This serves a double purpose. First, the bees will cluster at one or the other side of the hive, and, of course, will be in position to follow up and reach *all* of the stores in the hive. Many times in my early experience I have found colonies in early spring, after starting brood-rearing, out of honey in or near the winter nest. They were thus compelled to abandon their brood and move over to the honey and start an entirely new nest. Such a move takes place at a time when the bees can ill afford to stand such a loss, and many times it puts the colony out of commission for the white-honey flow to follow.

Second, a double entrance (one on each side) gives a much greater ventilation, by causing a circulation of air through the hive, than if the same space were given in one opening in the center.

I winter several apiaries outdoors with the entrance the full width of the hive—$16\times\frac{5}{16}$, and since adopting this wide-open entrance I find the bees much stronger in vitality, and able to withstand greater hardship during the spring. As spring advances and the bees are getting frequent flights, and brood-rearing is advancing, I contract the entrance very close, usually about $2\times\frac{5}{16}$ inch, and at no time during any part of the year, indoors or outdoors, do I give any ventilation from the top of the hive. Nature gives the bee instinct to glue every crevice air-tight, and I believe in clinging close to nature and assisting wherever possible. Upward ventilation will do no great harm at the time

the bees are in their winter cluster; but usually when a cushion is used during the winter, with more or less openings, it is left on during the breeding season, and after the bees have broken their cluster. At this time an upward ventilation is a drawback to the colony, as it allows too much heat to escape, and also takes from the colony the control of temperature within the hive. On the other hand, if the cover is sealed tight, and the temperature rises too high within the hive, the bees will drive a circulation of air through the hive by fanning.



Fig. 2.—Apiculture, short course, Ontario Agricultural College, May 1–6, 1911. Three groups of hives unpacked.

How many times we have seen bees gnawing the hive at the entrance to make the opening larger, that they might get more air; but I have never known them to gnaw the crevices of wood at the top of the hive. Invariably they will glue them tight if the opening is less than a bee-space. I think this proves that bees do not require an upward ventilation.

The past four years I have had under observation the Aspinwall hive and its construction with its many bee-space dividers, which also act as air-spaces, giving as much area and air to the bees as the combs occupy during the honey season; and the result is that no one queen can overstock this hive with bees, and there is no time during the hottest days of summer, with approximately 80,000 bees, that they show any signs of a high temperature within the hive. These many ventilating spaces make it a practical non-swarming hive by removing two factors which are most conducive to the swarming impulse — first, a crowded condition of the hive by the bees, which closes the bee-spaces between the combs and shuts off the ventilation from the larvæ and embryo bees. Second, this crowded condition of the hive raises the temperature of the brood-nest above a normal temperature, which forces the bees to cluster outside of the hive in idleness to prevent the brood from suffocating. Fig. 1 shows a colony in an Aspinwall hive that produced 120 pounds of comb honey without offering to swarm. All colonies that are in prime condition June 1 should have a large entrance; and, if given in time, it will reduce the swarming impulse to a minimum. There is no one cause more conducive to the swarming impulse than a lack of sufficient ventilation. Fig. 2 shows a colony actually suffering for want of ventilation.



Fig. 3.—Apiculture, short course, Ontario. Looking for foul brood.

Many times a swarm will not stay in a new hive, especially if the frames are filled with full sheets of founda-

tion. They are effectually controlled by placing an empty super under the hive-body for 36 hours, when it must be removed or they will build combs below the frames. I have practiced this method for some years, and have never had a swarm issue when an empty super was underneath the brood chamber. It provides an air-space and also a place for the bees to cluster below the frames while they are transforming their honey into wax.

Camillus, N. Y.

THE SHORT COURSE IN APICULTURE AT THE ONTARIO AGRICULTURAL COLLEGE.

The apicultural short course, May 1—6, which was the first short course of its kind ever held at the Ontario Agricultural College, was a success. In all, 43 bee-enthusiasts were in attendance, including eight regular apicultural students of Macdonald Hall, and six ladies from different parts of the Province. The counties represented were the following: Bruce, Carleton, Dufferin, Elgin, Haldimand, Kent, Lambdon, Leeds, Lincoln, Middlesex, Perth, Stormont, Welland, Wellington, Wentworth, York, and the Province of Quebec. Nine of the sixteen Provincial Apiary instructors were present, also Dr. G. Gordon Hewitt, Ph. D., Dominion Entomologist, and his assistant apiarist Mr. Beaulne, of the Central Experimental Farm, Ottawa.

The program consisted of forenoon devoted to lectures, the afternoons to demonstration and practice, and the three evening lectures of a more popular nature, copiously illustrated with lantern views. The weather being cold most of the week, the practical work took the form of demonstrations in the apicultural laboratory—rendering wax from combs, nailing up hives, nailing and wiring frames, and putting in foundation, etc. A rather complete display of different kinds of combs which bees build, also of machinery used in the production of honey and beeswax, attracted much attention.

By Thursday it was warm enough to visit the college apiary. The hives were still in the boxes where they had been packed with planer shavings for the winter. These boxes were taken off by members of the class, and stacked; the shavings were removed, and the class was given a drill on handling combs and looking for different conditions of the internal economy of the hive. Friday afternoon was spent in a similar way, giving more attention to the symptoms of American foul brood. Saturday morning local apiaries were visited, and some members of the class became discoverers of real causes of disease, much to their own satisfaction.

The lecture work was divided largely between Mr. Morley Pettit, Provincial Apiarist, and Dr. E. F. Phillips, Ph. D., in charge of apiculture for the United States. Mr. Pettit handled the more practical problems of apiculture, and Dr. Phillips discussed the question of general behavior, anatomy, and disease of bees. Professor Edwards introduced the subject of diseases by a general discussion of the nature of bacteria. Prof. Harcourt demonstrated simple chemical tests for the purity of honey. Prof. C. A. Zavitz explained the work of the Ontario Agricultural and Experimental Union, and suggested ways in which it could serve the bee-keepers of Ontario in addition to the work already done. Mr. LeDrew explained the principles of coöperation which might be applied to the business of honey-production.

The evening lectures by Dr. Phillips, entitled "The Behavior of the Bee," and on "The Hawaiian Islands and their Bee-keeping Industry," were largely attended by members of the Normal Teachers' Class, and the students of the O. A. C. and Macdonald Hall. At the Friday-night lecture, President G. C. Creelman, B. S. A., LL.D., occupied the chair in his usual genial manner.

There were many expressions of appreciation from the members of the class as they dispersed to their homes on Saturday, May 6th.

SECRETARY.

SMOKING BEES AT THE ENTRANCE.

Does it Pay at Any Time?

BY S. D. CHAPMAN.

[Mr. Chapman is one of the leading bee-keepers of his State. He is a successful farmer and a bee-keeper—one who knows how to economize his time to get results. His views on any subject deserve careful reading.—ED.]

It has been but a short time since the editors of two of our bee-journals told us why bees fear smoke, and I hardly think they agree. It seems to me an easy matter to find out why bees fear smoke. Take a four-inch smoker; and when it is going nicely, if we would hold the nozzle close to our face, and pump vigorously, and wish to get the best results, we should open our eyes and mouth. It will take but a short time to convince us why bees dislike smoke, but I am not advising any one to try this. Smoke has the same effect upon our bees that it has upon ourselves. If we administer the same amount of smoke upon our hands we would scarcely notice it. That is why I believe the first move we make about a colony is for the purpose of bringing as many bees as possible facing us, ready for the first puff of smoke. We have all noticed that, during cool and windy weather, it is difficult to handle bees though we use a large amount of smoke. It is my opinion the whole trouble comes from the sudden change of temperature inside the hive. The instant we remove a cover, the heated air escapes, and there is a draft of cool air coming in at the entrance, though it affects only the outside of the cluster; but they are the very bees that attack us.

One cool morning, with a large bicycle-

pump I put a little cool air in at the entrance of a colony, and it made them wild.

In regard to smoking bees at the entrance, I wish to refer to Dr. Miller's comments on smoking at the entrance, in the *American Bee Journal*, page 134, where he says, "If the sum total of smoke be the same in each case, will not the interruption and confusion be the same?" I can not quite agree with Dr. M. in this case. A little further on he says, "If I am correct, when a hive is jarred the bees come out at the entrance to attack the disturber, and a little smoke at the entrance quiets these guards." The way I handle bees, I have failed to discover that jarring has any effect on a colony; and it is seldom that any bees come out at the entrance to attack me, and I use no smoke at the entrance. I am referring now to the time when it is warm, and at least a little honey is coming in.

Let us take two colonies with the same disposition. One we will smoke at the entrance. The first puff of smoke striking the guards in the face turns them end for end, so they start for the inside of the hive, and they start roaring, which excites the whole colony. If we give them any more smoke at the entrance we drive the bees to the top of the frames; and when we remove the cover, for every puff of smoke given at the entrance we must use two to drive the bees down. We find we have made bad work of it; and the result is, we have destroyed the benefits of a quick observation to determine the true condition of a colony. A man with a few colonies can get along almost any way; but the one with several hundred must cut out unnecessary work.

Let us go to the other colony. It is better to approach it in a way so the guards will not discover us. We place a hand on each end of a cover, and it comes off quickly. How do we find them? No bees are coming out at the entrance to attack us. Why? Because the first disturbance is above them, attracting their attention to the top of the hives. They are crawling toward us, and we have all the bees facing us ready for the first puff of smoke. We can now judge the true condition of a colony. To explain this more fully, let me show you how I go through 100 colonies in one hour, just to find out their condition. I believe I have examined 100 colonies in 30 minutes. It is only once in the season I do this. Some may think it is not advisable to do this, but it pays me. The first time I go over my bees in the spring is only to scrape the under side of the covers and top of the frames.

The second time, I choose a warm day about the time fruit-trees are coming in bloom. I do not take out any frames nor do any work with the colonies, but find out their condition. First, if there is a colony that has lost its queen during the winter or early spring the bees show it the instant we remove the cover. Second, we look for young bees. Third, one puff of smoke over the top of the frames starts the bees downward, and we look for sealed honey. Fourth, the condition of the colony regarding its strength. Fifth, the record. This record is worth to me ten times its actual cost. In going over these colonies we use no smoke at the entrance. We have the smoker going; and when we come to a colony we set the smoker on the ground, using both hands to remove the cover, and with one hand we bring the cover in front of the hive, striking one corner on the ground, dislodging all the bees from the under side of the cover.

At the same time, with the other hand we bring the smoker just above the hive and give them one puff of smoke to start the bees down. The hive has not been open more than six or eight seconds to find out the condition of the colony. We put the cover on just as quickly as it was removed. There is not a bee in the way, and this cover sometimes comes down with quite a little jar; but bees seem to pay no attention to such jarring. One or two puffs of smoke at the entrance will cause more excitement than a dozen such light jars.

When the cover is on we place a brick on it, and this brick we use to keep the record. If the hives face the east, and it is a strong colony, we place the brick on one edge so the ends point east and west; for medium, northeast and southwest; and if very poor, the ends of the brick point north and south. When it is time to put on the first upper stories I can go near the middle of my home yard, where there are 175 colonies, and I know their condition just as fast as the eye can catch those bricks, and we have to open only the strong colonies. Later in the season, when the first upper stories are partly filled, by observing the bees at the entrance I can tell almost every colony that will soon need more room.

Mancelona, Mich.

[Our views are given in part on this subject on page 384 of our last issue. Our correspondent raises the question whether it *ever* pays to use smoke at the entrance. This is a good subject for discussion. Let others join.—ED.]

MORE ABOUT WINTERING A SURPLUS OF QUEENS IN ONE COLONY.

It is Worth a Trial.

BY G. W. JOICE.

In GLEANINGS, page 221, April 1, many readers perhaps noticed a communication from the writer concerning the problem of wintering a surplus of queens in one colony. The many queen-breeders who have written me for further particulars will find all my answers in GLEANINGS, as I can not reply to these questions by mail.

To start in at the beginning, I try to raise a surplus of queens after the main honey-flow, or in August. I introduce these queens to nuclei, giving one to each nucleus. This may be done by feeding a little syrup, and I think it is safer to fill the bees in the

nuclei, as they are more likely to accept a stranger when they have full stomachs. Keep these queens in their respective nuclei until after any possible flow of nectar, no matter how light, for after a flow the bees destroy all surplus queens unless they are fed each day, which is impossible through the winter.

The catch is here, and perhaps this is where followers of this method may fail. I take these nuclei (which should be on one comb each) and shake before a hive containing strange brood, and enough honey for their winter stores. Shake all the bees and queens together in one pile, and sprinkle them with a handful of flour, using no smoke. In this way they become mixed and lose their scent. I do no stimulative feeding the week before uniting, and none after. If I succeed in getting the queens accepted I have a clear track. This method requires patience. I had a few colonies that would kill every queen but one. I do *not* know whether my success (?) was due to my care or whether to the strain of bees.

Of those wintered in this manner last year I succeeded with six of the eight old ones that were in one colony; of the four old and three young ones that were together, I have the three young ones. Of the lot of young ones that were together, I wintered eight. I am not sure how many were in that colony last fall. Each spring I do my requeening two days after taking the bees from the cellar.

Perhaps those that have tried the plural-queen system through the summer without success have had the same experience I formerly had. It worked well when a good flow was on, but the extra queens would disappear between flows. This may be prevented by stimulative feeding, but it does not pay. I have never been able to carry a plurality of queens through the honey-flows, and winter them in the same colony. If Mr. A. B. Marchant, Sumatra, Fla., has small flow all winter (enough to induce plenty of brood) he ought to succeed in wintering a surplus.

Those who are thinking of trying this work next fall will do well to remember that success will not come without painstaking care in introducing the bunch of queens. Don't give it half a trial and say that it will not work. It is certainly worth a trial. Do not feed a lot of syrup after introducing the queens to the one colony. Whether you succeed or fail, write me your experiments in full.

I will endeavor to answer a limited number of inquiries that are accompanied by a self-addressed stamped envelope. To those breeders offering me queens to try this plan on their particular strain of bees, I would state that I might test it on a limited number of pure Italians. I positively will not tolerate a personal interview with any bee-keeper in regard to this subject. I must refuse one and all.

Montpelier, Ohio.

MOVING 100 COLONIES OF BEES 1200 MILES.

BY WM. L. COUPER.

Complete details regarding moving bees by the carload have been given from time to time in GLEANINGS; but perhaps my experience in moving about a hundred colonies as part of a car of "Settler's effects" may be of interest to some readers. The trip, which lasted about six days, was from Manor, Saskatchewan to Hatzic, British Columbia, a distance of about 1200 miles. Perhaps it was rather risky to include a cow, but it gave me a free pass to travel with the car, and I felt sure that I had the bees fastened so solidly that nothing short of an upset could release them.

The bees were confined by means of wire screen covering the tops and entrances. I did not have enough wire cloth to pack all of the colonies in this way, so over the last nine or ten hives I stapled a bottom-board, deep side down, with the entrance on the opposite end to the lower one so as to give a through draft and an air-space above. These colonies traveled as well as those covered with screen. The first row was packed against the back wall of the car, frames parallel with the rails, and hives as close together as possible. The second row was then put in place on the floor of the car, the back end of the bottom-boards touching the front end of the first row. Then a six-inch board the full width of the car was laid so that it overlapped both rows of hives, and was nailed to every second hive. Besides fastening all the hives solidly together, this plan had the advantage of leaving a clear air-space between the tiers of hives, which were packed four high, each tier being fastened in the same way. Above the hives, supers were piled to the car roof, and were also placed in front, as I wished to exclude light as much as possible. Boards were nailed across the front end of these supers, held in place by cleats spiked to the sides of the car. I used inch boards here, but 2 × 4's would have been better, as they sagged considerably in the course of the trip, and one pile of supers worked loose and fell on the cow.

One rule was violated in packing bees this way, in that they were so placed that I could not get at them to give them water nor to attend to them in any way. My reason for this was simply to save space; but it must be remembered that I was shipping in cold weather, and water, therefore, was not likely to be essential. The first night of the trip, the water in the water-barrel froze so hard that it was necessary to chop the ice with an ax.

So far as the bees were concerned, the trip was uneventful. A long level run over the prairie to Calgary was broken only by the inevitable shunting at divisional points; then followed the magnificent scenery and heavy grades of the Rocky Mountains. The former, by the way, may be enjoyed from the open door of a box car far more completely than from a Pullman car, both because of

the lower speed and greater range of vision possible.

Finally, on the sixth day, when I reached my destination at Hatzic, about forty miles from Vancouver, I was unlucky for the first time. It chanced to be a very warm day, and bees from all over the neighborhood swarmed around the empty supers in the car. This excited my bees, and, I think, caused what loss I suffered. I could not get a teamster to unload the car until the following day; and by the time the bees were actually released, they had been confined in the hive for nine days. In one colony practically all the bees were dead. Two others I united with weak stocks. In all three of these colonies, heavy combs had broken, and the entrances were choked with dead bees and honey. On the whole, I think it was a very successful trip for a man entirely inexperienced in handling bees on a car.

Hatzic, B. C., Canada.

[During cold weather (cold enough to freeze) it is not necessary to use screens on top of the hives, providing you give sufficient bottom ventilation. But if the bees are liable to be unloaded on a warm day, as in your case, it is a wise precaution to have screen tops. These can be covered on the trip if a man is along and it is cold.—Ed.]

THE DANZENBAKER HIVE.

Some Changes Suggested in It; the Hand Switch Bottom-board.

BY REV. F. G. RAILEY.

I am uncompromisingly in favor of the ten-frame hive, whatever may be the depth of frame. Let us have this as a basis for uniformity of dimensions. Of the ten-frame hives, after some years of experience, I have become partial to the Danzenbaker. I prefer a closed-end, reversible, and shallow frame. These features we have at least in the brood-chamber of this hive. And now let me say that my purpose in writing this is to suggest some changes in the super of this hive, and in the divisible or sectional-brood-chamber form of it which will give us the valuable advantages of the reversible feature in connection with both the shallow frames and the section-holders. With its expansible and adjustible features, so well adapted to all conditions of climate and the variable circumstances of each individual colony, so easily manipulated by any one who will give it a little care and study, I can not but believe that it is destined to become a widely used hive. It has certainly grown upon me, and that, too, when I was originally prejudiced against it. My suggestions for changes are the following, which I have put into practice now for some years.

First, make the Danzenbaker super and divisible or sectional brood-chamber just ¼ inch deeper. This will give space for a top slat on the section-holder. Then put the pivots in the center of the end-pieces of the section-holders, and cut the cleats on which they rest down to 2¾ inches, thus making the section-holders reversible, which will give us sections of honey well finished at top and bottom, while the sections themselves will be kept clean from all stains and propolis.

Secondly, make the shallow frames ¼ inch deeper, put their pivots also in the center of the end-pieces, thus making the frames reversible, and so giving the solid slabs of brood or extracting combs which can be gotten only with reversible frames.

I have just looked over one of these sectional-brood-chamber hives constructed as above described; and, though it is only the first day of May, there are beautifully finished sections of comb honey and solid slabs of brood in the four stories of that divisible hive, jammed full of beautiful Italian bees.

One other suggestion which only those who desire need follow. It is for those who would handle these hives by the sectional parts rather than by single frames or section-holders.

Instead of the wedge-shaped strip used at the ends of the frames and section-holders, I use another cleat 2¾ inches wide. I force this down, as was done with the strip, until it is even with the upper edge of the end of the super, or sectional brood-chamber. This brings the lower edge of this cleat within ⅛ inch of the upper edge of the cleat below, allowing the pivots this much play. Then with two metal thumbscrews ⅛ × 1¼ inches, put through the sides of the super near the end into the ends of this cleat, it is secured fast in its place; and now when the combs in the frames or section-holders are ready to be reversed, the entire section can be inverted end for end. A slight pressure on the frames or section-holders will cause them—division-board, springs, and all—to slip down, leaving the ¼-inch bee-space above, as it should be. Thus you see the frames can be handled in entire sections if desired. The thumb-screws need be removed only when the frames or section-holders are to be taken out.

With this hive—brood-chambers, supers, all parts alike, all expansible and adjustable, each part fitting everywhere, it seems to me we shall come very near having an ideal and practical hive.

Information has been asked for as to the Hand switch double bottom-board. On March 6 I put on one side of this switch bottom-board a good strong colony headed by one of Doolittle's fine queens. There were two stories to the brood-chamber. The colony increased rapidly under a little stimulative feeding and the early fruit-bloom. April 20, on examination I found it very strong, and queen-cells started. I at once placed the top brood-chamber, containing some drawn-out combs and foundation with some eggs, larvæ, and sealed brood, down on the other side of the bottom-board, exchanging a comb for one from the other hive-body with the queen and brood on it. I then threw the switch. I put on a super of shallow frames first, then a super of sections.

To-day the bees are working hard in both supers, there is some sealed brood and honey in the shallow frames, and some partially sealed sections of honey in the top super. Hive No. 1 is quite strong again; but I shall not make a second switch for a while yet, as I am raising some fine young queens from that colony. I think that, with proper understanding and management, the switch-board will afford many advantages. More experience, however, will be required before conclusive results can be given.

Selma, Ala., May 2.

[The Danzenbaker hive is very popular with many persons keeping a few bees in their back lots; but it does not seem to be in much favor with extensive or professional bee-keepers. While it seems to be conceded that closed-end frames are warmer, and make it possible for the brood to be reared clear up to the end-bars, the difficulty and time consumed in handling these frames appears to be a serious bar to their general introduction among the professional class.

While there might be, perhaps, some advantage in making the change suggested, manufacturers find, as a rule, that it is unwise to make any change in hives unless there seems to be a general consensus of opinion among bee-keepers favoring such change. For instance, there has been a strong tendency of late toward the ten-frame hive of the Langstroth pattern, and at the same time a general falling-away from the eight-frame hive. It is possible to change over to ten, but it would not be practicable for a manufacturer to make slight changes in the Danzenbaker hive. The reason for this is, it would cause general confusion, in the yard of a customer who has a lot of the old hives, to buy new ones that would not fit those already in use.—ED.]

TROUBLE BETWEEN BREEDER AND BUYER.

BY JOHN E. TAYLOR.

[The following article was written by one who, although not prominent in the bee-keeping world, is a poultry-breeder of some note, and a contributor to the *American Poultry Journal*. As his business is quite an extensive one he has had ample opportunity to judge or observe difficulties arising between customers and dealers. This opinion, coming as it does from a disinterested party, should have all the more weight.—ED.]

In your issue for April 1, page 205, under the above heading, some pertinent questions of responsibility arise. I feel in your comment you have not touched the real issue. While it may be and doubtless is true that wired frames are best, it does not appear they were a part of the contract in question, either by direct promise or implication.

It does appear, however, that Mr. McMurray did contract, by the terms of his advertising, to sell "Superior all-over-yellow Italian bees," and then expresses surprise that his customers expect to receive such, as, in matter of fact, "we haven't got to that yet."

Now, Mr. Editor, by every statute in existence it would ordinarily be considered that such evidence is evidence of fraud with knowledge thereof, and punishable, with power not only to recover original outlay, but to recover incidental damages for any loss of income arising therefrom. To avoid this responsibility by claiming "Golden All-over" is only the trademark of a particular strain must be accompanied by a clear and conspicuous statement that the bees advertised and sold are not yellow *all over*, but so only *in part*.

This may have been, and probably was, only an unintentional error of the advertiser; but it is a material matter, and of vast importance when considered in relation to the army of inexperienced beginners, and, in my judgment, there is but one honorable way out, and that is for the breeder to *furnish what he advertised*, free of any further expense for bees or delivery, or else refund every cent thus far paid by the buyer. This is law, and it is business.

This whole affair may be an unfortunate mistake on the part of a very honorable and well-meaning breeder; and had he assumed the responsibility for the error, and refunded the money at once, it would have been the best advertising he ever did, and would have put in your paper a letter from Mr. McCubbin that would have advertised a guarantee of fair treatment instead of a fear of broken promises.

No, Mr. Editor, I know I am inscribing pretty plain sentiments; but I don't charge a cent for them, and I am sure they are worth all I charge.

Belding, Mich.

[See editorial comments elsewhere.—ED.]

Another Swarm that Returned to the Old Hive.

I read the article on page 377, June 15, about a swarm's queen that returned to the hive from which the swarm issued. I have had a similar experience. Last Monday, the 19th, a colony of bees I purchased this spring swarmed. I should estimate the amount of bees to be about a peck. They lit on a limb of a high apple-tree. I placed a new Danzenbaker hive on the ground under the tree, and was about to go up after the swarm when they all dropped off, and rushed pellmell back to the old hive whence they came.

The next day, about 11 o'clock, they swarmed again. This time I removed the old hive and put in its place a new hive, placing another under the tree where they were swarming. I sawed off the limb and shook it in front of the hive. Most of the bees went in. In a few moments they came out and made for the old stand whence they came. There they found the new hive which I have already mentioned, and immediately took possession, and are now busy carrying in honey. Is this their habit, to return to the old hive?

Sherman, Pa., June 23. E. E. LOWE.

Moving Bees a Short Distance.

In moving bees a short distance you are behind the age. I moved a yard of 50 colonies about 350 yards, 7 years ago, to rented ground, for protection and handy water. I did not use smoke, but blocked the entrances shut, and started. I used no board in front. I let them out at once and got out of the way. Not a dozen bees came back that I was aware of. I have done all moving that way since, even wheeling around the yard a couple of times and placing them on a new stand.

Portland, Pa. A. C. HUNSBERGER.

[Wheeling the hives around the yard several times would have much the same effect as smoke. When bees are moved a short distance they must be stirred up with smoke or jarred on a wheelbarrow or wagon.—ED.]

Heads of Grain from Different Fields

Hiving a Swarm on the Combs from which it Came.

In GLEANINGS for April 1, p. 219, Mr. W. S. Davis writes about hiving a swarm on the same combs it came from. Now, I have done the same thing, but with a little different manipulation. I allowed the swarm a longer time to quiet down before I put it on the combs.

The method I used was to hive the swarm in a new hive on starters beside the parent hive. If running for comb honey, a super may be put on at once from the old hive.

The bees should be left from 24 to 36 hours, with the idea of allowing them time to settle down to work after swarming. Now frames of starters from the new hive may be replaced by frames of brood from the old hive, one at a time, so as not to disturb the bees too much. In this way the work may be done before the bees find out what you are "up to." Then the colony is in the same condition it was in before it cast a swarm. The bees will settle down contentedly, and do as good work as if they had been left on starters. As to the cells left, it is optional with the operator whether to save them or the old queen.

After I had tried this method, three years ago, I happened to come across some of Alexander's writings, and found that he followed the same principle. Now it can be done.

CUTTING OLD COMBS DOWN TO FOUNDATION.

Here is another little kink I am practicing right along: Instead of melting up old combs I fill them with cold water; take a cold sharp uncapping-knife; cut them down to midrib, and give to a strong colony during the honey-flow. The bees will quickly clean out the old shells. A pollen-clogged comb may be treated the same way, for the bees will clean it out, thus saving the comb and making it as good as a new sheet of foundation. One may take a frame of worker comb; and if drone-cells have been built on the lower corners, cut them out and replace with foundation, after having previously cut back half an inch on one side of the worker comb so as to fit foundation to the midrib, waxing the two together. Sometimes drones may be raised on edges where the comb and foundation meet.

Heber, Cal. M. S. PHILLIPPE.

To Form Nuclei with Virgin Queens; How to Increase by Using Virgin Queens; the Easiest and Quickest Way to Form Nuclei.

Place your hives on the stands where you want them. See that the entrances are closed bee-tight. Provide a small dish of honey, quite thin, four parts of water to one of extracted honey; and also a small dish of water, slightly saline, and set these in a hive. Then go to a hive, find the queen, and place her and three frames of brood and bees in the hive, and at the same time put in one frame of worker comb or foundation. Shut up the hive bee-tight by putting on a bag or cloth, and the board and cover on top of all. In 48 hours open the entrance about half an inch. Do this a little before dark; or if it is an out apiary, stuff the entrance with grass; and as it wilts the bees will work it out. One can put in more than one frame if desired.

Now having the nuclei fixed we will go back to the parent hive. Remove the cloth, which, of course, you have covered over the hive while you were at work on the nuclei. Take one of the queen-cages containing a virgin queen; turn the tin on top of the cage; make a small hole in the candy; put it between two frames; shut the frames together. Place in the hives some frames of worker comb or foundation—enough to fill the hive. Shut it up and leave it alone for a week or ten days. Then look and see if the queen is there. If you do not find queen-cells started, and do not readily find the queen, it is very good evidence that the virgin has been accepted all right. If you see brood, eggs, or the queen, that would be positive evidence she has been accepted. In this way you can requeen all of the old colonies. Have the nuclei of the old queens to build comb or to strengthen weak colonies, or let them build up and get whatever surplus you can from them, and unite them in the fall or keep them over as you wish. That is the best way I know to do it and lose the least time of the bees, and at the same time get young queens in place of the old ones; also, to a great extent, to avoid swarming, or to replace an undesirable queen. You could, of course, follow this mode of procedure if you wish to do so, and in this manner requeen your whole apiary with young selected queens.

Vernon, Ct. J. G. FRENCH.

The Basic Principle of Alexander's Method of Increase, by which the Young Brood is Saved.

I have noticed Mr. Alexander's way of making increase by dividing colonies as detailed on pages 37, 38 of his book, "Practical Bee Culture." I wish to practice it, but wish to put this question: If one has no queen for the new colony, but has desirable capped queen-cells at the time the queen is transferred, would it not be as well to give the old colony a capped queen-cell and remove it to the new location at once? If the bees on the frame of brood transferred are transferred with the queen, would not most of the other old bees return to the old location? and would not the result to both colonies be practically the same as if the old colony remained over the new one five to ten days?

This plan would be far more convenient for me, as nearly all my hives are your chaff hives with tight bottoms; and to leave the old colony above the new I would need to transfer the frames with the bees to an open-bottom hive, and, later, transfer them again to a chaff hive.

Westville, Ind. E. S. SMITH.

[We are not sure that we understand your question with reference to the Alexander method of making increase as described on pages 37, 38 of his book. But we may say that the chief reason why Mr. Alexander put the brood above perforated zinc on top of the old colony was for the purpose of protecting the young brood, eggs, and larvæ. Where the old colony or brood is removed to an entirely different location, much of the young brood is neglected and dies. Where, however, it is put on top of another colony, the heat rising from below will protect it, and keep it so that it will be saved. The idea of the Alexander treatment is to protect and save the young brood. By taking that brood away immediately at the time of making the division you lose a large part of the larvæ and the eggs.

If you do not happen to have a laying queen in the hive you can use desirable cells; but, of course, your increase will not be so rapid, because the colony (neither of them, for that matter) will have no eggs until the cells can hatch and the virgin becomes mated.—ED.]

Control of Swarming by Tiering Up; a Missing Link in the Process.

In your editorial in GLEANINGS for April 15, page 234, on "Control of Swarming by Tiering Up," in which you refer to Mr. Crane's article in a former copy, it looks to me as if both yourself and Mr. Crane had omitted the most important part of the manipulation—namely, to get both comb and extracted honey from the same colony; and Mr. Wilder, page 251, has also fallen into the same error, although he does not attempt to produce section honey—only bulk comb honey and extracted.

Let me tell your readers how we do that here in the Missouri Ozarks. Along about March 1st to the 15th, when the colonies are at the height of brood-rearing, we look them over and select those which are doing the best along this line, and lift up the entire brood-chamber, and place under it another brood-chamber (eight-frame Langstroth), with frames full of drawn comb, if we have it; if not, with foundation. By April 1 this lower chamber is all drawn out, and has plenty of brood in it, with a great plenty of young bees flying all about. By the 15th of April (this year, 1911, it was a few days earlier) we alternate these two brood-chambers, putting the lower one on top and the top one at the bottom. Put on an excluding-board and a super of sections, 4 x 5 x 1⅜, or it may be shallow frames, and the bees *must* move up into it, as they will not allow the honey to remain so near the entrance. This is as simple as can be, and gets *real* comb honey, not "bulk," and a tremendous colony also. It prevents swarming, as there is plenty of room below after the bees have carried the honey up into the super or supers, which you may put on as these are filled and capped.

You may demur at this procedure, saying the queen will not enter the lower chamber; but, as Dr. Miller says, they will "in this locality;" and here is where we are doing business. Dr. Miller also advises putting on supers on the appearance of the first white-clover bloom, which corresponds with the date given, as we have had white clover for a couple of weeks. A queen *will* go below if she has no room above, and will enter a shallow-frame chamber even quicker than one of Langstroth-frame size, 7½ inches deep, for instance, or swarm.

But the beauty of this manner of manipulating for comb or extracted honey is in the after-workings of the colony. Along about or between July 15 and August 15, when the honey-flow is getting scarce, if we wish to increase we divide the two-story hive, putting a virgin (or otherwise) queen in one part; put on supers, and get the full flow of goldenrod, etc., separate from the clovers, which keep us going, usually, till about Nov. 15—a long season, from March 1 to Nov. 15.

Reed's Spring, Mo., April 27. N. T. GREEN.

Hemet Valley Bee-keepers' Association, California.

On May 27 the bee-keepers of this valley formed an association to be known as the Hemet Valley Bee-keepers' Association, and nearly all the bee-men in this end of the county have joined or signified their intention of so doing. The officers elected for the first year were as follows: C. J. Davidson, President; W. S. Rather, Secretary; W. B. Tripp, Treasurer. There were also elected five directors as follows: J. A. St. John, W. H. Densmore, W. B. Tripp, C. J. Davidson, and Charles Sims. Rather Brothers, of Hemet, were chosen as business agents.

This is regarded as a wise step by the bee-keepers, for the reason that for years they have acted individually in the sale of their honey, generally selling to the first buyer who came along and told them of the immense crops that were being made from Maine to Texas, and how cheap the article would be next week as soon as the real conditions became known, etc.

Realizing the importance of organization to get the best results from their labor, and also realizing the fact that the raising of bees and the making of honey and beeswax in this section of the country is growing each year, and would in the near future, if it does not already, cut some figure in the price of honey in California, they have decided to pool their interests, accumulate their output in one place, and advertise to the world the fact that we raise the best and purest honey to be found in our country, and endeavor to create a market for it, especially in the East.

The business managers are making every effort to reach the responsible buyers, and have already received an offer of 7 cents per lb. for the entire season's output.

Last year all of our honey was sold at 5¾ cents. Our neighbors in the Imperial Valley got 6 cents for their inferior quality. They were organized, but we were not.

The conditions in our section are about as follows: The bees, as a general thing, came through the winter in good condition, there being but very little mortality, the bee-men as a rule having left them plenty of food to carry them through. The season has been somewhat backward on account of the cold weather; but the late rains were very advantageous, and brought out and kept the flowers in fine bloom; and the reports are that the bees are now working over time and making honey very fast. Should these favorable conditions last, the output will be somewhat larger than last year, and the honey will be of a superior quality, there being a larger quantity of white than we had last season.

Hemet, Cal., June 26. W. S. RATHER.

Carrying Queens to Outyards.

I have outyards of black bees that I wish to requeen after the basswood flow. Queen-cells taken to these yards, as described in Doolittle's "A Year's Work in an Out-apiary," by placing the cells in a box filled with cotton, and carried next to one's person to guard against chilling the cells, would be a convenient way, but in this case it would result only in hybrid bees; therefore I wish to mate my queens at home and then introduce them at the outyards.

What I wish to know is, could I transport the queens, without worker bees with them, to the outyards by putting them into Miller introducing-cages, prepared with candy and cardboard in the usual way, and be all ready for introducing when I reach my destination? It would be about ten hours from the time the first queen was caged until she could be introduced. To catch a number of workers, to attend each queen, and release them again at the outyards, would consume much time.

If this is practicable, at what temperature would you transport the queens? The desired temperature could be maintained by having the cages in a large box provided with ventilation and a thermometer, and a hot soapstone in another compartment.

Janesville, Minn., May 29. E. L. HOFFMANN.

[Under the conditions named, it would be more practical for you to have all your queens mated in your home yard, where you have Italian stock and Italian drones. You can then put your laying queens inside the Miller cages without any attendants, providing they did not have to stay in the cage longer than ten hours. The candy should be soft rather than hard; for without any attendants the queen might not be able to draw her sustenance from the harder candy. While the queens are thus confined they had better be kept in a temperature of approximately 98° Fahr., although they could exist in a temperature of about that of an ordinary living-room. But in arranging for the temperature up to about 98°, be careful not to get it too high, as this would do much more damage than a lower temperature. In going to the outyards we would recommend putting the cage in a little box, and the box under the vest if the weather outside is at all cool or cold. In ordinary hot summer weather the queens could be put in an ordinary box, and we would not in such a case advise the use of a hot brick. The trouble with any artificial heat is that one is liable to overdo it. The ordinary animal heat of the human body would be just about right. The objection to such heat is that it imparts an odor to the queens, and sometimes this odor might make the queen not as readily accepted by the bees.—ED.]

Will Bees Fly 2½ Miles to Buckwheat?

I live in a low round valley about five miles in diameter. Now, this is a good locality for bees during fruit and clover bloom, but there is scarcely any buckwheat raised here in the valley; but about 2½ miles away on the hills there are extensive crops of it raised. Would it do to move my bees to the hills just before buckwheat bloom? or would the loss of bees be too great to pay me?

Rohrsburg, Pa., June 12. J. A. PATTERSON.

[If the buckwheat is raised 2½ miles away from your bees, there is some question whether they would fly that far to get the nectar from it. A good deal will depend on the lay of the land between your bees and where the buckwheat is located. If you had buckwheat, say within half a mile, and another field a mile away in the direction where that other field 2½ miles away is located, the probabilities are that your bees would find that most distant field. To make sure, you had better move your bees where the buckwheat is. See "Moving Bees," in our A B C and X Y Z of Bee Culture.

The question of migratory bee-keeping—that is, moving to different sources of honey—is getting to be a rather complicated one, and a good many feel that the operation costs more than it is worth.—ED.]

Busy Bee.

Busy bee, busy bee, come and sing awhile to me
While the winds are crooning in the apple-tree;
Where the dandelion down in the grass
Tempts you oft to visit him as on your way you pass.
Sing it soft and sing it low,
Soft as the winds that come and go,
Telling of unselfishness, how to lessen wrong
By a life of usefulness—be that e'er your song.
Busy bee, busy bee, happy, glad, and gay,
Please tell us all the secret of your happy life to-day.

Busy bee, busy bee, come and sing your song to me
While the winds are crooning in the apple-tree;
Out and o'er the meadows, sparkling with the dew
In the early morning—that's the place for you.
Busy in the noontide, when the sun is bright,
Still I hear you singing, working with your might;
And in the eventide I still can hear your hum—
Laden down with nectar, back I see you come.
Busy bee, busy bee, happy, glad, and gay,
I thank you for the lesson you have taught me
here to-day. J. W. GITCHEL.

Our Homes

A. I. Root

Thou shalt love thy neighbor as thyself.—Matt. 19:19.

Love worketh no ill to his neighbor.—Romans 13:10.

Nevertheless I tell you the truth. It is expedient for you that I go away: for if I go not away the Comforter will not come unto you; but if I depart I will send him unto you. And when he is come he will reprove the world of sin, and of righteousness, and of judgment.—John 16:7, 8.

The particular point I wish to speak on is contained in the last text, from John, pertaining to the Comforter. As I take it, the Comforter that the Master promised to send us after his departure was the Holy Spirit, or, if you choose, the comforting influences of the Holy Spirit. My dear old pastor, who has gone to his reward, used to tell us young converts in the Thursday-evening prayer-meeting that, when we are at a loss what to pray about, we should always bear in mind that we can always safely pray for the influences of the Holy Spirit. We may rest assured that God will always be pleased with such a prayer; and even when we are disturbed by a conflict of perhaps evil thoughts and feelings, we can at such a time *honestly* and *safely* pray for this same Holy Spirit. At another time I remember hearing a good elder of the Baptist Church, while exhorting us to pray for the Holy Spirit, saying that when God answers that prayer it may make us very uncomfortable, "because," he said, "the Holy Spirit when sought for and prayed for will show us our mistakes and our sins, and sometimes in a way that will make us feel very uncomfortable until we have *repented* and *put away* our evil thoughts and wrong doings." Now, please keep the above in mind when I tell you one of my recent experiences.

A month ago I started out on a trip to the "cabin in the woods" in Northern Michigan. There is a beautiful spring on a neighbor's land adjoining my own; and this neighbor was kind enough to say I might have the surplus water if I would put in some pipes and carry it over on to my land. I accordingly provided myself with some wrenches and fittings, and made a voyage safely to the old cabin. As it is about half a mile over hills and down through valleys from the station to said cabin, I found it quite a fatiguing task to carry my tools. Well, after arranging things so I could rest comfortably during the night I called on my nearest neighbor, a widow, to get my accustomed supply of bread and butter, milk, eggs, etc. I then learned she was quite desirous of purchasing my forty acres. It is mostly timbered, while she has no timber at all on her place; and she is always short of hay or land for growing it, while I had a beautiful meadow with a good stand of clover on it. To make a long story short, while my price was $1500 she said she did not know how she could afford more than $1350—a difference of $150, you will notice. She said further, however, that if anybody else would give *more* than $1350 she would like the refusal of it; and that, rather than lose it, she might give the $1500—that is, if anybody *else* would make me an offer of $1500.

You will notice at once that the above offer showed she had confidence in my integrity. If I were a schemer, and always trying to get the best end of every bargain, I might have planned to find somebody who would help me get my price, $1500. I went back to the cabin, and had an excellent supper of apples as usual, that I bought in Traverse City at five cents apiece; and then I sat down to consider whether I should sell out my home in the northern woods overlooking the beautiful Traverse Bay—the home where I had enjoyed myself so much by growing beautiful potatoes, making maple sugar, beautifying and improving my woodland home, etc. I was much undecided, especially when I realized that I was getting old, and that perhaps none of the children would care for the place as a summer retreat as I had done. I looked at the tools I had lugged through the woods, and thought of the enjoyment I had promised myself in playing with that soft-water spring, etc., and I could not decide just what I *ought* to do. Finally I remembered seeing something in the *Sunday-school Times* that seemed to hit the present dilemma. Here it is. I want you all to read it; and after you have read it a dozen times I think it will be a profitable investment to—*read it again.*

Many of us are so uneasy until we "see the way clear" in our duty-doing that we are missing the great joy that comes to those who trustingly watch God clear the way. No matter how perplexing our pathway, how tangled and hard, God is, in every moment, clearing the way for us. We may not be able to see how he does it, or what he is doing, until suddenly the way has opened, without any stroke of ours. And then in puzzled wonder we recall that we *did* pray about that very difficulty! If only we were as eager to see how God clears the way as we are to "see the way clear," we should quietly turn to him and away from our uneasy haste and strain of vision; and, in his good time, we should see all the clear way we need to see.

By the way, dear friends, is there any other periodical in the world that has a personality cropping out in every issue like the above? If there is, I have not seen it. Yes, indeed, over and over again I have looked with astonishment to see the way open up and the coast become clear, and *then* remembering I had been praying about that very matter. But, dear friends, I am afraid that oftentimes when I pray I have not the faith to expect any such answer. I am astonished as usual when the answer comes. I got down on my knees alone in the darkness, away off there in the woods, and prayed that God would help me to decide about letting the property go—in fact, on the very spot where I had prayed much, and found

much happiness; and then I prayed, too, that the Holy Spirit would direct me in the use of my time and talents for the few years I have yet to spend on earth. Well, the answer came very soon, and there was a further answer to something I had not prayed about. I was planning in the morning to get around and talk with some of my neighbors, and ask them what the prospects were in that region for advances in the values of real estate, etc. The answer came, prompted by the Holy Spirit, as I verily believe, something in this way:

The old prophets used to put their messages in words, prefacing them by a "thus saith the Lord." Dear friends, may I take the liberty of talling you what the Holy Spirit said to me or impressed on my mind? It was something like this:

"Mr. Root, you have been all your life, or for the greater part of it, seeking to get the 'best end' of every bargain. When you have had any thing to sell, you have been all your life selling to the best advantage, as a rule. When you have bought any thing, you have in like manner taken time to see where you could get it cheapest. Admitting that there have been some exceptions to the above, is it not true that you have so far been looking out for the best end of every bargain? Now, is it not about time that you 'let up' on this planning and working for *A. I. Root?* In the case before us, there is a difference of $150. Who needs the $150 more—you or your good neighbor, who, you know, has been a hard-working woman all her life? Who *needs* the $150 more—you or she? Would you not feel a little better about it if you were to go and tell her in the morning you have decided to let her have the property for $1350, and that you would not take the trouble to inquire whether somebcdy else would make you a better offer or not?"

And I then on my knees decided I would do so; and I felt happier right away than the $150 could possibly have made me; and as a result I kept praying that the Holy Spirit would point out more of my errors and inconsistencies, and help me for the future to lead a more consecrated life. And while I prayed, memory went back and showed me a glimpse of my own selfishness in past years that I never had before. It semed as if my life had turned into a sort of moving-picture show; and among other things that the Holy Spirit showed up stronger and clearer was that I, the author of these Home papers, had not always been as *truthful* as I might have been. In getting the best end of the countless number of bargains I have made through my busy life, many and many a time I have not adhered to the *strict truth* as closely as I might have done. While I uttered no falsehood, I have, perhaps, unconsciously dwelt on the advantages of the things I had to dispose of, and kept still in regard to the disadvantages. I tell you, friends, it is a hard thing to do, in pushing a business of any kind, to consider the interests and needs of your *neighbor*, with whom you are trading, just *exactly* as much as to consider the interests and needs of yourself. It is sometimes almost like pulling teeth to do this. I know, for I have had some experience since that evening when I knelt and prayed (perhaps for the last time) in that dear old cabin in the woods.

Just now Billy Sunday is reaping great rewards in the way of leading men to Christ; and the best evidence I have of the divine character of his work is that these new converts, at least in many cases, set *about* leading a new life by making good their past shortcomings. One convert who came forward, with tears running down his cheeks, started out in the new life by going to a restaurant and paying for three meals which he had but did not pay for. What would be the result if all mankind would start out with the determination to give their neighbors, perhaps not the *best* end, but a fair and *generous* end of every bargain? Why, it would be heaven in this world of ours. Years ago I bargained with a farmer for some bees. He described them as well as he could, and I agreed to pay him a certain price for them. After he got here with the bees they were so much better than I had been led to expect that I gave him a dollar more for each hive of bees than I agreed to. He went up to the bank to get his check cashed, and told the bankers my way of doing business, and asked them if they ever heard of such a thing before. My good friend the cashier, to whom I referred but a few numbers back—the man who wrote me that letter of caution—said, "Well, Mr. A., we have heard of such things a good many times with the A. I. Root Co. That is their way of doing business; and it is one of the secrets of the way in which that institution is so rapidly growing and building up."

Now, friends, do not think I am boasting because I have mentioned the above. When that picture-show of my life ran before me on the screen in the darkness while I was praying, I caught a glimpse of *that* transaction and a few others like it; but these were only *occasional* glimpses, I am sorry to say, in the panorama of my past busy life. In answer to my prayer for plain truth, the Holy Spirit gave me picture after picture of *self, self, self.* It became so painfully monotonous that I almost sickened at the sight. And then I remembered something I had heard of Professor Fairchild, who built up Oberlin College. He told us that once, in answer to prayer, the Holy Spirit gave him a glimpse of the depravity and selfishness of his own life that it almost sickened him. He said he spent the greater part of one night on his knees in contemplating his own sinfulness.

Let us consider for a moment the effect on humanity—on our own nation if you choose—if every man, woman, and child who are living under the stars and stripes should suddenly take a notion to consider their neighbors' interests as well as their

own in every transaction.* Suppose the grocer should say to himself, "Now, this poor woman needs the small margin between the buying and selling price more than I do. I ought to be glad of a chance to give her full weight, good honest measure, good quality, at a fair and liberal price." Then suppose a customer should also say, "I am owing that grocer for the necessaries of life. He can not live and prosper unless I pay him in full just what I agreed to do." And, to step a little higher, suppose a dealer in real estate should say to himself, "This is a hard-working man who wants to buy this farm. I am going to tell him the exact truth in regard to it; and if he decides to take it I am going to let him have it so I can just cover expenses." And then, oh dear! what a jump it will be for the man who is employed and paid with public money! Suppose a policeman should say to himself, "I belong to the Lord Jesus Christ. I am going to do every thing I can to restrain sin and iniquity. The people have chosen me to defend their property and interests, and their health. I am going to do it honestly to the best of my ability. If tempting offers come to me in any shape *whatever*, and try to turn me from the path of duty, I am going to say, 'Get thee behind me, Satan.'"

Let us now skip on until we come to the millionaire grafters — the men who have money and property until they have no need of more and no *use* for more. Suppose these men should say, "I am getting too much money, and I am going to call a halt, and stop striving for the best end of every bargain. I am going to give orders that all of our employees shall have instructions to be more liberal in their deal with the poor hard-working people." May be it is a little out of my beat; but I would suggest that Rockefeller and Carnegie, instead of giving so much to colleges and libraries and fashionable churches, should give the poor hard-working American people oil for their lamps and stoves at a lower price. Our various strikes have drawn out the fact that, while the employers in many cases are riding in automobiles that cost several thousand dollars, many of the poor people are putting in long hours at work, with but very poor pay. It has frequently been thrown into our teeth that our United States of America, with the stars and stripes floating over us, is getting into a fashion of making our millionaires *richer* and the hard-working people *poorer*. If this is true, may God forbid that this should go on any longer. Now, a greed for money is not the only way in which selfishness exhibits itself. Let me give you a few brief extracts from a paper called *Comfort*, published in Augusta, Maine:

> I recall meeting a policeman on the streets of Denver one day who informed me a fifteen-year-old girl had been taken into a wine-room by a man.
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> "Why don't you arrest him?" I asked the policeman. "I dare not," was the astounding reply; "the fellow stands in with the boss. He gave five hundred to the Democratic campaign fund."
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> Now, that same machine was financed by the Gas Company and the City Railway, and these corporations made the dive-keepers put up as much as they could. They catered to the dive element at election time, and the policeman knew he dare not enforce the law because of the corrupt alliance. So the debauchery of that fifteen-year-old girl was the work of the business man as much as it was the work of his partner, the dive-keeper.
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> That's the condition in every big city where public franchises are to be disposed of. The members of the "plunderbund" let their political partner get his graft out of the bodies and souls of children and the debauchery of the home, so they can get privilege. These big criminals are to-day desecrating the temple of justice just as in Jerusalem, in olden times, when Christ went after them with a lash, and put his brand on them.

When a man who has abundant wealth—one who does not really need or have any use for more — wrongs a poor laboring man, and robs him just because he sees a chance where he can do it safely, we call him greedy and selfish. We sometimes call him a "hog," if you will excuse such a slang phrase; but I am impressed that this is a slur on the poor dumb brute that is not as bad, really, as his human rival in greediness. Well, such a man is a sad picture of selfishness, I admit; but how does he stand compared with the man who deliberately coaxed that fifteen-year-old girl into a wine-room that he might blast for all time to come that innocent and confiding child life? If the man who wanted *more money* was selfish, what shall we say of this one who does not hesitate to trample under foot this child, just budding into womanhood, simply to gratify the lowest and most degrading passion that ever cursed humanity? What words can be coined to express the estimation in which such a man should be held by all good men and women? That impulse, planted within us by the great Creator, pertaining to motherhood, and giving life to all future generations, should be regarded as the most sacred and solemn part of our being. If this is true, think of the awful sin, in God's sight, of prostituting this holy impulse, and making it the means of contributing to the lowest passions and temptations that ever beset humanity. The commandment that forbids sin of this kind comes directly after the one that reads "Thou shalt not kill."

After rising from my knees up in the cabin, I went to bed. It was not a soft bed. It was not by any means such a one as Mrs. Root provides for me, with a soft mattress, clean sheets, etc. But, notwithstanding, I lay there very happy. All the beautiful old hymns that my father and mother used to sing to me in my childhood came back with new and wonderful beauty. They went before me like the panorama of the picture show. The wild birds of the woods outside contributed their "chant," as they called to

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*You will recall that, on the day of Pentecost, as described in the fourth chapter of Acts, they were so filled with the Holy Ghost that selfishness and self were almost forgotten for the time being. It is a sad reflection on humanity, however, that an Ananias soon got in among that little flock; and it is sad, also, to contemplate the Ananiases who are just now being held up to light where our law-makers convene at the capital of our State. Should they receive a like punishment for their perfidy that did Ananias of old, it might result in a much-needed rebuke to the sin of selfishness.

each other; and, all together, I was *very happy*.* I had received a new baptism of the Holy Spirit; and ever since that baptism, if I may so call it, whenever I am tempted to do wrong I feel a chiding of that same Holy Spirit. Sometimes I am tempted to exaggerate, or to stretch the truth a little. Before the words are uttered, a loving hand seems to be laid on my shoulder, and I change my words so as to be more in strict conformity with the exact truth. When I first started (toward forty years ago) for the straight and narrow path, after listening to a sermon that Bro. Reed delivered, I felt as if I loved everybody. I even wanted to pat the horses on their necks that stood in front of the old church where the sermon was preached. I not only loved humanity more, but loved the domestic animals too; and this new baptism has affected me something in the same way. One thing troubles me, however; there are so many lapses into the old way; but, thank the Lord, the fits and starts for a better and more unselfish life are becoming more and *more* frequent. May God be praised for the Comforter that is promised in our text, and for a Comforter that surely will "reprove the world of sin" if we will only take the Lord Jesus Christ into our hearts and into our *very lives*.

MRS. L. C. AXTELL; ALSO SOMETHING ABOUT CANCERS, ETC.

Our older readers will, I am sure, recollect Mrs. Axtell. As we have not had any communication from her for quite a time I will explain to our newer readers that, toward forty years ago, Mrs. Axtell was not only a helpless invalid, but I presume that she herself, as well as her friends, felt she was a *hopeless* invalid. While lying on her sickbed she got hold of a copy of GLEANINGS and began to read about bees. Let me explain that she at this very time, notwithstanding her affliction, was a devoted Christian, and had doubtless been praying over her helpless condition; but she became so much interested in bees that she induced her friends to place a hive up near her window where she could see the bees work, and study their habits. It is a long story, but I will go over it briefly. Under the enthusiasm and excitement of watching the bees (I think it was about this time in the spring of the year) she got an appetite and a new hold on life. In a little time she was resting on her elbow while she studied the bees in their busy flights. Pretty soon she wanted the hive opened, or fixed so she could get a glimpse of the inside; and a little later she got off her bed and sat up a part of the time on an easy-chair; and, later on, she began to lift out the combs and put them back again. Still later she got outdoors and worked with the bees, always sitting down, of course; and a little later *still* she got up on her feet, and with unsteady limbs, doubtless, she walked from one hive to another. The more she studied and handled the bees, the more her enthusiasm and interest developed and her work prospered; and in due time (I do not remember just how long) she was doing the work of a good stout man in the apiary.

Now, this is a wonderful story, even if I should stop right here; but the best part of it is to come. She had always been much interested in the work of foreign missions; and when the idea came into her head (or heart, perhaps), that she could with her bees earn money to help missionaries spread the gospel in foreign fields, a new and *greater* enthusiasm grew up in her heart and soul. It would seem that the great Father above was pleased with her undertaking; for in answer to her prayers and earnest, hard physical work, *he* sent her and her good husband a crop of honey unheard of by even the writers of GLEANINGS—39,000 lbs. in one year. The money that her honey sold for was given to a missionary enterprise, and a little tract was sent out broadcast over the world. I believe the title was, "The Missionary Work of the Honey-bee." I have often thought of Mrs. Axtell of late, and wondered if she were still alive; therefore you may realize with what interest I read the following letter:

Dear Mr. Root:—In GLEANINGS for March 1 you mention having a brown spot on your back, and that cuticura was causing it to go away. By all means keep up the use of cuticura, then, even if it costs $50.00 a box. Such spots often develop into cancers—not always; but be on the safe side, and drive it away before it gets beyond control. I had a cancer some twenty years ago, in my cheek, caused by decaying bone from ulcerated teeth. I had to have it taken out three times before I got it entirely removed, and it cost me about $150.00—that is, treatment, board, and travel; but I have never regretted having it taken out when it was small. When large it is much harder to subdue them. The first time it was taken out the doctor put on a medicine that killed it, and I went home and poulticed it until I thought it ready to drop out; but it hung by a tiny thread. I, not knowing the harm it would do, took hold of it and jerked it a little and broke the thread, or root, and in a few months it was growing again. I would never have them cut out, for they almost always grow out again; but if properly killed and drawn out by a plaster they go away—at least that is the way it worked on the five persons I have known to be treated.

Mr. Axtell and I are always interested in all your Home talks, and have been using boiled wheat largely, and similar foods, and have been greatly benefited.

We are still supporting three native preachers and a famine child, and feel greatly blessed in so doing.

You ask if grease would not do just as well as cuticura to drive away the brown spot. I know that grease of any kind is all that is needed to kill vermin on chickens. Years ago I let my chicken-house (nearly new) get very much alive with mites before I knew of grease. I tried several remedies first, then I took a gallon of rancid lard, heated it hot, and took a brush broom and went for it. I greased thoroughly the ends and knots in the roosts, and all cracks and corners of the house, and a little nearly all over—under nests and in the bottoms of nests and in corners. I soon got almost entirely rid of the mites. Grease will kill every bedbug too if the ends of the slats are smeared with it, and the inside corners of the bedstead.

* Had I been drinking strong coffee or tea I might have thought my inspiration, if that is the proper term, came from the stimulus; but I am happy to say that I had a very plain and simple breakfast and dinner, and nothing but apples for supper; so my happy frame of mind came from following God's laws, and consenting to be guided by the promptings of the Holy Spirit and *nothing else*.

Mr. Axtell and I both have better health than formerly.

Roseville, Ill., March 8. MRS. L. C. AXTELL.

Please notice, friends, that she and her good husband are still interested in mission work. They are still taking GLEANINGS, of course; and, finally, they are both now enjoying better health than usual, although they, like myself, must be getting well along in years. From what she says in regard to boiled wheat I infer they have been getting in touch with Terry's work.

In regard to cancers, if I am correct a great many things have been pronounced cancers by quack doctors that were not real cancers at all. In this way they get credit for performing cures that does not belong to them.

POULTRY DEPARTMENT

A. I. ROOT.

INDIAN RUNNER DUCKS; BOTH SIDES OF THE QUESTION, ETC.

Mr. Root:—I have been reading your remarks about the Indian Runner duck, and from my experience with them I would advise a rather more conservative course then you seem to think necessary. For a person who has unlimited green feed and range, perhaps they are all right; but where all feed has to be bought, and no clover or alfalfa field available, I do not think them a great money-maker. I have had them for nearly a year, and can not recommend them to any town person, or one who has not the above necessities to enable him to make a good portion of their feed inexpensive. And it is an undoubted fact that there is a prejudice against duck eggs. No matter now groundless it is, it is there, and the public will have to be educated up to the value of the white egg of the Indian Runner before there is an unlimited market for them. Personally I think they are as good as hen eggs; but the average person, in this part of the world any way, does *not* think so, and I have met this prejudice when disposing of those I had for sale.

Again, there seems to be a great deal in the strain a person starts with. I had some hatched from eggs from Iowa that were beauties, and laid early and well a nice white egg; and I had some hatched from eggs from Ohio that were the veriest scrubs, not fit to be compared to the Iowa birds; in fact, they looked like the same breed only remotely. I had to buy all the grain fed them, and some of the green food; and while I did not lose any thing on them I could not figure out any profit, even though I sold the last of them for breeding purposes at $2.00 each. I went into duck-breeding to find out what I could do; and having found out, I disposed of the good ones and ate the others. My conclusions are as above stated, that, on a ranch with unlimited green food, they can be made profitable, but not otherwise.

I very much prefer keeping hens. They are much cleaner, and more satisfactory in every way. I have hens that equal Indian Runner ducks in laying, if they do not surpass them.

You have not told us your final conclusions as to Buttercups. Have they equaled the seller's account of them? What do you think of them yourself? Personally I believe it is more the man than the breed. Given the proper feed and care, almost any of the American or Mediterranean breeds will prove very profitable. It is simply a question of color to suit individual tastes. Personally I prefer buff, as showing dirt the least in our long hot dry summer, and I find they lay as well as any reasonable person could desire. I have a Buff Wyandotte pullet, hatched from eggs shipped me from Massachusetts, and she laid when she was slightly over five months old, and has laid constantly all this spring, and shows no signs of stopping; but she is fed for laying, and just naturally "lays."

I have found the Buff Wyandottes a very satisfactory fowl, both as chicks and grown-ups. As chicks they are very strong, sturdy, grow fast, feather out nicely, and, after ten weeks, are ready for market as broilers, and shortly after as fryers. They are a handsome fowl, not wild, easily handled, and, in short, a fine all-around fowl.

I had thirty eggs shipped me this season from California, and, after trying in vain to get any sitting hens, was forced to put them in a small incubator that had not been used in four years. There were 24 fertile out of the 30, and the machine brought out 21 chicks, of which we raised 18, and nicer chicks or more evenly sized I never saw, and never had chicks more easily raised. These were Buff Wyandottes.

So. Berkeley, Cal., June 21. W. H. PEARSON.

Thank you, friend P., for your timely caution. Very likely it is true that ducks must have a considerable amount of feed of some kind to give us one big egg every day. You will remember my three ducks had the moss I spoke of in the creek or canal, and plenty of green stuff on the shores up and down for a quarter of a mile or more. Under such circumstances they would almost "board themselves;" and your experience also indicates that there is quite a difference in ducks that are called Indian Runner. In regard to cleanly habits or untidy looks, if the ducks are permitted to have free access to running water every day I am sure they will keep themselves tidy; and where one wants to exhibit them to visitors, as I do in my Florida home, running water, and, best of all, a little *waterfall*, is just the thing. Buttercups, see p. 21, adv. section.

INDIAN RUNNER DUCKS, ETC.

You want to know if Indian Runner ducks will sit on their eggs. I have four of them—two ducks and two drakes—and they will sit, not only the ducks but the drakes as well. I built a chicken-house about a foot from the ground, and the ducks go under this to lay. One of the ducks is now sitting on the eggs, and one drake too. May be she has so many eggs she had to call in some help. One of the ducks did start to hatch eggs before that, but I took them away.

I do not think that ducks will replace hens to any extent on our chicken-farms. It takes almost twice as much to keep a duck as it does a hen. Of course the eggs are larger, but not much more so than the eggs of Minorcas. Besides this, people will buy hen eggs before they think of buying those from ducks; and the chances are you may have to take less for duck eggs in spite of their size.

Columbus, Mont., June 17. CARL VOLLMER.

Many thanks, friend V. We surely want both sides of the question; but while you suggest that it takes almost twice as much to feed a laying duck as a laying hen, please consider that the duck will eat all sorts of cheap trash that a hen would not touch. Not only that, the duck will root around in the bottom of our ponds and streams for mosses and aquatic plants that a chicken would never eat, even if it could get it. I would not recommend ducks for close confinement in places where other fowls can be reared successfully; but there are tracts of waste land along the ponds and streams all over our country—yes, all over the world—where ducks might be grown by the mil-

lions; and even if their eggs do not bring any better prices than hens' eggs, I am sure there is a great opening for a wonderful new industry.

Here is something further about the Indian Runner ducks, which I got from the *Rural New-Yorker*. Please notice this writer corroborates my experience, to the effect that an old drake is often hostile to young ducks, and will kill them if he is permitted to do so. What a sad specimen of an unnatural father!

TRUTH AND "INDIAN RUNNER" DUCKS.

I see you wish the plain truth about the Indian Runner duck. I wish to say I do not see how they can be improved upon when kept in small flocks to supply the farm table with eggs, and roast duck occasionally. They are great layers, among the best in ducks, and they do mature early—three to four pounds each—not heavy enough for a market duck for general consumption. As a market fowl I do not see why they should be expected to compete with the hen on the egg question. The customer must be found, and the market created. Fifty cents a dozen before Easter and 35 cents a dozen for the remainder of the season would be a fair price, but few will pay it, for the simple reason that the public will resent the extra price, the same as your correspondent does what he terms *breeders' prices*. I consider the prices of these duck-breeders for eggs and stock extremely reasonable. Most of them sell eggs for $1.00 a setting; and $1.50 to $2.00 each for stock will not more than pay the advertising bill. My wife says one duck egg in a cake equals two hen eggs.

If the surroundings are agreeable, five ducks will lay 140 eggs a month, and get their own living outside of the morning and evening meal. The quality of the Indian Runner duck egg is mild; the meat, in the hands of a good cook, is delicious. These are reasons enough why they will pay their way on any farm. As to the glowing stories being printed concerning these ducks, one must not rush heedlessly into any enterprise and expect great profits. Find your market first, and then stock up accordingly. I will state briefly how I handle my ducks: I try to close them up nights and turn them out at feeding-time, when they will have laid. They then go to the water, and I do not see them again until it is time to feed grain at night. They can be expected to lay from February until August. Last season I had one commence laying again in the fall, and she laid 60 eggs before the snow came, when she shut up shop at once. I raise the young ducks under Buff Plymouth Rock hens, as they make good mothers and do not kill many in the nest. Yesterday a little hen had spent four weeks on nine eggs, and at the sound of the first peep she threw the egg out on the floor. Not finding a hen on the nests I went to a coop where I had confined some broody hens, selected a Buff Rock, put the eggs under her, and covered her up. To-day she has six bright little ducks, and seems happy in her new surroundings without being restrained in any way. When the young ducks are turned loose the drake will have to be confined or he will kill them. Set duck eggs on the ground to hatch well, otherwise the ducks will probably have to be helped from the shell. Do this 24 hours after the shell is pipped, and after the blood in the lining of the shell has been absorbed by the duckling. Take off the small end of the egg, release the head, and let Mr. Duck do the rest himself. Young ducks thrive best on sloppy food, such as one would feed young pigs—middlings and milk mixed into a batter, and poured into a trough, with cracked corn at night.

Orange Co., N. Y. GEO. E. HOWELL.

TINTED EGGS AND WHITE EGGS, ETC.

Since so much has been said about having Indian Runners that laid white eggs instead of greenish ones, I have written to friend Jennings for his opinion. Below is his reply:

As to the green-egg layers, I will say that there is no flock in the United States that will lay *all* white eggs all the time. There may be a man who has one or two that will lay white eggs, but they will not do that all the season. I could not say whether the tinted-egg layers are any better layers than the white or not, as I have ducks that lay tinted eggs the fore part of the season, and during April, May, and June they will lay mostly white eggs. The two ducks that are illustrated on the corner of this sheet laid 105 eggs each, without a miss, and I think they would have done better if they could have had the same kind of feed; but I was compelled to make a change, and that changed their laying a few days.

Mt. Gilead, O., May 29. KENT JENNINGS.

I have just returned from a visit to my brother, living near Fennville, Mich. He has three ducks, and their eggs, at least those I saw, were what would be called white eggs, although they are not quite as white as some hens' eggs. The tint is more of a brown (what little tint there is) instead of being green or bluish-green, like mine in Florida. I think friend Jennings has given us pretty nearly the truth in regard to the matter; and I am still of the opinion that their *rations* may have something to do with it, especially the shape in which they are furnished lime. A poultry-keeper in Florida who was helping in a grocery told me he could tell from every lot of eggs brought in whether chickens had crushed oyster-shells or not. He said the shell of every egg had a different look when the fowls were provided with plenty of crushed oyster-shells. If people are going to *insist* on having white duck eggs, and if the market will give a little *more* for eggs that are clean and very white, it may be worth our while to look into the matter. By the way, why can't we mix a little *indigo* in their feed so as to whiten the shells in the same way the women-folks whiten their dresses and other articles of clothing?

GARDENING IN FLORIDA; CAN IT BE KEPT UP THE YEAR ROUND?

You will notice that the "spread-eagle" advertising of "homes in Florida," that is now to be seen in almost every periodical (and perhaps some of it in *our own* journal also), fails to mention that there are certain reasons why you can not make garden, very much, the year round in Florida. When I was down there last August I found the truck-gardeners very busy with their plant-beds starting celery, pepper-plants, and perhaps a few other kinds; but as a rule there was little or nothing being done in the open fields. Neighbor Rood was growing beggarweed, and, I think, velvet beans for hay; and the beggarweed especially made a most astonishing growth, notwithstanding the heat and the excessive rainfall; but the truth is, there are very few crops of any value except hay that will stand the wet and the heat together. All kinds of clover, including sweet and alfalfa, go down in the summer time. See what the Florida Experiment Station has to say in regard to it on page 84, Feb. 1. Last season my brother tried making garden in the summer time. I do not believe any thing succeeded on our place except the chufas. Even sprouted oats in the open ground were a failure. He

sowed the oats and raked them in, but the daily rains, with the excessive heat, for some reason I can not quite understand, caused them to rot instead of sprout. Well, a few days ago I wrote neighbor Rood, asking him how early in the fall it would do to plant garden-stuff, as Mrs. Root would like a nice garden as soon as possible after she gets back to her Southern home. Below is his brief reply:

Mr. Root:—I do not think it will pay one to plant any garden-stuff here till about Oct. 1; then he can put in turnips, peas, corn, potatoes, etc. Until the heavy rains stop, vegetables do not do well. We had rains every day for a week till to-day. I am tiling land, and it is pretty wet.

Bradentown, Fla., May 23. E. B. Rood.

Please note in the above he does not say we *can not* grow garden-stuff earlier than Oct. 1; but he says he hardly thinks it will *pay* to begin gardening much earlier. As a usual thing there is a dry spell that hinders garden-stuff and almost every thing else during the month of May; but you will notice in the above that the May just past has been unusually favorable.

Health Notes

A. I. Root

GOD'S GIFTS — ANOTHER "DISCOVERY."

While I was paying 5 cents apiece for apples for my evening meal, our early cherries began to ripen. This early cherry-tree stands right close beside the apple-tree that gave me so many "suppers" last fall. Well, at first I thought cherries were not going to be a good substitute for the apples; but bearing in mind that dame Nature has to get used to a change in diet I kept on eating the cherries for supper — short cut, remember, between "producer and consumer," especially while I was up *in* the cherry-tree. Well, my "great discovery" is that cherries are even *better* than apples, when Nature once catches on and becomes accustomed to it. My good old father died when he was between 71 and 72—just about my age. For some time before he died he told me that he was having a great deal of trouble with his kidneys; in fact, for years he used to keep lemons in the house, and used them frequently, because he said they were beneficial for this special trouble that he had had for so long. Well, it is not strange, therefore, that I have for a great part of my life been troubled in the same way; and some years ago I found out that Florida *grapefruit* seemed to hit the spot and correct this difficulty more than almost any other fruit. I think I have mentioned it before here in these pages. Well, the apples I have been eating for many years before the close of the day have kept me pretty free from all troubles along this line. Our first early cherries were somewhat on the sweet order. The next one to ripen was a rather tart cherry; but as there was not any other kind handy, I commenced taking them for my evening meal — say about a pint; and to my great surprise they proved to be better than apples or any thing else — even more beneficial than the grapefruit. Of course I took my fruit without any sugar, just as God created it and planned it, to correct such maladies as might get a foothold where one is for some time deprived of ripe juicy fruit. A great many people think they can not eat fruit. The doctors, years ago, persuaded even T. B. Terry that fruit was harmful, and for quite a little time he gave it up. Well, fruit sometimes *is* harmful. Let me illustrate:

Some time ago Dr. Kellogg, of the Battle Creek sanitarium, advised those who think they can not eat fruit to make a good full meal of it for any one of the three meals of the day. He said any one could eat fruit with impunity if he made a meal of it and nothing else — no sugar of any kind, mind you. I at once tried it, and ate baked apples for supper and nothing else. Of course they agreed with me finely.

Now, I feel impressed that any one of my ailing friends (and I know there are thousands) can get more real enjoyment from fruit only for supper than any thing else in the world, and better health; and I do not know of any better fruit for such an experiment than cherries. If you go to a good nurseryman and tell him you want some cherry-trees, one or more, that will begin to ripen at the very first, and others to continue until the very latest, he will provide for you a cherry diet for a good many weeks, just at a time when the system seems to need the beautiful and delicious tart that the cherry furnishes. Of course, cherries come right in at the same time as strawberries; but strawberries always seem to trouble me more or less until I become gradually accustomed to them.

Now, my good friends, please try a supper of nice tart fruit, without any sugar or any thing else, and relieve the good wife of the necessity of getting *three* elaborate meals a day. I am sure she will jump at the chance of getting you up a tiptop breakfast, and dinner too, if you will let up in your demand for the usual supper, with dishes to put away, etc.; and after the dinner things are put away, you and your wife can go out for a ride, or anywhere you choose, to see what is going on in this big world of ours, without any bother or responsibility concerning "suppertime." And, by the way, do not have any thing to do with the banquet and such follies as are now getting to be so fashionable, after you have already eaten all you ought to during the daytime. May the Lord be praised for the beautiful luscious cherries that he has with such a lavish and loving hand prepared (especially during the present season), for those who love to study and enjoy his wondrous and precious "gifts."

Gleanings in Bee Culture

Published by The A. I. Root Company, Medina, Ohio

H. H. ROOT, Assistant Editor — E. R. ROOT, Editor — A. L. BOYDEN, Advertising Manager
A. I. ROOT, Editor Home Department — J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX — AUGUST 1, 1911 — NO. 15

Editorial

THE DESTRUCTION OF BEES BY SPRAYING.

WE have at various times published statements showing how the spraying of fruit-trees killed bees. The following short letter is another case in point:

Bees are doing finely down in this country, but spraying of fruit is playing thunder with some bees in spraying localities.
Athens, Ohio, July 14. C. S. NEWSON.

"LET'S BE INTELLIGENTLY HONEST."

WE would call special attention to an excellent article by Wesley Foster on page 456 of this issue, entitled "Let's be Intelligently Honest." The whole article merits the careful reading of all of our subscribers—certainly all of our comb-honey producers. To practice the suggestions of Mr. Foster would, we feel sure, put hundreds of dollars in the pockets of many who have about come to the conclusion that "bees do not pay."

THE Bureau of Entomology, Washington, D. C., has received announcements of the Fifth International Congress of Apiculture, to be held in Turin, Italy, September 10—12. A preliminary program of this Congress gives directions to those who may desire to become members, even though they may not expect to attend. Copies can be obtained, as we understand it, in French, by addressing the editor of *L'Apicoltore Moderno*, rue Cibrario 37, Turin, Italy. This exposition will probably be the most extensive one of the kind ever held, and nothing will be left undone by the managers to make of it a great success.

WORDS OF SYMPATHY TO MRS. HUTCHINSON.

THE following letter will explain itself:

Mr. Ernest R. Root:—Will you kindly, through your columns, thank the many dear and true friends of W. Z. Hutchinson, who have written to me, offering their sympathy? I should like to write to each one personally; but it is simply impossible; and I also thank GLEANINGS for the grand tribute paid my noble husband, and I thank each writer; and could dear Will see all that has been written I *know* that tears of joy and love would flow down his cheeks. Hoping and believing he will meet them all again, I am

Sincerely yours,
Flint, Mich., July 17. MRS. W. Z. HUTCHINSON.

We feel sure that these words of sympathy in the hour of bereavement have been a great help and inspiration to Mrs. Hutchinson.

EIGHT VERSUS TEN FRAME HIVES.

STRONG arguments along the line of the proof of the pudding are now being advanced in favor of ten-frame hives rather than eight-frame ones. Notice what J. E. Crane says on page 451 of this issue. His experience is only that of hundreds of others; and in this connection do not forget that Mr. Doolittle has said that an eight-frame hive will swarm sooner than a ten-frame one. If a colony can be held back from swarming until they get nicely at work in the supers, the chances are they will not swarm at all.

HOW TO FIND BLACK QUEENS; ELIMINATING DISEASE BY A CHANGE OF STOCK.

THE article by Mr. G. M. Doolittle, in his regular department in this issue, is particularly seasonable. Those who are fighting foul brood, either European or American, especially the latter, are learning they ought to get rid of their black bees and their crosses, and substitute pure Italians. We have learned that the queen-breeders are doing a rushing business these days. This we attribute to a demand for a stock that will resist disease better.

Mr. Doolittle's instructions on how to find black queens are particularly good. We notice, however, he says nothing about the use of perforated zinc. Several of our correspondents have found that they can shake black bees in front of an entrance-guard, and, after the bees are all in, find the queen on the outside. Mr. J. E. Crane, in this issue, page 451, calls attention to the possibilities along this line.

A MISSTATEMENT CORRECTED.

ON page 330 of our issue for June 1, one of our correspondents, Mr. Leslie Burr, in a general article on the origin of foul brood had this to say:

While at the home of a prominent bee-keeper, I met two of the State inspectors. In the course of our conversation they stated that, a short time before, they had visited a well-known queen-breeder in whose apiaries foul brood existed. He was then

advertising queens for sale in the principal bee-journals, and continued to do so during the rest of the season.

Through some inadvertence on the part of the editors the item above slipped into our columns without having been *first* referred to the New York State Inspectors, for we do not intend that any item of this kind shall find a place in these pages without giving the party to whom they refer the courtesy of a reply.

We have heard from a couple of the New York bee-keepers, objecting to the statement, and Mr. Charles Stewart, one of the State inspectors, writes as follows:

> In a recent article in GLEANINGS a writer stated that a certain queen-breeder who had European foul brood had been sending out queens. In justice to the queen-breeders of this State I wish to say that we have fully investigated this statement, at a considerable cost to the Agricultural Department, and find that a certain small breeder did have disease in his apiary, but did not send out queens during that time. The inspector of that division finds no disease in that yard at the present time.
>
> CHARLES STEWART,
> New York State Bee Inspector, Third Division.
> Johnstown, N. Y., July 8.

We believe this version of the matter is correct. Mr. Burr, with the best of intentions, must have misunderstood his informants. From a casual conversation such as Mr. Burr reports, one could have very easily gathered a wrong impression. We do not believe that any person, much less a public official, would knowingly say he had been derelict in his duties if he honestly believed he was innocent.

EVERY ONE HIS OWN FOUL-BROOD INSPECTOR.

UNFORTUNATELY many bee-keepers have the idea that, when they once get a foul-brood law and one or more foul-brood inspectors, their responsibility is at an end. If foul brood develops in their yard they at once lay the blame all on the inspector. The fact is, it will take a hundred men to cover all sections of a State where foul brood has obtained much if any headway. The most that any inspector can do is to visit the district once a year where foul brood is *reported* to exist. Usually no State has more than $2500 appropriation to carry on the work of inspection, and most States have a great deal less. It transpires, therefore, that most States can not afford to have more than one or two men in the field; and if they visit the worst spots once a year by request, they will be doing all they possibly can do.

Foul brood, both European and American, has gotten an awful start, and it is going to need the combined efforts of bee-keepers and inspectors to hold the disease in check. This simply means that every bee-keeper should go over his own hives carefully; and if he finds disease, apply treatment without waiting for the inspector, who may have on his calendar a hundred other calls just as urgent as his. Every intelligent bee-keeper ought to be his own foul-brood inspector. When, however, he finds that one of his neighbors is negligent and careless, or one who will not administer treatment, then it is time to call in an inspector. It is at just such times when we need police authority. See what Mr. J. L. Byer says on this subject on page 453 of this issue.

THE CASE OF DR. HARVEY W. WILEY, THE ADVOCATE OF HONESTY IN THE PREPARATION OF FOOD STUFFS, AND THE FRIEND OF THE PEOPLE.

OUR readers are familiar, of course, with the attempts that have been made lately to oust Dr. Wiley from the position of Chief Chemist of the United States—attempts that may yet prove successful unless the people rise up and demand his retention in a position he has filled so well. Dr. Wiley has been the most persistent foe of misbranded and adulterated foods that this country has ever known. He has, first and last and all the time, been the consistent champion of pure food.

It is due to him more than to any other man in the country that the national pure-food law was enacted in 1906. During the time that this bill was before Congress, the doctor experienced all kinds of opposition, and from that day to this it appears that the "interests" that have been making millions on adulterated and misbranded foods have been trying to discredit him Since the National law was enacted a good many States have passed pure-food laws to conform to the national measure.

After the law went into effect, Dr. Wiley and his associates on whom devoloved the duty of interpreting the law, sought to compel every manufacturer who had been putting out adulterated or cheapened food products either to quit adulterating or state the exact amount of adulterants on the label of the packages. The general effect of this policy has been to drive adulteration out of the country; for no one knowingly will buy poisons or adulterations; but in the mean time the big corporations, whose interests have been affected, have been after Dr. Wiley. He has incurred the displeasure of the blended-whisky people because he insisted that all whiskies must be properly labeled. He ruled that all preservatives in food products, of an injurious character, would have to be eliminated. In doing this he incurred the violent opposition of the manufacturers of catsups, meats, jellies, and jams, especially that class who have been using benzoate of soda;* but in this he was partly overruled by his superiors.

Again, if we are correct, he insisted that all glucosed products should be labeled "glucose" and not "corn syrup." The public has known that glucose is a cheap syrup of low sweetening power, and of doubtful food

* It was proven in the testimony that a very small amount of benzoate of soda would enable manufacturers to use partly decayed fruits, especially tomatoes, for making catsup. It was also proven that sound fruit, such as our mothers use, need no poisonous preservative. Even granting that benzoate of soda is not injurious of itself, if its use permits of the use of spoiled fruit it should not be permitted.

value; but it did not know that "corn syrup" was glucose under another name. But in this decision he was overruled again. Very recently he decided that saccharine, a preparation from coal tar from which many poisons are made, should not be used in any preparation of food, and the ruling to that effect was sent out from the United States Department of Agriculture; and again his ruling has been held up, so to speak, but not permanently, we hope.

Our readers are doubtless familiar with the trumped-up charge that has been preferred against Dr. Wiley, that he hired an expert contrary to law—a charge that, on the face of it, is silly and ridiculous. If error he made, it was one in judgment and not one of the heart. Even at most the charge can be no more than a technical violation of the law. Dr. Wiley's whole career from first to last has shown that, if he had any dishonesty in his make-up, he would have long ago sold out to these selfish interests. The fact that the whole pack of them are trying to discredit and disgrace him is not a little to his credit. It is a wonder that they have not been able to find some little thing against him before this. It would appear from the papers that his superiors, perhaps, had better have left him alone; for people who live in glass houses should not throw stones. At this stage of proceedings we are not inclined to take a snap judgment; but *if* Secretary Wilson and Attorney-General Wickersham have been doing any thing that is contrary to the public policy, the facts should be known.

At the present time it does not look very much as if Dr. Wiley would be ousted; for the press of the country is almost unitedly for him. He is too strong in the hearts of the people, and he knows it. We admired the spirit of the old warrior, when some newspaper men came to him and asked him how soon he was going to resign. Said he, "You fellows will wait around here a long time before I resign." Dr. Wiley is a fighter and not a quitter. It is just such men that we want to stand between us and those who would rob us of our health and lives.

It is gratifying to us to know that the manufacturers of honest and pure foods have everywhere been sending in strong protests to Washington, demanding the retention of Dr. Harvey W. Wiley. The Heinz people, who won't use benzoate of soda, have been among his strongest supporters. We ourselves sent telegrams to our Congressmen and Senators in Washington, urging them to use their influence against having Wiley dismissed. We also sent a telegram to President Taft, saying that we did not believe that his sense of fair play would allow the dismissal of Wiley. We respectfully suggest that every bee-keeper who believes in pure honey, and who believes in retaining the man who has done more to wipe out glucosed or adulterated honey from the market than any other man during this century, do likewise. Your influence is needed right now; for you may rest assured that the selfish interests of the country—interests that do not care any thing about the lives of our children and innocent babes, nor, in fact, the stomach of the whole American nation—will leave no stone unturned to disgrace him.

Dr. Wiley has been one of the must useful public servants who have ever been in Washington; and the fact that he has stirred up a hornet's nest of enemies is not at all surprising. It is greatly to his credit, for we love him for the enemies he has made. Bee-keepers especially have reason to be grateful to him. See page 479.

THE BEE-KEEPERS' REVIEW UNDER THE NEW MANAGEMENT.

MOST of our readers know by this time that Mr. E. B. Tyrrell, of Detroit, Michigan, secretary of the National Bee-keepers' Association, is now editor and proprietor of the *Bee-keepers' Review*. During the transfer from the old to the new management it was necessary to skip one issue and get out a double number. This number (now issued from Detroit) is fully in keeping with the former high standard of the *Review* in every way, and Mr. Tyrrell is to be congratulated on keeping up the pace that Mr. Hutchinson set. Some say that the new *Review* is even an improvement over the old. Mr. Tyrrell is a young bee-man with an abundance of enthusiasm and a love for the pursuit; and as he was a close follower and ardent admirer of Mr. Hutchinson, we have every reason to believe that the new *Review* will continue to be the strong paper that it always has been.

HONEY-CROP CONDITIONS.

ALL the evidence that has come in to our office so far goes to show that the crop of white-clover honey is going to be light. There seem to be only a few favored sections where it has been produced. Basswood promised well; and while it helped materially to increase the amount of white honey in the clover districts, it did not quite come up to expectations.

Latest advices show that California will have a fair crop of honey after all; but the shortness of the Eastern honey crop will have a tendency to stiffen prices. Reports are coming in almost every day, showing that the drouth in the early spring is responsible for a great deal of the shortage of Eastern honey. The following letter from one of the large producers is a fair sample of what we are getting:

> The honey crop this year is next to a total failure. We have 310 colonies of bees, and they were in very good condition from early spring on. The total honey crop this year is about 3000 lbs., and the brood-chambers empty at that. In 1908 our honey crop was 26,000 lbs.; in 1909 it was 16,000 lbs., and in 1910 it was 14,000 lbs., and the brood-chambers full of honey. The cause of this year's failure was due to the drouth and early hot weather in May, and all through June. Basswood looked fine, and opened up well, but was all dried up in three days. We had our first rain yesterday since June 7, which was of any benefit to vegetation.
>
> Forest Junction, Wis., July 24. J. F. OTTO.

Stray Straws

Dr. C. C. Miller, Marengo, Ill.

In Switzerland prices for pedigreed stock are pretty well up. For 1911 the Breeders' Conference has fixed the following prices: For a laying queen, $2.00; for a virgin, 80 cents; for a queen-cell, 40 cents.—*Schweiz. Bztg.*, 185.

R. La Cense keeps the queen out of the extracting-super with an excluder. Thin boards prevent all passage from brood-chamber to super, except a passage of about 1½ inches at one side; and if the first two or three frames at this side of the super be not empty, the queen will not be induced to go up.—*Leipz. Bztg.*, 95.

Dr. Wiley, U. S. Chemist, says: "Both as a means of prevention of disease and as a remedy for disease, alcohol is rapidly falling into disrepute, and bids fair to become a mere memory in the *materia medica* and in the pharmacopoeia." [Dr. Wiley, most of the time, seems to be ahead of the times. See editorial comments elsewhere concerning this remarkable man.—Ed.]

G. C. Greiner, are you not overworking just a little that argument, p. 434, that gluing shows that bees do not require upward ventilation? You say, "I have never known bees to gnaw the crevices of wood at the top of the hive. Invariably they will glue them tight if the opening is less than a bee-space." Did you never know them to apply glue at the entrance? As to gnawing at the top, you are likely a very careful man, and never allow a crack at the top large enough. I've had more than one hive spoiled by having holes gnawed at the top.

Propolis as the base of an important antiseptic preparation for the use of surgeons was mentioned in this department a few years ago; but if it has ever come into general use in this country the bee-journals have not mentioned it. A two-page article, *Illustrierte Monatsblaetter*, page 54, makes one believe it deserves more attention than it has received. In a hospital where there were many bomb-shell wounds, many amputations were necessary, generally with fatal results. Then a bottle of propolisinvasogen was obtained, and the change was magical. In all, 58 cases were treated—*not one single failure*. When the bottle was exhausted there was a return of the former unfavorable results. The medicine is highly commended as a domestic remedy for wounds of all kinds, burns, etc. Physicians can obtain propolisinvasogen from Pearson & Co., Hamburg.

The chief reason why I preferred double-tier cases was because the larger proportion of glass surface made such a beautiful pile, and so helped the sale. If, now, we are to have uniform cases, I protest most earnestly against glass so narrow as two inches. The three-inch glass adds nearly sixty per cent to the surface of honey exposed to sight—a matter of so much importance that it should not be lost for the sake of a *little* more strength. With three-inch glass the case is strong enough. It is not a sufficient argument that a case with two-inch glass is stronger. A case with a cover one inch thick is stronger than one with a cover ¼ inch thick; but you wouldn't on that account favor the thicker cover. You would say ¼ inch is strong enough. If a few are so rough in handling cases that they need two-inch glass, let them have it as a specialty, or, still better, an all-wood front; but *please* let the rest of us have the benefit of three-inch glass as the standard. [This question of two or three inch glass is a proper one for discussion. Manufacturers, of course, do not care what width of glass is used; but it is important to have the case made as strong as possible consistent with lightness. We do not quite agree with the doctor that more comb honey should show. The main purpose of the glass is to show to the freight-handlers and the truckmen the fragile contents of the package. The two-inch glass will serve the purpose as well as the three-inch; and, besides, it will permit of wider wooden cleats and the use of four more nails.

The reader is asked to express his opinion, whether he is a comb-honey buyer or a comb-honey producer. Let us have the truth.—Ed.]

A. I. Root, speaking of Sears, Roebuck & Co., and other mail-order houses, p. 413, says, "I do not know whether the heads of these great firms are professing Christians." Julius Rosenwald, president of Sears, Roebuck & Co., is not a Christian; he is a Jew. He is the man who, a few weeks ago, gave $50,000 toward a building for a Young Men's *Christian* Association for negroes, and that's not his only philanthropy. Don't you think a few more Jews of that kind would be a good thing? [Yes, dear old friend, I do think a few more Jews of that kind would be a good thing; and any man who contributes toward the Y. M. C. A., whether for negroes or white people, is certainly engaged in *Christian* work. May God be praised for what you tell us. In connection with the above, perhaps it may be well for me to say that, partly because our two boys, Ernest and Huber, are so intimately connected with the Y. M. C. A. work, I have of late been giving $100 a year to the Y. M. C. A. organization of Medina Co., and $50.00 a year to the State organization. I protested, somewhat, at first, and thought it was a little more than my share for this special line of Christian work; but both boys declare that the "investment" is paying a good round dividend, by drawing our boys from the saloons, and getting them under the influence of every thing that is good and pure and holy.—A. I. R.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

European foul brood seems much more prevalent in Western Vermont than had been dreamed of. I have found it within two miles of one of my yards.

You tell us, Dr. Miller, that the term honey butter has been used to mean butter with an ounce or more of honey worked into a pound of butter, page 354. The reason you give for so doing is that it makes the honey taste better. May be; but isn't it a rather expensive way to improve the taste of an ounce of honey to add a pound of butter to it?

PERFORATED ZINC FOR FINDING QUEEN.

Some time in the winter I read in GLEANINGS of a basket or box made of perforated zinc, to shake bees into for catching or finding queens. Well, I made one with legs to hold the basket a little above the ground, and it is a great success. I wouldn't take ten dollars for it if I couldn't make another. How easy to shake a swarm into a basket and let the bees through and find the queen!

PROTECTION FROM STINGS.

Mr. Louis Scholl tells us, page 294, May 15, of the value of a good armor. I have for many years used very little protection, but find with some protection on I can do as much work and handle bees to better advantage. Somehow bees, when they can not sting about the face, seem to give it up; or, because there is less odor of poison in the air, are less inclined to sting at all.

THE HONEY CROP LIGHT IN VERMONT, AFTER ALL.

The honey crop in Vermont is likely to be light. Clover is scarce. There was an unusually large amount on the ground last fall, and it was covered by snow most of the winter; but when the snow went off it seemed to go like dew before the sun. What killed it I am at a loss to know. Still, there is some alsike and a little white in places, and we hope to get some.

MICE; HOW TO CONVERT THEM INTO FRIENDS OF THE BEE-KEEPER.

Wesley Foster tells us on page 357 of the fondness of mice for the thorax of bees, and the value of bees as bait for catching mice. I have noticed this fondness of the mice for this kind of diet; but, instead of using the bees to catch the mice, I used the mice to help the bees. Almost every winter we lose more or less bees in cold weather, and find in such hives some combs filled with dead bees. If such combs are placed in strong colonies during warm weather the bees will, after a time, clean out the dead bees; but it is a lot of work for them, and I have many times placed such combs where the mice could get on all sides of them, when they soon learn to pull out the dead bees for the choice morsel of the thorax. The mice are not apt to gnaw the combs if they can get on all sides of them.

ONE OBJECTION TO A HOT UNCAPPING-KNIFE.

O. B. Metcalfe, on page 274, May 1, gives the best of reasons for using a hot uncapping-knife; but there is one objection to the hot uncapping-knife I have not seen mentioned, which is that the hot knife, as it passes over the comb, leaves a very thin film of wax where the cappings were, which, of course, does not interfere with extracting, but breaks up and goes through the finest sieve we can strain the honey through. After treating the honey to a temperature of, say, 150°, it rises to the top and so we get rid of it. Still, it has annoyed us.

EIGHT VS. TEN FRAME HIVES.

I was especially interested in the editorial, page 261, May 1, on eight and ten frame hives, for the conclusions are doubtless true. It was a puzzle to me for a long time how my neighbor, who gave her bees little care, could get as much or more per hive than I did, with half the feeding in the fall for winter, and at last came to the conclusion that it was owing to her using ten frames, while I used only eight. I hate to admit it, but it is true, it is not nearly so much trouble to control swarming in such hives, or rather, perhaps, I should say, swarming does not begin so soon, nor are they so persistent. A swarm in a small hive is like a machine with a small balance-wheel. It has a jerky motion, while one with a heavy balance-wheel runs more steadily. One can get up speed quicker with a light wheel; but before he knows it, it is going too fast. Just so with the bees. A swarm of a given size will enter boxes sooner in the eight-frame hive; but before they have accomplished much they are most likely preparing to swarm, and often before any surplus is stored. Again, such hives require much more feeding than those of ten frames. Two combs solid with honey make a pretty good asset, either in fall or spring. A seven or eight frame hive is better for wintering, especially out of doors, than a ten-frame; but it is not difficult to reduce with a close-fitting division-board. Only yesterday in looking over a yard of bees I could not help noting that my most forward colonies were on ten frames. [That is just precisely what we have noticed at our yards.—ED.]

Bee-keeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

The paragraph entitled "Smoke at the entrance," page 388, July 1, fifth line, should have read "a pound of honey" instead of "a pound of bees."

Colorado is a land of paradoxes—84 degrees in the shade here May 10, and on the 11th three inches of snow at Silver Lake, only about fifteen miles straight west of here by air-line. We had a freeze here, too, which nipped our corn and killed most of our tomatoes. Colorado has not the mellowness of a spring in the Eastern and Middle States, as the air is dry, and the sun always shines with a hot dry glare. The skies are such a deep, deep blue, that looking upward seems like peering into a well.

One can seldom find violets and ferns except in the dark shaded ravines and cañons; and in one of these ravines I found the bees working on the violets. That is the first time I ever saw bees on them. The bees located close to the foothills have a chance at the profuse bloom of the wild cherries, plums, and wild flowers that run riot in the ravines, clog the cañon depths along the streams, and cover the mesas with their color and perfume in the spring. Many a wild bee is seen among the bloom too. Fifty of our colonies are now located here near the foothills; and when alfalfa blooms they will be moved several miles east for a chance at this prince of honey-yielders. This is the extent of our migratory bee-keeping this year.

THE LAYING OF THE QUEENS.

Since May 1 I have been watching the work of my queens pretty carefully, and have got hold of a few things that come pretty near being facts. The queens on May 1 had, on the average, about 7000 cells of eggs and brood in various stages of development, which, if in one frame of solid worker comb, with no pop-holes, would fill this frame clear to the wood on all four sides. This brood was in from three to five frames. By June 1 the queens had their hives full of brood and eggs. I have found that a good queen will rarely get over five frames of brood in an eight-frame hive; that is what would make five solid frames of brood filled to the edges. This amount of brood would be in seven or eight combs, as I get the queens laying in nearly every frame by spreading the sealed brood. As nearly as I can come at it I should say that my queens laid on the average 40,000 eggs from the 15th of May to the 15th of June. I should think at least ten per cent never hatched out of the egg, either on account of being unfertile or chilled by cool weather. Another ten per cent, perhaps fifteen per cent, was lost between the egg and the hatching of the bees. About 30,000 workers on the average is what I get in new workers from a month of laying, in the breeding season. For this location, where the bees do not build up as rapidly as in the East and a good many other places, I think two months will be needed before a hive will be strong enough to swarm. I know there are colonies that will come through the winter almost strong enough to swarm; but the average will be on four and five frames. Our bees were more often found on two and three frames this spring than on even four and five.

If a queen will be able to lay 80,000 eggs from May 1 to July 1, and have 60,000 of them hatch into bees, in all probability she will maintain throughout the honey-flow a little over 50,000 workers, which I consider a good swarm of bees fit for storing surplus. The mortality among bees is very heavy, and from watching the brood-nests I am confident the heaviest loss is in the egg, larval, and pupa stages. Changes in temperature and moisture affect the early stages of bee development very much, for we find our bees having very definite ideas about drafts and moisture in the hive. The bee has for thousands of generations sought propolis to seal up holes with, and has sought the trees to avoid dampness, principally, I think. The most primitive bees still have their burrows in the ground, and doubtless the mortality is very high among them.

FAIRS AND EXPOSITIONS.

We have had so much talk about advertising honey and disposing of the crop that it is very apparent there is a serious problem before the bee-keepers for solution. Colorado bee-men are fortunate in having the Colorado State Fair management willing to devote money and space in order to get up a creditable display. The prizes are generous, and a good many will win enough prize money to pay them for the expense of making an exhibit. This is good advertising, and it is cheap. It's within the reach of every careful honey-producer to make an exhibit, help advertise honey, and, no doubt, win some prize money.

The State Fair management write me that they have contracted with Mr. Frank G. Odell, "the bee-wizard," as the papers call him, of Lincoln, Nebraska, to do some bee demonstrating and lecturing on the grounds at the fair. Mr. Odell is secretary of the Nebraska Bee-keepers' Association, and is an entertaining speaker who mixes the lore of the bee in with some wonderful stunts in a way that is very interesting to the people as a whole.

The Inter-State fair held in Denver each year also makes a fair allowance for the apiary department; and it is possible to get from one fair to the other, and so exhibit in both. Now is the time to get the honey ready. If one gets the fair habit, I rather think it will stay by him, and there are worse habits than the one of exhibiting at fairs.

NOTES FROM CANADA

J. L. Byer, Mt. Joy, Ont.

British Columbia has the strictest foul-brood act yet enacted, in that it gives power to hold in quarantine any bees being shipped in, even if coming from the sister Provinces. It seems to the writer that this is reasonable; and why should it not apply to *honey* being shipped in from infested localities?

Fruit is scarce in our Province this year, and already the demand for honey is the greatest I ever knew. Certainly those who have honey to sell need not go begging for a market this season, and I note that sales already made have been at a good figure. All heat records have been broken here during the past ten days, and this condition largely explains the scarcity of fruits, as many varieties were literally cooked on the bushes. A temperature of 105 in the shade may be all right for Texas vegetation, but we Canucks prefer things a little cooler; and this July, so far, has been a revelation to us.

That picture of Mr. Hutchinson and the children on page 395 has always been a pleasure to me to look at; and I am proud to say that, shortly after the original was taken, friend Hutchinson sent me a nicely finished copy of the same, To say that we value it highly is expressing our sentiments very mildly, and many competent judges who have seen the picture at our home tell me it is the best example of the photographic art they have ever seen. Needless to say that, since friend H.'s untimely decease, the picture has been valued more than ever, and will long be cherished as a memento of one of the kindest men who ever lived.

In our immediate district the crop of honey is almost a failure; and as farmers say that the clover seeded this spring is all killed, things look none too good for next season. While all around us rains have fallen, here with us we have had no rain (except a few sprinkles) for over a month, and at this date, July 11, things are parched badly. At two of the yards no buckwhat has been sown, as it was no use putting it in, so that means feeding for winter stores at those places. Western and Eastern Ontario have fair crops, at least in some places; and as we happen to have an apiary in Eastern Ontario this year that is giving us a crop, we can, as usual, say, "It might have been worse."

Editor Hurley, of the *Canadian Bee Journal*, calls attention to the fact that there are openings for some good queen-breeders here in Ontario, and says that, since Mr. Adams went out of the business, many inquiries have come relative to the matter of getting queens in Ontario. Mr. Hurley is right in the matter, and with him I would say that there "is a great opportunity in Canada for some enterprising bee-keeper to go into queen-rearing on a large scale." The "made in Canada" slogan is quite popular at the present, and there is not the slightest doubt that the right man could sell thousands of queens right here in Ontario and the other Provinces, and his chances would be equally good for disposing of his product over the line.

During the past few weeks I have had the pleasure of meeting no less than four of the foul-brood inspectors, and all report lots of work to do. One of the discouraging features of the work is that many will not take the trouble to familiarize themselves with the disease so as to be able to head it off when it first gets into their apiaries. Personally I am not in the work now, so I can speak freely, and for some time I have taken the ground that all who contemplate keeping bees must ultimately learn to be their own inspector. It is simply impossible to visit all apiaries every spring, and five minutes to each colony every year would easily tell the owners if any very serious trouble is in evidence. Yet many will not look into a brood-nest from year to year, and the first thing they know their bees may have contracted foul brood badly; whereas a look over the combs a few months earlier might have saved a lot of trouble. Last summer I was sent to a certain bee-keeper, and on examination I found all the bees rotten with American foul brood. I learned that, a few years ago, they had been in the same condition, and had all been treated. The trouble had not been entirely eradicated, and had gradually got so that the latter condition was worse than the former. The owner seemed to know the disease all right; and when I questioned him as to why the yard was in such a condition, and asked why he had not examined them himself, he replied, "Why, that is what you fellows are for; why didn't you come along and tend to your work?" I suppose the man never thought that such a thing as examining every apiary in the Province each spring was an impossibility; yet his attitude was the same as that of many other men on this question. Let me say most emphatically that it is imperative that every man intending to keep bees shall learn to know foul brood at sight. While there may be liability of making mistakes in diagnosing European foul brood, there is not the slightest excuse for not being able to know American foul brood, as there are certain characteristics of this disease that will enable any intelligent person to know the malady at first sight.

Conversations with Doolittle

At Borodino, New York

FINDING BLACK OR HYRRID QUEENS, ETC.

"I have no trouble in finding yellow Italian queens; but with a colony of hybrids having an almost black queen, or with blacks that will stampede on the least provocation, I confess I lose all patience."

"Finding black or very dark-colored hybrid queens often baffles an expert, to say nothing of a beginner. Much care in opening the hive is the great secret of success, and here is where I think you probably failed. Then if you choose the hours between 10 A. M. and 2 P. M., when the bees are at work and flying freely, you will find in this another valuable secret. I know of many beginners who have thought that a cool day, when the bees are somewhat sluggish, is the time to do all work with the bees. There never was a greater mistake than this. Choose the time when the largest number of field bees and sporting young bees are out of the hive, and the chances will be much better. At such times the hive is not congested with bees as it is on a cool cloudy day, or early in the morning or late in the afternoon.

"Therefore, choose a time when the day is warm, the sun shining brightly, and the bees flying freely. Open the hive slowly without jar, and use as little smoke as possible, allowing what you do use to float slowly over the tops of the combs. Then be very careful not to kill a single bee; for if bees are killed they throw off a scent of poison which is very apt to arouse the ire of the whole colony. From this we would be obliged to use so much smoke in quieting them that the whole mass would likely be stampeded, under which condition it is nearly impossible to find the queen of any race. Having the hive opened, sit down by it with your back to the sun, so that the sunlight will strike the side of the comb nearest you. Now remove the comb next to the side of the hive; examine it quickly; and if you do not see the queen, set it in an empty hive brought for the purpose, placing it on the side furthest from you. On removing the second comb from the hive, glance down upon the side of the comb in the hive which was next to the one just raised before you look at the one you have in your hands. If the queen is on that side of the comb, when the strong sunlight strikes her she will immediately commence to run around the comb to get out of the light. If you do not see her at once (which you will be apt to do if she is there, as the strong light striking her as she is running makes her very prominent), then look on the side of the comb you hold in your hands that is furthest from you, as the queen is sure to be on one of the dark sides of the combs. If she is not there, set this comb in the other hive, close to the one that you put in first. Proceed in this way till all the frames are taken out, unless you find the queen sooner.

"If not found, look at the corners or elsewhere about the hive wherever you see little clusters of bees; for if the queen is very shy, or you have used too much smoke, or jarred the hive somewhat, she may leave the combs and run down into the corners or elsewhere about the hive. If you still do not find the queen, proceed to put the combs back in the same order you took them before, glancing them over in the same way; and in nineteen cases out of twenty you should find any queen before the combs are all back, as they were at the start, even if the colony is composed of pure black bees and you are only a novice.

"As I said at the beginning, taking care at the start, so as not to stampede the bees, and having as few bees in the hive as possible when you hunt, is the great secret of success. These, together with a strong light and a knowledge of how any queen will act under certain conditions, give you the key to the whole matter."

"Will it pay me to plant different things for the bees to forage upon?"

"Unless the desired flora cover the hundreds of acres owned all about the apiary by others you can not meet with the success you otherwise would; for planting and sowing for honey where nature does not provide natural forage in profusion can not make up for what is lacking. It may help somewhat, where the environments keep you in a place where nature does not furnish flowers in profusion.

"There is no subject of more importance to the bee-keeper, nor is there one that gives him more pleasure, than the study of the honey-producing flowers in his locality. No matter where they bloom, if bees gather nectar from them they at once become an object of interest. By having the desired flora in our location, and then so manipulating or working our colonies that the maximum number of bees come on the stage of action just at the time when the flora producing the maximum amount of nectar is in bloom, our success is assured."

"Where shall I put my comb honey when off the hive so it will keep best?"

"To keep comb honey perfectly, the temperature should never go below 70 degrees F. From 80 to 95 degrees is what should be aimed at during the day time; and the room in which it is kept should be dry and as airy as possible. A dark room keeps the color of the combs better. Keeping honey in a warm dry room makes it thicker, richer, and heavier. When thus kept, if there is honey in unsealed cells this honey will become so thick that it will not run out, even if the combs are turned down on their sides. If the room is damp, and the temperature falls lower than 60 degrees, the honey takes on moisture, becomes thin, and eventually sours. Therefore, always store honey in a warm dry room but never in the cellar."

General Correspondence

CAUCASIAN BEES AND THEIR CROSSES.

Some Experience Showing that they are Better Honey-gatherers than the Italians.

BY J. J. WILDER.

I am not a commercial queen-breeder, and never expect to be. Honey-production is my sole business, and I am not prejudiced nor partial to any race or strain of bees, but judge their qualities as I have found them. On the other hand, I am not contented with an inferior honey-bee. I have been breeding bees for years for superior stock, and have always been on the alert for something better, and I am frank to admit that I have not yet found that strain of bees that is "good enough for me." But, so far, the Caucasians and their crosses have come nearer this ideal than any other strain I have ever been able to obtain.

As there has been nothing said through the bee publications for a long time relative to Caucasians, no one can think that I write this article to vindicate this particular variety of bees. I now have the Caucasian bees and their crosses in 13 of my apiaries, or about 1000 colonies of them, having obtained several breeding-queens of this variety from the government. This foundation stock came late in the fall, so I was able to put but few colonies of this new variety into winter quarters that year. They showed some marks of superiority, and the next spring I requeened my home yard, which then had Italian bees, with queens from this foundation stock. The honey harvest at my home yard proved to be the best. The average yield was a few pounds more per colony than I had ever been able to obtain here before, and it was of a better quality, and brought two or three cents per pound more on the market. This made quite an item to the credit of these bees.

Before the next season I divided the bees in each colony in this apiary, and established an outyard with this increase, and did some requeening at two of my other yards, using queens of this variety. Some of them were mismated with Italian drones. At the same time, I had some of these mismated queens under test at my home yard. Their bees were not quite as gentle as the pure Caucasians, nor as cross as the Italians; but they did not propolize as did the pure Caucasian stock. As honey-gatherers, however, they were equal to the pure blood on either side that season, finishing their honey just as beautifully as did the pure Caucasian stock. At this time I felt somewhat encouraged over my effort for better stock.

The next season I increased again, and I requeened some of my black stock with purely mated Caucasian queens, and soon raised some queens of this variety, and had them mated among the black stock.

As soon as the spring honey-flow was over I had no chance to test the bees of these queens, and did not return until after the flow from cotton was nearly over, when a great difference in the amount of surplus honey stored by these colonies (as well as the pure Caucasians over the blacks) was evident. At the time I put the bees away for winter I found these colonies heavy with stores, while many of the blacks were light, and had to be supplied for winter. This cross proved to be about equal to the pure Caucasian blood as honey-gatherers, and as gentle; and they finished their honey about the same, but did not propolize quite as badly, but more than did the cross with the Italians.

At that time I had Caucasian stock in eight apiaries, and had a good season. Since then I have increased the Caucasians and their crosses with Italians and blacks, in 13 apiaries. This season I gathered the best of these crosses, and crossed them again in my home yard; but I am not quite ready to report further on this.

CAUCASIANS AS HONEY-GATHERERS.

As honey-gatherers these bees have so far proven themselves to be equal to our Italian stock. Two seasons they have given a better average. The second season I had them was one of our worst for an early spring harvest, owing to continued cool weather, rain, and high wind; but our Caucasian colonies held their own in strength better than the others, and at intervals, when the weather proved favorable, they showed greater activity. Here was where they made the gain over the others. After the spring flow they did no better than the Italians during the summer and fall flows. I never gave their gain much thought, as I had only a few colonies.

When I obtained the stock of Caucasian bees the government placed me under obligation to furnish other bee-keepers foundation of this variety, which I did. I supplied Mr. R. W. Herlong, of Fort White, Fla., a few queens, and he established a Caucasian apiary on benches or scaffolds, 24 or 30 inches high. Early in the summer, when the main honey-flow was expected, the weather was unsuitable for honey-gathering and it continued thus for some time; but the Caucasians seemed to be gaining greatly in numbers, and were lying out in large quantities. He added a large number of ready supers, and left the matter of watching for swarms to a farmer living near the apiary.

When the weather changed, the farmer notified him that the scaffolds were giving way under the bees, and that he ought to come at once to look after them, which he did. On outward examination he saw that not much damage had been done; but when he looked at the supers he discovered that they were about ready to be removed, and that the benches under the hives had broken under the great weight—a condition not true of his other apiaries.

He has not had another such experience; but this season was a very poor one with him, as well as all other bee-keepers in his section. But he states that again, under these very trying conditions, the Caucasians came out far ahead in the amount of surplus.

Since the second year I installed the Caucasians, they have kept pace with other prolific stock as honey-gatherers until this season. But even then, in spite of unfavorable weather, especially during the main honey-flow in early spring, the Caucasians and their crosses came to our rescue and gave us a greater surplus than our other stock.

There is another good trait concerning these bees which has not hitherto been brought out, which we will mention later, as it is a very vital one to the apiarist who wants to increase rapidly.

Cordele, Ga.

LET'S BE INTELLIGENTLY HONEST!

One More Plea for the Production of More Uniformly Graded Comb Honey of Better Quality.

BY WESLEY FOSTER.

A bee-keeper and honey-dealer, whose experience and observation extend from one end of the country to the other, and from north to south, said that there was no one section of the country that could come up in quality and methods of production with the district within fifty miles of Denver. Here practically every bee-keeper operates for comb honey; and, being close to Denver, has attended the bee conventions regularly, where it has been dinned into his ears continually to scrape the top-bars, use few baits, use full separators, keep hives level, use top and bottom starters in sections, raise comb honey over new combs, if possible, and take off honey as soon as completely capped. Then the Colorado Bee-keepers' Association adopted stricter grading-rules than are in operation elsewhere; and the consequence is that the bee-keepers as a rule in this territory have got up a standard of goods that can hardly be excelled. The influence of example is strong among us all; and if we see a neighbor who is putting up a case of honey in such a way as to get fifty cents more than we do, it will not be long before we will be using the same methods.

You can go into the stores in Denver and find cases of comb honey where every comb is a perfect one; and the No. 2 comb honey will be found to be graded in the same even manner, every comb a fair representative of its grade in color, weight, and filling.

This honey is more than the result of careful and honest grading. It is the result of scientific methods of production, and of the closest and most painstaking care. These results are the direct effect of close association of bee-keepers and the study of market conditions. Take any part of the country and bring a number of bee-men together to learn better methods, and they will eventually have the same results. So I think we are going forward; for, as we get together and learn the tricks that push up profits, we shall think more highly of frequent meetings of bee-folk. I think it would be a fine thing to get together for a "talkfest" about three times a year—once in the spring, to arouse enthusiasm for the coming season; once in the summer, to get out among some member's bees and talk over first-hand conditions, and then have the regular convention in the fall or early winter. I know "talk" counts, for the men who get around and give their ideas to others get valuable suggestions from almost every one they meet. The more ideas we give away the more we have left, any way.

WHAT INFLUENCES THE CANDYING OF WESTERN HONEY?

The Western comb honey has been spoken of as very much subject to candying. Now, you may think this stretched a little; but you can tell almost to a certainty whether comb honey will remain liquid all winter. It is hard to describe on paper; but the whitest and most transparently clear alfalfa comb honey will hardly granulate at all for over a year after coming from the hive. The comb honey that candies is that which is amber, slightly amber, and gathered from fall flowers. Some of this honey will granulate very soon, while that which is slightly amber will not begin granulating till after Christmas if kept in an evenly warm room. So this honey that we know will granulate soon should be sold the very earliest possible, and, if disposed of before Christmas, it will give satisfaction and its full value be secured.

One thing, the farmers and fruit-growers who raise the most perfect crops enjoy their work, and they are the ones who have nice homes, lovely children, and the right spirit to enjoy these things. These are the homes where we find pianos, and the children learning to play them; and the women have kitchens with modern conveniences, and the men have riding-plows, manure-spreaders, and dozens of other labor-lighteners.

And now, take it as a rule, I believe the bee-keepers have just as many of these conveniences as the farmers. Of course, a bee-keeper is a kind of farmer. You will find the majority of bee-men with nice homes, and many have pianos, modern fixtures in the houses, carriages to get about in, and a few have automobiles. I find the men who have these things for their families are those who are scientific bee-keepers, honest and careful graders and packers of their honey, and good business men. This last is important; for unless a man knows business methods he will not know enough of the market to produce an article that it wants. It seems that what we need, then, is a wideawake attitude and eagerness to lay hold of every good idea that will prove of value.

Here is a clipping I have found in the *Rural New-Yorker* relative to the fruit sit-

uation in the East and the West. It seems the Western fruit is taking the Eastern markets right out from under the noses of some of the Eastern fruit-men.

We have only to substitute honey for apples, and the whole argument will apply to the production, grading, packing, and sale of comb honey.

There is only one producing section which uses the box as a vehicle in the disposition of their fruit, and that is the Mountain and Pacific Coast country. The fruit in New York, Virginia, and New England is not packed in boxes, except in a very small way. The fact is, the growers in the East do not seem to feel inclined to take care of their orchards, nor to give their orchards that attention which the Western grower does, with the result that the fruit in the East is not of sufficiently good quality to be packed up in the boxes with any good results. As you probably are aware, there is about one bushel of good apples usually found in a barrel, the rest being mostly off grades; and as this off stuff is usually found in the middle of the barrel, it can not be seen by the buyer; whereas if the same stuff is packed in boxes, opening top, side, or bottom exposes the poor fruit, with the result that the apple-growers in the East prefer shipping in barrels rather than boxes.

The writer of this, it seems, thinks the Eastern apple-growers are not as honest as the Western growers. The rules of the Western Association force the grower to live up to the rules, and this makes him honest. Carelessness is but a form of dishonesty. So we are not so different after all, only we are working under different conditions. Let's change the conditions.

Boulder, Col.

[See editorial comments elsewhere.—ED.]

THE LAW OF SWARMING FORMULATED.

BY WILLIAM BEUCUS.

What is swarming? Why does it occur? Is there a law which it obeys? These are questions which have long pressed and are still pressing for solution. Shall we find an answer by studying the bees themselves? or shall we find it by studying nature in general? That the first method is inadequate is proved by the fact that thousands of observers of the phenomenon of swarming, and the conditions under which it occurs, have failed to formulate the law. Let us see if the latter method, that of studying nature in general, may not help us.

We will contemplate the subject first from the viewpoint of the biologist. What are the activities of life? They may be grouped under two heads: First, those activities by means of which the individual is preserved; second, those activities by means of which the species is preserved—that is, the rearing of offspring. Of these activities the most important for us to consider are those by means of which food is secured. Force stored up in food and absorbed by the body tends to expend itself in those functions by which it was secured. We see this illustrated on every hand. Birds are busy during most of their waking hours procuring the force stored up in food, and again expending it to procure more food; and, when food is abundant, in warm weather, procuring food above their own needs and utilizing it in the rearing of offspring. In human beings we see it among those who, having a competency, still busy themselves in performing the functions by which life, without the competency, is made possible. Cats and dogs, in rural districts at least, satisfy this impelling internal force by entering upon hunting-expeditions; and this, too, even when, by man, they are liberally supplied with food. Further evidence is furnished, too, by observation of those superfluous activities in which well-nourished kittens and puppies indulge — the pursuit and seizure of moving objects, and the biting and clawing, this being identical with those actions to be expended, at maturity, in the actual pursuit and seizure of prey. In children, too, this inherent tendency is shown —little girls, whose function it will be to care for offspring, duplicating the actions of mothers in the care of dolls; and little boys, whose function will be to earn for the family the means of subsistence, duplicating the actions of fathers and of primitive man, whose duty it was to provide food through hunting.

Without multiplying illustrations, it has, perhaps, become sufficiently clear that force absorbed in food tends to expend itself in carrying on those functions upon the performance of which the life of the individual and the life of the species depend.

What bearing has this truth upon the phenomenon of swarming? We shall quickly see. Bees, like other animate beings, are composed of structures; and bees, like other animate beings, live through the performance, by these structures, of their proper functions. Having been placed in the spring on summer stands, when pollen is abundant, when there is some nectar in the flowers, when there is honey and abundant room in the hive, and when, for the queen, there are numerous empty cells in which to lay, all of the conditions are supplied which make possible the full performance by each individual of its functions. The queen performs, unrestricted, her function of egg-laying; the young bees, if there are any at this time of year, perform the function of caring for the brood, and the fielders perform their function by means of which these activities are sustained. These activities proceed uninterruptedly until there is somewhere a restriction of function, and this restriction comes when the conditions external to the hive are most propitious, and when, therefore, the force-impelling function is most powerful. The weather is warm, and nectar in the fields is becoming abundant. But now the queen is restricted in her function of egg-laying, the combs being nearly full of brood; the fielders are restricted in their function of gathering and storing honey, being encroached upon by the queen, and, in turn, encroaching upon her. Young bees, too, are emerging by hundreds each day, thus interfering with that freedom of movement required for the performance of

any function whatever. And to these must be added the more and more restricted function of the increasing number of young bees whose duty it is to care for the larvæ which now are born in decreasing numbers. And here, in passing, let me call particular attention to the truth that swarming is incited by congestion of *emerged* bees. It is most forcibly illustrated in the Aspinwall hive, in which, by means of slatted dummies and additional end-bars, abundant room is provided for the increase of numbers, thus relieving obstructed movement and facilitating function.

But while, by this congestion of brood, bees, honey, and pollen, the functions of all are restricted, the force which sustains and impels these functions remains unrestricted. What must occur? The conditions in the hive interfering, as they do, with the vital activities of bee life, some other habitat must be sought where the hampering limitations are absent; hence the act of swarming.

That this is the correct solution may be quickly shown by considering some of the evidence which is continually appearing in the bee-journals. In a late issue of GLEANINGS the editor states that the ten-frame hive is becoming more popular, the eight-frame hive having proved too small. Mr. G. M. Doolittle states that swarming from the ten-frame hive is delayed a week longer than in the eight-frame hive; and all know that, before cells are commenced, the removal of frames of brood which are replaced by empty combs delays swarming considerably, and that giving full-depth bodies full of combs over excluders often prevents swarming during the entire season; while, if the queen-excluder is omitted, swarming seldom occurs. Furthermore, the control of swarming is secured by forcing it in what is called shook swarming—even Mr. Doolittle, after sixteen years of study, having been forced to the expediency of giving to the queen a full set of cleaned combs (one comb containing eggs and brood to establish the brood-nest), and to the workers a superful of drawn combs in which to store honey immediately, and over this a superful of sections containing full sheets, supplying room for the future. And let me say here that, to me, his plan seems superior to any which have, up to this time, been promulgated; for it supplies all of the conditions which enable all of the bees to perform all of their respective functions. To this, some of the more critical readers will ask, "What about the young bees with only a patch of brood to care for?" To this I reply, the combs upon which the bees were shaken contain a considerable quantity of honey which must be removed to make room for the queen, which, it will be remembered, is not in the condition of a queen with a natural swarm, but is laying to her full capacity. Removal of this honey, and care for the nectar, therefore, give ample scope for the first three or four days for the performance of proper bee-functions, at the end of which time from 2000 to 3000 eggs have hatched, requiring immediate care.

We may now deal with the subject from the standpoint of the physicist—a position, many will think, from which little that is practical can be seen. We shall find, however, that this is not so.

All changes take place according to natural law; but changes are motions. There are no such things as changes without motions, and no such things as motions without changes. The law of change is, therefore, the law of motion; and in studying the laws of changes which are occurring in a hive we are, though it may be unconsciously, studying the laws of motion. What are these laws? The first, as given by Newton, is as follows: Every body continues in its state of rest or of uniform motion in a straight line except in so far as it is compelled, by force, to change that state.

A colony of bees in the cellar is in a state of rest, and it remains in that state as long as the light is excluded and the temperature remains uniform. As soon in the spring as the colony is placed upon its summer stand, the forces from without (light and heat) start those locomotive actions by which foraging is begun, and which in time bring in those stores of force (nectar and pollen), which, when liberated in the body of the bee, initiate the motions incident to brood-rearing. The colony is thus changed from a state of rest to a state of motion; and if this motion (gathering honey and pollen, and rearing brood) is represented by a line, the motion will be found to continue in a straight line in a fairly good colony (in this latitude) from the 15th of April until the 15th of June. Motion now ceases (comparatively speaking) for a brief interval in this direction, and starts in a new one — that is, in the direction of finding, preparing for occupancy, and moving to a new home, or, as we call it, swarming. But what was the force which initiated the new line of motion? Obviously it was the hive. Motion, that of the life functions of the bees, continued in a straight line until the limits or confines of the hive were reached, and then was deflected, for a hive is matter, and matter, though it has no specific name, is a kind of force — the space-occupying kind of force. Or, as otherwise expressed, motion continued in a straight line until the walls of the hive imposed impassable limits when motion followed a new line — a line of less resistance—that of migrating or swarming.

We have thus far dealt with those normal swarms which issue during what is called the swarming season. It remains, however, to consider those seemingly anomalous swarms which, with one exception, do not issue during the swarming season, but before that time, when food is not abundant in the fields, and when numbers are not great in the hive—conditions which are the reverse of those under which normal swarms issue. How, then, can a law be formulated which shall embrace changes that occur under opposite sets of conditions? Let us see.

Swarms which appear early in the season come out for either one of two reasons—because the food is exhausted, or because the numbers are depleted. In either case, conditions have arisen which oppose barriers to the performance of function. None of the functions of bees, or of animals in general, are possible in the absence of food; and the functions of bees can not continue long in the absence of sufficient numbers to maintain a temperature requisite for brood-rearing. Under such circumstances there are two courses open—remaining in their present abode and becoming extinct, or removal in search of a new abode in an effort to avoid extinction.

We will consider next those swarms which issue before the swarming season proper opens, when there is no congestion in the hive, and when, as before, nectar is not abundant in the fields. These are the swarms which appear on what are called supersedure cells. An examination of the combs, deserted by such a swarm, generally reveals the fact that the queen was either inferior or failing—the effect in either case being the same. The combs are only partly filled with brood and eggs. There are scattering worker-cells containing drone brood, and the brood itself is more or less scattered. Here, as before, a resistance was imposed in the way of perpetuation, and, therefore, in the way of function. But why, it may be asked, did not the bees merely supersede the queen and thus remove the obstruction? To this question a satisfactory answer may be given.

Keen observers must have noticed that supersedure swarms do not issue until brood-rearing has been under way for a considerable length of time, and when, therefore, the swarming season proper is approaching. Furthermore, cells have been started, and these are conditions which are inseparatbly connected with normal swarming. The presence of queen-cells suggests the idea of swarming, for the same reason that the appearance we call ice suggests coldness, and the appearance we call fire suggests heat. Arising, as these feelings always have, in connection with these particular appearances, these appearances necessarily call up the feelings with which they have become indissolubly connected, and so with swarming. Swarming has, through countless generations, been associated with the building of queen-cells, and, therefore, it is not at all strange that, with the actual approach of the swarming season, when there is considerable brood in the hive, the building of queen-cells should call up the idea of swarming.

Here, again, swarming was primarily due to restricted function—the perpetuation of the colony, and, therefore, of the individuals which compose it, being jeopardized, for the mere raising of *some* brood is not enough; there must be sufficient to insure storage of enough surplus honey to carry the colony through the next period of scarcity in nectar.

There still remain for treatment those swarms which trouble us during the swarming season proper—swarms which issue from hives which are by no means congested, and in which queen-cells may or may not be present. These swarms issue, not because the conditions in their own hives impel it, but because the conditions in neighboring hives impel it. The excited issuance of immense clouds of bees, filling the air with their mighty roar, which, once heard, is never to be forgotten, has a powerful influence in exciting adjacent colonies to repeat the performance. It appears, then, that these swarms, though not directly, are indirectly due to the restriction of function.

The law of swarming, then, may be formulated thus: Swarming, among bees, is a migratory habit which takes place under the pressure of conditions which render difficult or impossible the performance, by the inmates of the hive, of their respective functions.

A few words must now be appended relative to after-swarms. That these are due to restricted function hardly needs stating, seeing that they are merely smaller additional waves of migration following the first great wave, and taper off more or less abruptly, depending upon the size of the colony and the amount of nectar coming in. Attention must, however, be called to the fact that they occur in obedience to the simple law of motion—that motion started in a given direction continued in that direction, the motion here being nervous motion—nervous change or nervous impulse through certain channels which is the correlative of thought.

But why does swarming, after a time, cease? The answer suggests itself. Restricted function having initiated swarming, it necessarily follows that removal of restriction causes its discontinuance—conditions finally arising after excessive swarming, similar to those under which the colony began its functions in the spring—a small number of bees, abundant room, many empty cells, small amount of nectar coming in from the fields, honey in combs, etc.

Thus, then, swarming begins because conditions inside of the hive restrict function, while conditions outside of the hive make function possible, and swarming ceases because conditions outside of the hive will restrict function, while conditions inside of the hive will facilitate function. In both cases motion follows the line of least resistance.

Cadotte, Wisconsin.

UNITING PARENT COLONIES THAT HAVE SWARMED.

BY W. T. DAVIDSON.

I prefer ten-frame hives with full sheets of foundation when a colony swarms. I remove the old hive (No. 1), put the new hive with the swarm on the old stand, and open the old hive and shake all of the bees in

with the swarm except about one quart, which bees are left to take care of the brood. I move the old hive back and make the entrance very small to prevent robbers. Then when the next swarm comes out I set the old hive, No. 2, on the old hive, No. 1, and, 21 days later, I remove hive No. 1, shake the bees in front of No. 2, and put on a super if the bees are getting honey, and keep No. 1 to put a late swarm in, or use it for bees from a tree. In shaking the bees I am very careful with the frames that have queen-cells, as rough handling will injure the young queen.

Swarms that are treated in this way during a honey-flow will be likely to need a super in four or five days. If the two old hives, Nos. 1 and 2, have begun work in the supers I put No. 1 super on the swarm from No. 1, and No. 2 on a colony that is slow about going into the super.

Velpen, Ind.

BREEDING TO ELIMINATE THE TENDENCY TO BALL QUEENS.

BY CH. NOEL EDDOWES.

On page 278, May 1, Mr. B. B. Fouch asks the question, "Why are the queens of natural swarms killed?" and you invite others to give their experience or explanations on the subject. In my opinion the explanation is simply a matter of breeding, and the remedy is selection. My reasons for making this statement are based on experience. I have bought bees with the characteristic so strongly developed that the simple fact of lifting the hive-cover was sufficient cause for the bees to ball their queen. By careful selection of breeders I have eradicated this tendency under normal conditions and usual manipulations.

A bee-keeper whose acquaintance I made here told me that he considered the balling tendency of bees in Jamaica a perfect curse. For the benefit of Mr. Fouch I will give you the system I use to test the bees of my breeders for this defect. Having selected the queen from which I intend to breed, I go to her hive and take out the frame on which I find her, and turn it upside down and place it on top of one of the other frames in the hive with the top-bars parallel. I then cause the queen to run off by driving her with the point of my finger until she crosses the two top-bars of the frames and goes below. In doing this it is advisable to touch the queen with the finger, so as to bring out to light any tendency to balling that may be there. As soon as the queen is below I throw the bees off the frame on which she was, into the hive, and put the frame back into its place and close the hive and examine again in half an hour to see if the bees are balling their queen. This must all be done without smoke or other intimidant.

Never breed from a queen whose bees show any tendency to this defect, however good honey-gatherers they may be, as in these latitudes the balling tendency appears to be most easily intensified.

As the balling defect appears to be general in Mr. Fouch's apiary, his quickest and most certain way of getting rid of it would be to requeen with queens from a well-known queen-breeder, who can give assurance that his bees are free from the undesirable characteristic.

Halfway Tree, Jamaica, May 5.

[Very possibly this balling tendency can be bred out of the bees themselves; but in our opinion balling is more often occasioned by the peculiar behavior of the *queen* toward the bees than because the *bees* are inclined to ball her. Years ago we had one old hybrid queen that we used for supplying queenless colonies with eggs. We could pick her off the combs and drop her into any hive and shut the hive up. On several occasions after this we watched her. She would go about her egg-laying duties as if she had always been in the hive. In other words, her behavior was so natural and easy that the bees accepted her as a matter of fact. If a stray bee showed hostility she would fight it as if she were boss of the whole ranch and expected her subjects to join issue with her; in other words, she had a way that indicated her royal and sovereign rights—rights that she would not allow any foster subject of hers to trample on.

On the other hand, we have had queens which, as soon as they were let loose among the bees, would squeal in fright, hold up their fore legs as if they *expected* to be balled, and such queens are usually not disappointed at the reception they get, for they are almost invariably balled by any and all bees. While the scent factor, or colony odor, may have an influence, we are beginning to believe that, during the period of confinement in the cage, the queens themselves become accustomed to their environment, and as a result act naturally when released by the bees. It begins to look as if the principal factor contributing to the successful introduction by the caging process is a scheme by which the bees quietly release the queen by eating out the candy. The old way of opening the hive and disturbing the regular routine of the colony to release the queen, often caused the bees to ball her, when, if she had been allowed to crawl out of an exit, which the bees created quietly, she would have been accepted without hesitation on the part of the bees.

At the between sessions at the Massachusetts convention we had some talk with Mr. Arthur C. Miller, who, as our readers know, has for years believed that the scent factor in the matter of introduction has been overestimated, and we are coming to believe that he may be right. Mr. Miller has given this subject no little thought, and we should be glad to hear from him at his convenience; for we believe that no man in the United States has made the internal condition of a colony more of a study than has he.—ED.]

BEE-KEEPING IN FLORIDA.

Some Representative Bee-men of Florida.

BY E. G. BALDWIN.

Continued from last issue.

Three reasons make the work and apiaries of Mr. R. W. Herlong, Fort White, Fla., especially noteworthy. First, he is the only genuine Floridian among the leading beemen of the State. Second, he is in a section where practically all of his marketable honey comes from *one* source, the partridge pea; and, third, he is one of the very few men who produce comb honey. Mr. Herlong started eleven years ago with three colonies purchased from a neighbor. That summer the three gave him four swarms and 300 lbs. of honey. From that modest beginning he never lost his enthusiasm for the vocation, and has increased till now he has 900 colonies in 13 different apiaries, ranging from 2½ to 10 miles apart.

From choice a comb-honey producer, he uses the eight-frame hive, L. size, and is probably right in doing so. Mr. J. J. Wilder, of Cordele, Ga., who has recently started two apiaries in Florida, and produces comb honey, also uses the eight-frame hive. Mr. Wilder is about 25 miles from Mr. Herlong. Like Mr. Marden, of Apopka, Fla., Mr. Herlong likes the bee-shed for his bees, as a protection from the sun (see Fig. 12). The objection that the writer has to sheds, so far as he has observed them, is that they are too shady in early spring when the heat of the sun is needed to warm up the brood-nest for early breeding. The sun is the life of Florida; and here at DeLand colonies shaded in February and March do not do so well as those out in the sunshine. Of course, the hives last longer, without paint, under a shed; but practically everybody paints his hives in Florida.



Fig. 11.—R. W. Herlong, Fort White, Fla., and thirteen-year-old son, his only helper.

Mr. Herlong is a genius at moving bees. The past summer he moved 150 colonies distances varying from two to sixteen miles, and all without a single mishap of any sort.



Fig. 12.—One of the thirteen apiaries of R. W. Herlong, Fort White, Fla., who has 900 colonies in all, producing comb honey exclusively. The shed shown is of the type that Mr. Herlong prefers, holding one row of hives only, which are operated from the front and rear. This is the section of the sensitive pea, Mr. Herlong's one source of honey.



Fig. 13.—J. B. Case, Port Orange, Fla., and one of his queen-rearing yards. Mr. Case is holding the comb on which is his choice breeder.

He is also fond of bee-tree hunting, but only for the sport and pleasure of it, not for profit, for he, like all others here, declares that the gain in cutting down a tree, good and bad together, is very slight. The bees are usually in very large trees, and the heavy fall mashes bees and combs so sadly that it is seldom the bees can be saved with a queen, and combs are almost always worthless. He has one yard of pure Carniolans, one of pure Caucasians, and three of pure Italians; the rest are a mixture of all. He is a hustling bee-man, who does not believe in getting cross over his work, but practices his motto, which is, "Smile while you work." Fig. 11 shows how his good nature is outside as well as within—a quality that seems transmitted to his thirteen-year-old son. Mr. Herlong is a man well worth knowing.

Readers of GLEANINGS should make the acquaintance of Florida's veteran queen-breeder, Mr. J. B. Case, of Port Orange, on the East Coast. A bee-keeper all his life, he has been a breeder of queens twenty years. Of New Jersey originally, he has kept bees as a specialty in Florida for 24 years, and always on the East Coast. Of his two queen-rearing apiaries, one containing 100 colonies is shown in Fig. 13. The other contains 60 full colonies and 20 nuclei. In the former apiary, shown, there are about 300 nuclei on an average. Situated on the picturesque Halifax River, Mr. Case used to call his location one of the best for honey in Florida; but the changing conditions, recorded elsewhere in this article, have made it very poor for surplus honey. Honey-flows are too short and light, but favorable for stimulating breeding, and hence good for queen-rearing. He uses scuppernong grapevine trellises for shade, as shown in Fig. 14, and lines up his bees in two rows of hives. Strong colonies alone, he finds, can protect themselves against the attacks of the nocturnal or "bull-dog" ants, though he also wages incessant warfare on their nests. The past year, however, he tells me that he has grown lax about fighting the nests, but does not suffer much more than when he was more zealous in that particular. He attributes it to the gradual elimination of the pest. He has a sovereign remedy against them, and was the first, so far as I know, who used it. It is as follows: Mix equal parts of tartar emetic and sugar. In the runs place this, in shallow boxes covered with screen to keep bees from it; the ants eat it with eagerness, carrying it also to their nests, where it is fed to the young larvæ with fatal effect. It is far superior to arsenic and other poisons, in that it will not so easily drive the ants away from it from being too strong, and will not prove fatal if perchance any thing or any one but ants should partake. He uses strong nuclei, three to four frames in each one, and agrees with the writer that only *strong* nuclei are worth fooling with in Florida. For example. Mr. Shumard, who has been using, or trying to use, the baby nuclei the

past spring and summer, had almost all his nuclei eaten out by ants. He will use them no more.

Mr. Case is an unusually careful observer of little points, exceedingly particular about details of his art, and has succeeded for this reason. He belongs to that pioneer coterie of bee-men whose achievements in the days of mangrove honey have never been equaled, and have all written their names large in the history of Florida's annals of bee culture. There is a simplicity and straightforwardness about him that is very attractive.

De Land, Fla.

To be continued.

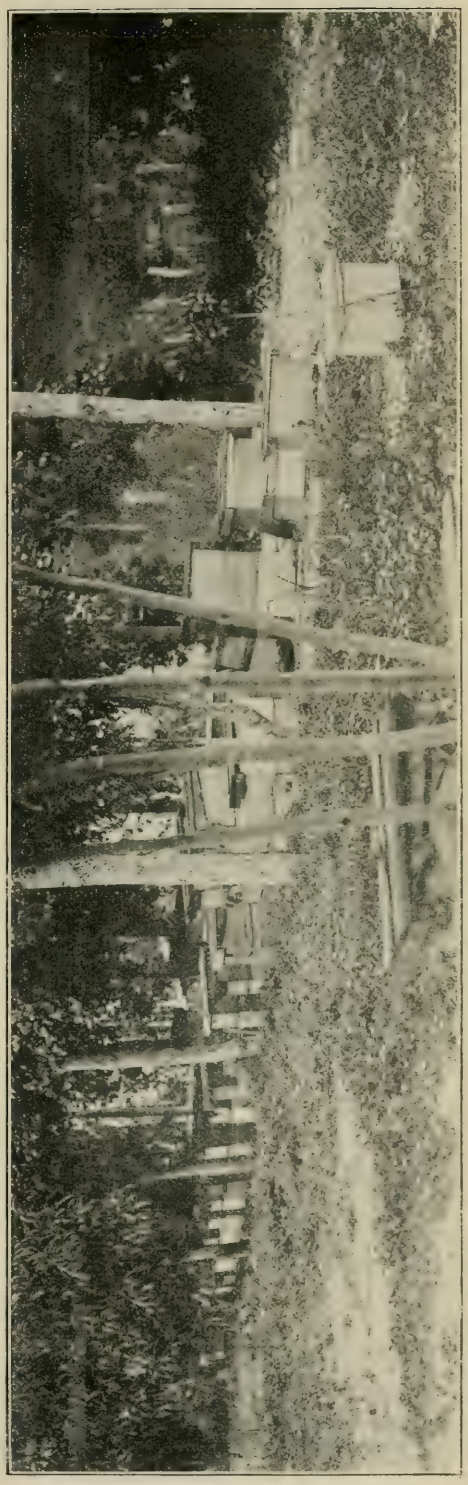


Fig. 14.—Another of Mr. Case's queen-rearing apiaries, consisting of two rows of full colonies with a wide passageway between, under a grapevine trellis.

BEE-KEEPING IN JAMAICA.

BY W. C. MORRIS.

The bee-keeping industry in Jamaica is only in its infancy. There is flora to support profitably a million and a half colonies, and there are only about 112,000 colonies on the island, the greater part of which are in home-made hives constructed of kerosene-cases, similar to our two and five gallon can boxes, which can be bought for about 5 cts. each. Nine standard Hoffman frames just fit these boxes, and the covers and bottom-boards are made from this same ¼-inch stuff. Because of using this thin and seldom painted wood, the hives warp and twist, the covers check and crack, and the heavy rains kill thousands of larvæ and bees. Under these conditions it is impossible to build up the colonies to proper strength for commercial results.

A large number of the bee-keepers go to Kingston, to the commission men, and sell their estimated crop before it is produced, and get as much of the money as they can in advance. Not all of the bee-keepers are in this class; but the progressive men are decidedly in the minority. There are some with a thousand colonies or more, but the average apiary runs from 50 to 100 colonies. The 1909 crop was about 2,500,000 lbs., and Jamaican honey is now selling in London, where most of it goes, at 32 to 37 shillings per 100 lbs. (112 lbs.), or, in other words, 7¼ to 7¾ cts. a pound. When freight, commission, and package are deducted, 5¾ to 6½ is left for the producer.

There are big possibilities for bees in Jamaica. A man with a capital of $2000 or more can go there and make a profit of several thousand a year. Labor is cheap—from 25 to 50 cts. a day. Women can be had for 18 cts. a day. My assistant had a woman to cook and take care of his house, and she paid for her own food, for 87 cts. a week.

Water is hard to get in some places. At Four Paths, where the American Bee Products Co. have their yard, it comes from a deep well. It takes a horse to draw the water, and twice a week water is drawn for all that section of the county. A large hogshead is kept filled for the bees.

The railroad is a one-track affair—slow and dingy. In the city of Kingston there



Fig. 1.—Apiary of The American Bee Products Co., Four Paths, Jamaica.

are only two restaurants. Outside of Kingston, and especially in the smaller towns, there is not a place where one would care to get a meal, and no place to stay over night. If one decides to go there to keep bees he will have to give up many of what we consider necessities. But there are unlimited possibilities for capital at Jamaica. A man willing to go there and rough it for a few years can make considerable money in the bee business.

Fig. 1 is a portion of the apiary of the American Bee Products Co., at Four Paths, about 40 miles from Kingston; and Fig. 2 shows the same yard, with the residence and extracting-house. A couple of cots, a few chairs, a table, and cooking utensils constitute the furnishing. Ants and toads are troublesome. A nest of ants will clean out a colony in a night, eating honey, larvæ, and even bees; and toads eat thousands of bees if they are not killed. A lantern and a club, several nights in succession, will rid the yard of the toad nuisance, and poison will dispose of the ants.



Fig. 2.—A corner of the American Bee Products Co.'s apiary, showing the honey-house in the background. The trees shown are logwood.

The flavor of the honey is good, but the body is somewhat light. Logwood is the principal source. The trees in the illustrations are logwoods. Other sources of honey are lignum-vitæ, fiber cotton, canshar, sweet Christmas pop, genip, mangroves, orange,

akee, aloe, and many other native weeds.

Jamaica is free of foul brood, and the bee-keepers allow no bees to be brought into the island. All queens have to be changed to new cages, and the cage and old bees destroyed by the inspector, before they can leave the boat, so the chance of its getting a foot-hold is slight.

To get best results, every colony should be requeened once a year in October. Every effort must be made to have the bees strong by Dec. 1. The queen is inclined to loaf during November, and the bees will clog the brood-chamber with honey. This is the one difficulty to overcome, if one wishes to get bumper crops. I have figured out a plan which I believe will overcome this difficulty, and it is being tried there now; and if it works I will give it in detail to the readers of GLEANINGS. The average crop obtained is 50 lbs. per colony; but with intelligent management it could be easily increased to 200 lbs.



Fig. 4.—A view of the Eddowes apiary in Jamaica.

APIARY OF C. N. EDDOWES, BEE INSPECTOR OF JAMAICA, B. W. I.

Mr. C. N. Eddowes, Bee Inspector of Jamaica, was born in South America in 1882, of English parents, and he is one of the most progressive bee-keepers on the island. Jamaica is free from foul brood, as I mentioned above; and as they allow no bees to enter, the chance of its getting in is slight.



Fig. 3.—Mr. C. N. Eddowes, Bee Inspector for Jamaica, in his apiary of Simmons hives.



Fig. 1.—J. S. Cotterell's apiary and side-hill honey-house, Auckland, N. Z.

All queens imported are changed to new cages in one of the staterooms of the ship they arrive on, and the accompanying bees are killed and the cages burned. The inspector does this himself, and mails the queens to the owners. It is only fair to Mr. Eddowes to state that his labors are mostly for the good of the cause, as he receives very little compensation. He is a hard-working, conscientious, and just official, and the Agricultural Department of Jamaica is to be congratulated on getting so able a man to look after the apicultural interests.

Fig. 3 shows Mr. Eddowes at his half-way-tree apiary. Fig. 4 is a partial view of the same yard. Mr. Eddowes uses the Simmons hive; and from 50 colonies in 1910 he took 4400 lbs. of extracted honey, and received net in London, 66 cts. per gallon after freight and commission were deducted. He also increased this yard from 50 to 88 colonies. With this hive he has no swarming. The hive-bodies and supers slide in on cleats, and he can remove body or super as easily as opening a bureau drawer. He uses shallow supers with frames 5×16 inches, and runs this yard for extracted honey.

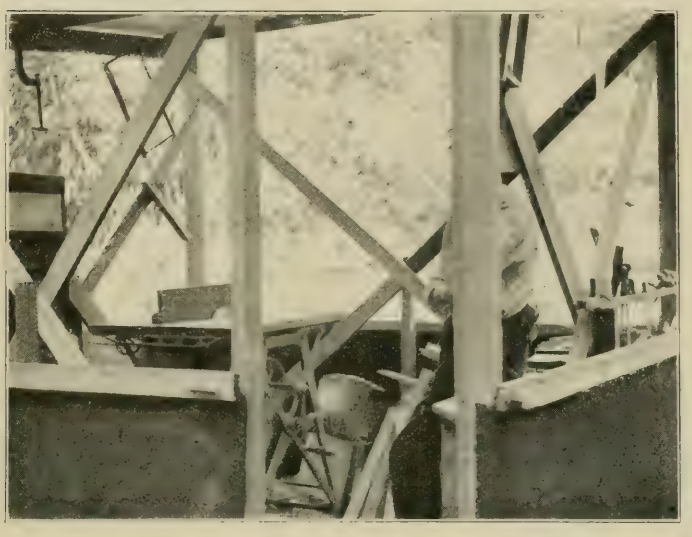


Fig. 2.—J. S. Cotterell's circular-saw work-shop in New Zealand.

The illustration shows one of the hives open. The bottom section is an empty super without frames,

which serves as a dummy. This is used to hold back swarming. Above this is the hive-body and one super, but there is room for three supers.

In Fig. 3 are shown some smaller four-frame hives like Pratt swarming-boxes, in which the nuclei are started and the queens mated.

Mr. Eddowes is just outside the city of Kingston, where the land is mostly cultivated, so that it is not considered a good locality; but his crops are above the average. There is no comparison between his neat and well-kept apiary and the average bee-yard at Jamaica with bees in kerosene-case hives.

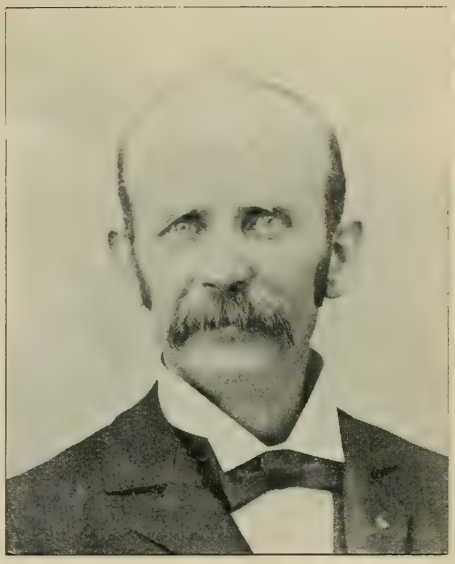
No one could have been more royally received or delightfully entertained than I was during those visits, and in the evening we sat on the front porch and talked bees, for Mr. Eddowes is always willing to tell his fellow bee-keepers what he knows; and if his ideas were published they would make a valuable addition to the works on bee culture.

Yonkers, N. Y.

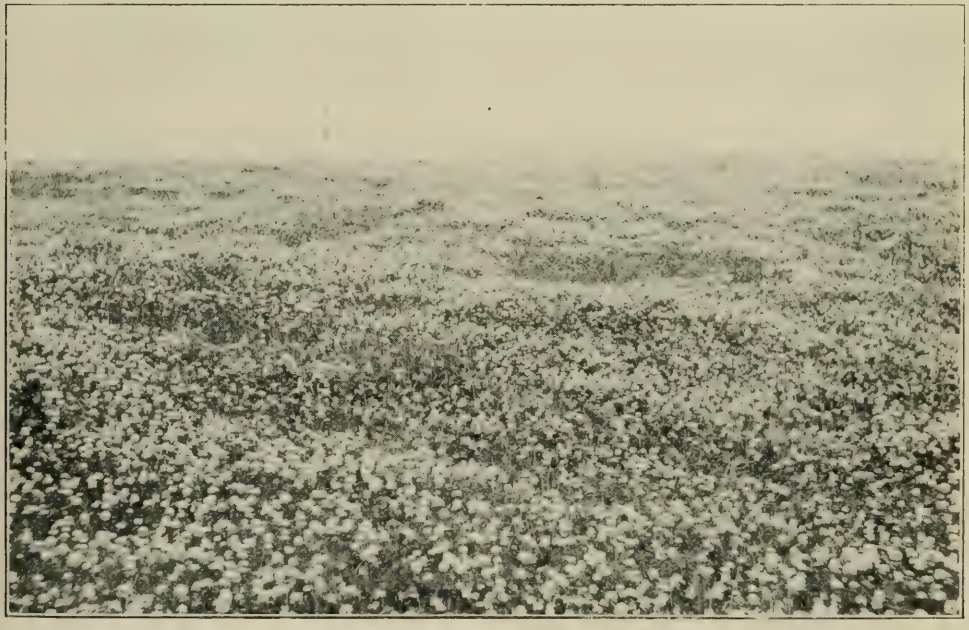
BEE-KEEPING IN NEW ZEALAND.

BY J. S. COTTERELL.

Under separate cover I am sending some photos of my apiary, which I trust may prove of interest to the readers of GLEANINGS. The apiary is planted with peach-trees, with shelter-belts of wattle and gum trees giving an almost constant slow flow of honey the year round. The main crop of honey is gathered from white clover.



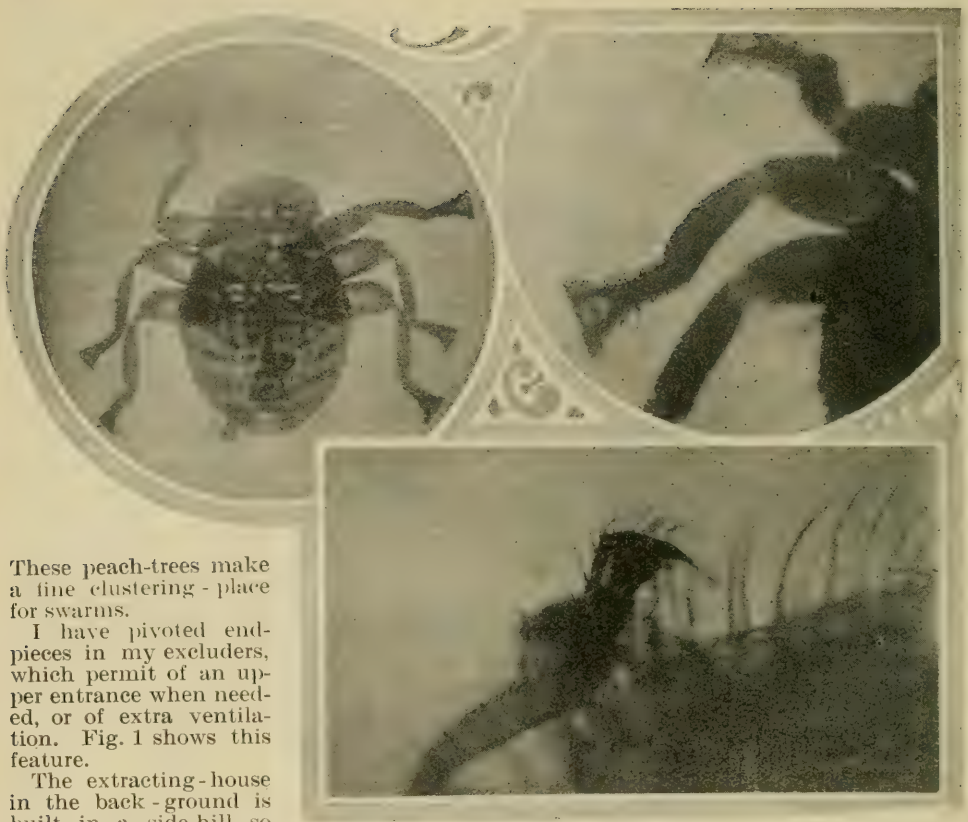
GEO. E. HILTON.
Died July 13, 1911. See Our Homes this issue.



A FINE FIELD OF WHITE CLOVER IN IOWA.

On p. 357, June 15, you say you will have an engraving of a Texas clover-field. Place this beside it and see which is the better one. White clover does not yield honey this year. The crop will be short.
Strawberry Point, Iowa, June 23. H. E. ROTH.

[The Texas picture of white clover was published on page 397 of our issue for July 1. Your picture shows a better field.—ED.]



THE BEE-LOUSE, SOMETIMES FOUND ON YOUNG BEES, QUEENS, AND DRONES.

These peach-trees make a fine clustering-place for swarms.

I have pivoted end-pieces in my excluders, which permit of an upper entrance when needed, or of extra ventilation. Fig. 1 shows this feature.

The extracting-house in the back-ground is built in a side-hill so that the honey "runs through it" on the gravity plan. The walls of the building are of wood while the roof is of iron. A honey-store beyond is built of concrete, with a composite roof.

My work-shop is a skeleton construction, with removable felt panels and an iron roof.

Arateatree, N. Z.

THE BEE-LOUSE (BRAULA CŒCA).

DR. BRUNNICH.

On page 118 of the Feb. 15th issue for 1910 there is a reproduction of a bee with a louse on its thorax; but I see that in the statement accompanying the photograph the idea of the mode of nourishing this little insect is not exact. The error is excusable, for I find in a very good book on insects, in the description of the bee-louse, the following passage: "In the mouth there is a suctorial sting (?) in a sheath, and the louse is often sitting for hours quite still on the bee, the suctorial sting (?) bored in, sucking the vitals of its host." Cowan, in his "Guide-book," p. 160, in his description of the parasite, does not mention the manner of taking its food.

The queen, which harbors sometimes 50 or more lice, would be indeed a deplorable being if it should be stung and sucked out by so many parasites without being able to defend herself against them; and I think she would soon be killed if this were true. But, happily, the bee-louse does not possess a suctorial sting, and the parts of its mouth are constructed for sucking only liquid food. In most of our German bee-books the manner of nourishing the parasite is mentioned as taking place when the queen or bee is fed by some brood-bee, and this supposition is, indeed, the most probable, though to my knowledge no one has observed the act till now.

The chitinous harness of the bee's thorax is so strong that it would be almost impossible for a suctorial sting to penetrate it. Again, the parasites are to be found only on queens, young bees, and drones—never on old bees which are flying out and taking their food themselves. The bee-louse must have a very good instinct for picking out the young bees and the queen.

The structure of the bee-louse is rather intricate, as the accompanying photo shows. Like all insects, the body is composed of three parts—the head, the thorax, and the abdomen. The form of the head is very irregular, with many hollows and protuberances, and, like the whole body, it is of a

strong consistence. There are no eyes at all; but in two deep hollows we find two feelers, each composed of three short segments, mostly concealed in their cavities (they are reproduced in the photo). The mouth is situated on the under side, with an upper lip and two bulky lip-feelers.

The legs are similar to those of the bee, but with very different extremities. We find there a very nice comb, with which the parasite takes an exceedingly firm hold in the hairs of the bee, so that it is quite impossible to strip it off with a match or toothpick. On the back side there are two appendices with fine hairs, which I consider an organ of touch.

The abdomen consists of five segments, and contains (in the female) the ovaries, which contain only four eggs, which hatch successively, nourished by the insect till they have a certain size. Then the mother lets the small, smooth pupa fall on the floor-board of the hive, where it develops its chitinous surface. At first the louse is nearly white, and becomes browner, the older it is. On the bottom-board the little parasite waits till a bee is approaching. Being very active and quick it is easy for it to climb on its back.

With us, I think most colonies have more or less lice on the bees. There is generally but one on the queen; but if she is an old one there may be a great many. In this case the queen may indeed suffer. On young active queens lice are seldom found, because it is not comfortable for the parasite if the queen is putting her head and breast into a cell every moment.

A very simple and sure way to dislodge the lice is to lay a carton on the floor-board, and put there for a night a piece of camphor of the size of a hazelnut. If one takes small pieces the bees carry them off. In the morning, if one will draw out the carton all the lice lie there paralyzed by the vapors of the camphor.

Rheinau, Germany.

FOUL-BROOD INSPECTORS OF CALIFORNIA.

Some Experience with them; Direct Legislation, Past and Present.

BY W. A. H. GILSTRAP.

My first foul-brood scare was nearly 21 years ago. It was natural that my partner, who was more experienced in the care of bees than I, should take the lead. He argued that, as the bees in one fine colony were not sealing their brood, it must be diseased —evidently foul brood. We could not risk having foul brood scattered on the flowers all over the range by one colony, so we burned it, hive and all. After I learned that bees sometimes do not care to seal their brood, and that foul brood is neither a miasma nor a dust, and had learned how to cure the disease, an intelligent horticultural commissioner asked me to examine his bees, as there was something wrong with the combs, and he was anxious to know whether it was foul brood. An investigation revealed the cause of his uneasiness. There was some pollen in the combs! Some old bee-keepers may laugh at this; but we of the younger set knew nothing of bees except as we learned it.

Finally, after I was familiar with foul brood, I saw an infected apiary, and helped get a stranger in as inspector, on recommendation of his neighbor apiarists. At that time the law said the diseased colonies should be burned or buried in the earth the night after the owner or keeper of the bees was notified of their diseased condition. An apiary of 31 colonies had 17 condemned by the inspector who allowed them to be left alone for 57 days. I then went on the war-path. Soon a deputy inspector burned the bees, and several apiarists expressed themselves to the supervisors of the county as being well satisfied with what the inspector had done. Later I was told that the hives, which were very rich in honey, had been piled on hard and nearly level ground, and burned, and that the honey and wax which had melted and dripped down, had been left in that condition uncovered.

Finally California learned of a man named McEvoy, and our present law was enacted. When I speak of an inspector under this law it may be a deputy, and these remarks apply to more than one county. Rambler's report, p. 12, Jan. 1, 1902, GLEANINGS, referring to cleaning wires which had been in contact with infected honey and wax, brought a storm of protests later. Some other queer inspection might be of real value to GLEANINGS readers.

Our law permits an inspector to compel the transfer or destruction of box hives within three miles of foul brood. Mr. Blank had a small apiary a trifle over half a mile from mine. Mr. Inspector approached me with something like this:

"Wilson, don't you think Blank's bees are in your way?"

"Yes, more on account of the strain than by overstocking the range."

"Well, if there was foul brood within three miles he would have to transfer his bees from box hives, or have them burned. I don't think he would transfer. Bees could be put within three miles of his bees without endangering yours, and later they could be inspected and found diseased. What do you say?"

I did not "bite," and perhaps there has never been any foul brood within five miles of that man's bees. The inspector was supposed to be a friend of both Mr. Blank and myself. This is not a kick at the law, but a caution about selecting inspectors. Never sign a petition for any thing just to accommodate some one. Show friendship in other ways.

One inspector held office several years, much of the time with foul-broody bees in his charge, and was flatly defied by at least

one bee-keeper. He forced no one to observe the law. One other inspector, however, was drastic enough to suit the most fastidious. He even ordered second-hand hives to be burned, where there was no evidence of disease on the premises, even when he had no way of learning why the bees had died. Of course, he was not under bonds.

One of our inspectors wanted an ordinance passed condemning all box hives in the county, saying that he did not consider it fair to make a man transfer on one side of the road and leave other bees in boxes across the way because they were beyond the three-mile limit; that it would be more economical to the county to put all box hives under sentence; that, if the frame hives in the neighborhood were all in good condition, there was no certainty that the colonies in box hives were all right. At that meeting of the supervisors, several bee-keepers were present, only two speaking in opposition to the inspector, and none for his plan. One speaker told how the present law was framed, and what kind of men Mr. Hambaugh and Prof. Cook, the leaders in the work, were; what care they used in consulting inspectors and others, and considered the law all right. During an attack of scarlet fever in his neighborhood, only such persons as experts in that line considered endangered were quarantined; others were not. He referred to an interest in the management of several apiaries near Crow's Landing, which the inspector then had, and mentioned that the inspector had said that he got a better crop from an apiary whose brood-chamber was only boxes, although the range was no better than one other. The inspector did not deny this. Mr. Jensen, a farmer bee-keeper, opposed the ordinance. He had bees in frame hives and box hives. Of course, the boxes were much cheaper, and there was little difference in the returns to him.

The ordinance failed. The next month the inspector changed it a trifle, and got it through on the sly, then went to Mr. Jensen and forced him to pay over $50 for hives or have a lot of his bees burned, probably 15 miles from the nearest foul brood. So much complaint came in that the supervisors discharged the inspector. He presented a petition for reappointment, and it was "placed on file." A prominent bee-keeper then presented a petition for his own appointment, and that was "placed on file." The supervisors seemed disgusted, and unwilling to act.

Lately a move, mostly by inspectors and the State University, I think, has been on foot to have inspection under control of the University; but the bill could not get through the Senate, as it met strong opposition from bee-keepers. It might be rash for me to discuss a proposed law without seeing it; but it would probably be better suited to a State the size of Delaware than California. Of course, the man who had a "pull" with the State University would get the job.

An inspector should be able to cure his own bees with reasonable dispatch and economy, varying his treatment with the honey-flow, season, strength of colonies, etc. He should be honorable, reasonable, prompt, and firm with others—neither a do-nothing nor a despot, not charging the public for critical examination of whole apiaries that are in good hands and healthy. With such men our law is certainly good, and, in my opinion, the honey-producers of California should be very careful about changing. Especially beware of a law that does not dare to come out in the open for examination.

Ceres, Cal.

THE PREVENTION OF SPRING DWINDLING IN CALIFORNIA.

Bees Left Full Stores.

BY J. F. CROWDER.

The complaint comes from every side that bees have left full hives of honey, and have absconded. This, I think may be explained, first, by the fact that they perished from old age; for, as the queen stopped laying in June, the last bees were at least six months old when the first spring honey came. Those gray-haired veterans survived only one or two trips to the field, consequently the colony lost its first field force, with a resulting shortage of new honey and pollen. Thus the bees perished one by one with hives full of honey.

I have seen hives with at least 25 lbs. of honey in them this spring, with one teacupful of little old black scrawny hairless bees, between four and six months old. When my partner and myself first visited our apiary this spring we were thoroughly disgusted at the sight of our bees. They all appeared to be of the blackest of the black variety; but upon investigation we discovered that they were the old bees from last season. Now the younger generation is coming on, what a difference! It looks as though we had been requeening; but they are all of the same family.

SEASONS DIFFER ONLY TEN OR TWENTY MILES AWAY.

Lateness of pollen-producing plants in the mountain districts is, I think, another cause of bees absconding. Southern California is a land of varied climates, with frigid weather in the mountains, and perpetual summer in the valleys. When the oranges began to bloom in early April, the sea-breezes taking the aroma mountainward, I saw bees come to the orange-groves in bunches from ten to fifty swarms per day, many where some hopeful keeper had been trying their quality. I have seen many swarms of black bees this season with as pretty an Italian queen as one would wish to see, all coming down to the land of Eden, for the orange-groves of Southern California are the bees' paradise.

HOW TO PREVENT ABSCONDING AND SPRING DWINDLING.

To stop this great loss the bee-keeper should stimulate feeding in September or October in order to get the queen to bring on a new batch of brood that would develop into young and vigorous bees in the spring. Then in the spring the keeper should feed some substitute for pollen; otherwise spring dwindling will result. Don't expect bees from four to six months old to take care of themselves during the cool weather of the early spring months, as one or two trips are all they can stand. Suppose two or three thousand old bees in an apparently strong colony should perish on the wing on some fair day, would you call it absconding or spring dwindling?

BLACK OR EUROPEAN FOUL BROOD; WHO IS RESPONSIBLE?

The State of California has been "handed a lemon" in the shape of this deadly disease. Some unscrupulous queen-breeder certainly did hand it out to the San Joaquin Valley. Selma, Fresno County, where it broke out in 1909, was the starting-point, and it was there that in 1908 several of the most prominent bee-keepers ordered several hundred queens in lots of three or four hundred from those Eastern breeders; and, as sure as fate, they sent other stuff than bees and queens. Those queens came from three different breeders in the East and South.

I take the following from the *California Cultivator:* "County Bee-inspector Christmam, of Fresno, reports a total of 2664 colonies inspected during the month, of which 922 contained European foul brood." Over thirty per cent in one county with foul brood! I call that going some. Tulare County's ordinance, as published in GLEANINGS for April 15, p. 255, is all right as far as it goes, but it does not touch the real source of the disease in that locality. It has a tendency only to check. Stop the importation of bees, queens, and queen-traps from a diseased yard, within 30 feet of the disease, instead of 30 miles, as Sec. 5 reads.

Pasadena, Cal.

SWARM CONTROL BY SHIFTING BEES INSTEAD OF HIVES.

The Various Methods for Doing this Compared.

BY J. E. HAND.

The Simmins turnover method of controlling bees, as described in the March 1st number of GLEANINGS, is especially interesting, because, when compared with modern methods as practiced in this country, it clearly denotes that the pursuit of apiculture has taken advanced ground during the past decade. The shifting of bees from one hive to another for various purposes by changing the position of the hive entrance is as old as bee-keeping itself; and it is doubtful if any man living to-day can lay claim to priority of invention of the basic principle of shifting the flight of bees from one hive to another.

While Mr. Simmins was introducing his turnover system in Europe in 1893, an American bee-keeper by the name of Barnett Taylor, of Forestville, Minn., introduced a hive and system that was the exact counterpart of the Simmins hive except the portico. This was in 1892, if I remember correctly, just one year prior to the time that Mr. Simmins says he introduced his system in Europe. During the same year, H. P. Langdon, of New York, came out with a method of shifting bees by means of a tube that connected the entrances of two independent hives. The operation in both these cases consisted of closing the entrance of one hive and compelling the bees to find the entrance to the other, exactly as practiced by Mr. Simmins.

My system precludes the necessity of having two entrances on a side in dangerous proximity, as shown in the illustration on page 132, March 1st GLEANINGS. When bees become accustomed to a particular hive and its surroundings, especially to the position of the entrance, any disturbance of the hive in respect to these matters is productive of no little trouble and disturbance to the bees on their return from a nectar-gathering flight. This interval of excitement and disturbance consequent upon the changing of the position of the hive entrance will cause the bees to set up a search that may lead to the discovery of the entrance to their former home, even though it be on the other side of the hive.

The system that is carried out in connection with my bottom-board equipment is as different from the Simmins system as is my method of shifting bees. I have found that the promiscuous intermingling of strange bees at swarming time has a tendency to create discontent among the bees which is almost sure to result in swarming. I wish to go on record as saying most *emphatically* that, if two colonies are to be united, and the working force of both combined in one set of supers, with no swarming, the bees must be united in an empty hive on the stand previously occupied by the parent colonies. The most practical and economical method of accomplishing this is to place one hive upon the other on one side of a double switch-board, the two hives separated by a queen-excluder. At the beginning of the harvest, shift the flying force of both hives over into a new hive, in the center of which is placed a comb of brood and the queen from the top hive. All that is necessary is to throw the switch, and the bees returning from their nectar-gathering flight will enter the new hive through their accustomed entrance without a moment's hesitation. There is no intermingling of strange bees, the swarming instinct is satisfied, swarming is controlled, and our bees are placed in condition to do the best work that bees are capable of performing under the most favorable conditions.

Birmingham, O.

Heads of Grain from Different Fields

How Long can Bees be Kept Confined in a Glass or Observatory Hive? How to Supply them with Fresh Bees.

I received a nucleus and demonstration hive several days ago. They arrived Friday, May 12, I believe, for we are on a branch road, and things are slow in reaching us. About 1000 bees were dead, but the others are doing very nicely now, I think. I looked into the hive to-day, and the queen seemed to be laying well, and the bees were quite gentle.

I wish to ask a question as to how to manage the demonstration hive. How long can I keep a frame with the queen in such a hive away from the other bees without causing trouble? My class recitations are 45 minutes long, and I have from two to three in succession. How long could a frame of bees be kept in this without the queen? Should I have some old worn-out queen in the demonstration hive simply to show what she looks like? How could I get her in with the rest for a week, say, without trouble—long enough for my classes to see the various lines of work going on?

I presume we should have an eight-frame hive with glass sides, so as to slide the frames along to the glass, but I am not sure how soon I shall feel justified in asking for the extra appropriation.

I have 150 girls, high-school graduates, mostly from cities like Newark and Jersey City, and a few from the country. Most of them are afraid of any thing that crawls, and I want them to see as much as possible of the work of the bees without throwing the hive into confusion.

Upper Montclair, N. J. C. H. ROBISON.

[You can keep a frame of bees with a queen in a glass hive for about a week. At the end of that time the bees begin to get uneasy. They ought to be given a flight so they can cleanse themselves. They may then be shut up again and used over. No, we do not think it is necessary to use old worn-out queens. Use the best you have. Keeping them in a glass hive where they can be seen by the pupils will not injure the queens in the least.

A full-sized glass hive is very nice, but it enables the scholars to see only the outside of each outside frame. A single-comb observatory hive is usually much better. By having a regular hive in the yard, in the rear of one of the college or school buildings, you can draw a fresh supply of bees every week. Our suggestion would be this: Get one full-sized colony, eight or ten frame size—the latter preferred. Then, once a week, take a frame of bees and put it in your glass hive. The first time you do this, take the frame of bees, brood, and queen. At the end of the week pick the queen off the comb. After it has been taken from the glass hive put her on to another comb. Put this comb with bees into the glass hive. Queens can stay in a glass hive indefinitely, but the bees must be changed from week to week or given a flight.

The writer has made a number of public demonstrations, and finds no difficulty in getting college students—girls, young women, and young men alike—familiar enough with the bees so they are willing to take a frame of bees in their own hands. But the teacher himself must first take out the frame very carefully, and show them the importance of not pinching any bees when handling the comb. We have frequently passed frames of bees clear around an audience-room.—ED.]

The Spider Flower for Honey.

Can you tell me if the spider flower is a good honey-producing plant? We have what is called the spider flower. Some of our friends ordered the seed from some seedhouse, and the bees covered it over morning and night. There is a small drop of honey in the bloom. It grows about 3 ft. high, and springs out. It has from four to eight heads to the stalk. It blooms till frost. After it blooms the bees will not notice buckwheat where this plant is in bloom. Some of my neighbors say it is not good for bees. Would it pay to sow it for the bees? It grows almost anywhere around the place. Stock will not eat it.

New Boston, Texas. J. K. LARUE.

[You will find the spider flower mentioned in the old editions of the A B C of Bee Culture, and a brief mention of it in the new edition of the same work. It is indeed a very remarkable honey-plant; but there is not enough of it growing to make much of a showing in the supers. The nearest relative that we have to it to produce honey in any considerable quantity, or enough so that we can taste it in connection with alfalfa, is the Rocky Mountain bee-plant. It looks very much like it, and a good many might confuse the same plant for one and the same thing. The Rocky Mountain bee-plant grows in a higher altitude, while the spider flower grows in a lower altitude and in the Eastern States. But the distribution of it is so scattered that it does not amount to much commercially. It would not pay to sow it for the honey it yields. Aside from the honey and being an ornamental plant, it has no value.—ED.]

Long Cold Spring.

To-day I took a drive through the country, saw several bee-keepers, and am able to report the condition as it is here. It has been warmer for the last four days, but we have had a long cold spring—the the same conditions here as were reported by the Redlands correspondent in the last issue of GLEANINGS; and as nearly as I can find out, the loss of bees has been 15 per cent.

I came to California seven years ago, and was near Redondo Beach, where I had a few colonies. A year ago I came to San Diego Co. and bought a place with 90 colonies and 300 hives. The bees were run down, so it will take this season to get them in shape. I have also two more yards I am caring for on shares — one of 70 colonies, and the other of 120. All were in the same condition mine were. I shall have a fair crop in all three yards. The stronger are working in the second super.

A GOOD SHOWING FOR HONEY.

In my trip to-day I saw six bee-keepers, and their yards represent 1500 colonies. The best yard I saw was one of 100 colonies. All but three had three extracting-bodies on, of nine frames each. The owner works on the tiering-up plan. I have tried it with half of my bees ever since I came into this State, with good success.

Our nights are so cold the bees must have plenty of room. I want a ten-frame hive of standard size.

SWEET CLOVER, AND HOW TO TEACH STOCK TO EAT IT.

In regard to sweet clover, I have sown hundreds of pounds of it, and I never saw a horse nor a cow but would eat it after learning to like it.

I made a test in Michigan with 15 acres. I sowed it with Dutch white, alsike, red, sweet clover, and timothy seed; got a good catch of all; pastured it several years. The second year cows and horses would pick out the sweet clover and leave the other grasses to go to seed. Two families pastured their cows there and claimed the milk and butter better and richer than ever before. I had a small patch last year. I put a little in the feed, but neither cows nor horses would touch it; so I began by very small doses, and soon they learned to eat it readily.

Dr. Cook said, several years ago, "Nothing will eat it. I gave my cow and horse some and they would not touch it." That was no test, for I have found sweet clover is the farmer's best friend; and if he gives it a fair test he will find I am right.

De Luz, Cal., June 26. DAVID BERTSCH.

How Bees Ventilate the Hive and Evaporate Honey.

Please tell me how I can learn the different sounds of the bees and what they mean. What do they indicate when they stand about the entrance and fan with their wings, with their heads down against the bottom-board? I have looked at them, but do not find any thing wrong. They are working well, but have spells of doing as above. What causes them to make a roaring sound? They are not robbing nor fighting.

Billings, Mich. M. L. KENT.

[Usually, when bees stand on the alighting-board and make their wings go rapidly they are fanning at the entrance, so to speak — that is, they are creating a draft of air through the hive to aid in evaporating the honey. Sometimes the interior of the hive gets too hot, and the bees fan at the entrance in this way to cool it.

There are several causes for the bees roaring.

The most common, probably, is that they are then queenless. However, they are likely to roar sometimes if other conditions are not just right; but without further particulars we could not say just what caused the roaring you speak of.—ED.]

Honey-dew this Season.

Fruit-bloom was immense last spring. I had a good many sections filled from that and hard maple. Clover is all dried up, but we had a five-weeks' flow of honey-dew like the one we had two years ago, which gave me toward 2000 sections and about 50 gallons of extracted. The quality is much better than it was two years ago. The aphides were on the chestnut-trees this year. I am surprised that you do not say any thing about this in your report. It is hardly possible that they were only in this neck of the woods. Basswood lasted only about a week—too dry and hot to secrete nectar.

Trail, O., July 8. AMOS MILLER.

[There have been several reports lately of honey-dew again this year; but either the aphides are not in as great numbers as they were two years ago or else there is enough honey coming in at the same time from natural sources to keep the bees from bringing in the black rank stuff.—ED.]

No Eggs, and Hive Honey-bound.

On going through the hive from which our swarm came three weeks ago to-day we find no evidence of brood. We saw the queen, so we know that *that* is not the trouble. An old bee-man went through the hive for me, and is at a loss to know where the trouble lies. The bees are filling every portion of the frames with honey.

Westerville, O., July 1. LIZZIE J. MCCALMONT.

[It is our opinion that your hive is honey-bound. In other words, so large an amount of honey has been coming in within the last few days that the bees have used every available cell, crowding the queen out entirely. We sometimes see this condition; but as a general thing you will find here and there a few scattering eggs and young larvæ. After the honey-flow is over, you will probably find that the queen will begin to lay a few eggs, although, after the main flow, she sometimes lets up to such an extent that few or no eggs and very little brood will be found.—ED.]

Queen Lays Two to Five Eggs in a Cell.

Can you tell me why a queen lays more than one egg in a cell? I have a queen in a four-frame nucleus. She is three or four years old. She is laying from one to a dozen eggs in a cell. The most of the cells have more than one egg in them. I notice that there are from two to five bees hatched in a great many of the cells; but after they are three or four days old, all but one are removed. Do the bees remove all but one, or what does become of them? I have been using the brood to strengthen other colonies as fast as it was capped over. That leaves them weak in bees. Is it on account of the colony being weak in bees, or is she failing on account of her age? She looks strong and healthy.

Spring City, Pa., May 27. C. I. GRUBB.

[Usually when a queen lays more than one egg in a cell it indicates that she has not enough cell room for laying. However, in the case of the queen you mention it is possible that she is failing, as you say she is three or four years old. If the queen has plenty of room, and if there are bees enough to cover what brood she has, then we would certainly supersede her if we were in your place unless conditions are better.—ED.]

Removing Bees from a Chimney.

What plan can I take to get bees out of a chimney without tearing it down—also to save bees and honey?

Livingston, N. J. J. H. TERHUNE.

[In our judgment there is no way by which you can take the bees and honey out of the chimney without destroying the bees or doing some damage to the chimney. If the bees are passing into the chimney through a small opening on one side you can put a bee-escape on the outside, and in the course of a short time have the majority of the bees outside of the chimney. The bees may then be hived; but there will be the brood and the young bees inside the chimney yet. So, taking it all in all, we would imagine the chimney to be of more value than the bees. If you wish to destroy them, combs and all, build a hot fire in the stove or furnace, using some kerosene to ignite the soot in the chimney. In other words, "burn out" the chimney.—ED.]

The Capping-melter Advocated.

After a season's work with a capping-melter I have come to the conclusion that it is a contrivance that is indispensable to the producer of extracted honey, and I think the investment will be profitable for the extensive honey-producer, and also for the bee-keeper with only forty or fifty colonies. By using the melter we procure the last particle of honey from our cappings, which, by any other method, is difficult. There are no cappings in the way, or to bother with after the day's extracting is over.

When the cappings are standing around to drain, there is always a possibility that ants will find them.

My experience indicates that the capping-melter will be in general use as soon as the bee-keeping community is convinced that it is a necessity in a modern apiary.

It has been claimed that the honey will be discolored. This is true. The color is slightly affected when the melter has a sieve made of fine copper screen; but by using a coarser screen the trouble is nearly overcome.

Elmendorf, Texas. A. L. HARTL.

Boiling with Lye to Remove Propolis; does it Hurt the Bees?

We sometimes boil brood-frames, that have been used, in a strong solution of lye. This done, we give them to the bees when there is still some of the lye upon them mixed with propolis. Is there any danger that the bees may be injured by removing the lye and propolis? W. H. LITTLEJOHN.

Battle Creek, Mich., June 22.

[Dr. C. C. Miller, of Marengo, Ill., boils his wooden separators that are daubed with propolis in a strong solution of lye and hot water. He has never reported that there was any trouble to the bees from the use of such separators, and we do not see any reason why there should be to brood-frames so treated.—ED.]

What Becomes of the Old Queen when a Colony Supersedes.

A fellow bee-keeper and myself had an argument as to what becomes of the old queen when a colony supersedes her—whether she goes with the colony until she dies, or the bees kill her, or the young queen. D. D. S.

[You have put up to us a rather hard proposition. In fact, so far as we know no one can tell definitely whether the young queen destroys her own mother, whether the bees do it, or whether the old queen just dies of old age. As a general thing, it is our opinion that the old queen simply wears out and dies. But in case she does not, apparently the young queen or the bees take a hand in it, for it is very seldom that we find mother and daughter in the hive after the first of September in our Northern States. Just when the old queen disappears in the Southern States we are unable to say.—ED.]

Another who Prefers the Caucasians.

I am very glad to see you have at last said a good word for the Caucasian bee. With me they have proven better than the Italians. My best colony gave me nearly twice the honey last year that the Italians did, and they are now ahead again this year. I find them to be gentler than the Italians. I use very little smoke and never wear a veil, and seldom get a sting. The ones I have show yellow; otherwise I can hardly tell them from the common Carniolans.

The Caucasian and Carniolan bees did not swarm at all this spring with me; but the Italians had the swarming fever very bad. We had just about honey enough coming in from the middle of March to the 10th of May to keep brood-rearing going at full blast. I had one queen that kept 18 standard L. frames and 8 shallow-super frames full of brood until I cut her down to 10 L. frames with honey-board, yet that colony did not swarm.

Sabinal, Texas. W. C. EDWARDS.

A Beginner's Questions on Swarms.

I bought a colony of bees this spring; and after I located the hive the bees took a few days to find out where they were, and then went to work. They gave me no trouble at all. They did not go into the super to any extent, and have not done so yet. Last Monday, June 5, I noticed that some were hanging above the entrance, but thought they would not swarm until the super had been attended to; but when I came home in the evening there was a big cluster grouped about the post and rail of a wire fence in my garden. They had swarmed at 10 o'clock, alighted an hour later, and there stayed. I got out a hive, swept the swarm as best I could into a box, and dumped them at its entrance. Most of the bees went in, but many clustered in the box. Next morning I dumped the box again, but they got *under* the hive and stayed there until Friday. I then tacked a wire mesh over the entrance, turned the hive up, carried it to a new location (near the old one), swept the bees into a box, and dumped them again. This time I put the hive on a box so they could not go under the hive. They all went in—that is, those that had been under the hive before. For some reason, however, a part swarmed again and clustered on another post of the same kind. These I treated similarly. All appear to be in the hive now. I had much ado to gather these swarms, as the post and its rail were covered with vines. Both posts are about fifty feet from the hives, though there is a fruit-tree within ten feet of the hives, and there are other posts nearer than the one they arbitrarily selected. Luckily, the bees did not choose any spot in my neighbor's yard, where there are plenty of fruit-trees. I hope the queen is in the new hive. I notice that quite a number of bees are flying about those two posts.

Now let me put an inquiry or two:

1. When hiving a swarm, is it better to put the super on or leave it off? In other words, if it is on is there any danger of the queen's going into the section boxes? Would the workers build there as soon as on the brood-frames? Though I do not see it stated in so many words, I understand that, once on the brood-frames, the queen does not go into the super. Why?

2. Is it undesirable to lift the cover off the super at frequent intervals—say once a day? I would do so only to inspect, and ascertain whether the bees were at work. My supers have only foundation starters. Yesterday the hived swarm was thickly in the super; to-day, hardly at all.

3. Is it better to have the brood-frames with *full* sheets of foundation, or are the starters sufficient?

4. How long does it take an average swarm, under ordinary conditions, to build up brood-combs in a hive like mine—Danzenbaker, with foundation starters?

5. If the bees flying about those two posts do so because of the smell of the swarms that were there, is it your experience that putting coal oil there will drive them away? They do not go away for any smoke. They come right back.

6. What weight of foundation should I order for the section boxes—thin or extra thin? What do you regularly put into your Danzenbaker supers?

7. Is it best to put a frame or two of brood in a new hive when hiving a swarm? Is it necessary?

Berkeley, Cal. THEODORE GRAY.

[1. At times it is impossible to explain why bees swarm. They just swarm, and that is all. A good many bee-keepers have called swarming the bane of modern bee-keeping, and we do not know but that this is true. There is no question that it is harder to keep down swarming in the production of comb honey than in extracted-honey production; but much can be done toward providing a very large entrance, shading the hive, and, during the hottest part of the season, raising the brood-chamber from the bottom-board by half-inch blocks at each corner. This latter is not always necessary; but at times it does a great deal of good. We have an idea that, if you could shade this hive and provide extra ventilation in the manner stated, this swarming will be delayed or stopped altogether, as the bees certainly had enough room. If there was any amount of capped honey in the brood combs, however, it is likely that the bees would swarm any way. If the bees get into the habit of storing honey in the brood-comb they are very backward about entering the supers, and they want to swarm early, even though there is plenty of extra room in the super. The only remedy in this case is to see that the queen keeps the brood-comb well filled with brood up to the time that the honey-flow begins, so that there is little or no room at all for the storage of honey in the brood-comb. When hiving a swarm, if it is a good large one it is a good plan to put on the super at once, for the bees are excited, and they need lots of room; and if their quarters are cramped at all they will swarm out again immediately or within a day or two. A good queen will rarely lay eggs in sections, for the reason that it is against the nature of the queen to lay eggs in small combs that are separated from the rest of the comb. The queen knows by instinct that it would be difficult for the bees to keep those small separated patches of brood warm. Whenever queens do lay in sections, provided there is room enough in the brood-combs below, we advise superseding.

2. We do not know that it would be undesirable to lift frequently the cover of the super, although if the nights are cool you would constantly keep the propolis sealing broken so that there would be a draft through the super, causing the bees to go down to the brood-comb every night. If your nights are cool it would be all right to have some packing material at the top to keep out the draft. Then if you take off the cover frequently this objection would not hold.

3. Full sheets of foundation are usually cheaper in the end; for with only starters too much drone comb is likely to be built, and the rearing of a lot of useless drones would be the result.

4. We do not know that we can answer definitely as to the time that an average swarm takes to build up brood comb from foundation, for this would depend on the honey-flow, on the weather, and on the bees themselves. Under ideal conditions a good strong swarm ought to build comb from foundation in two or three days.

5. The bees kept flying about those two posts where the swarms were clustered because of the scent of the swarm and of the queen. We do not know that we have ever tried kerosene to destroy the scent in this way, but we think it would work. Carbolic acid would probably be better still.

6. We would recommend that you get the extra thin super foundation, as it leaves less midrib in the comb honey. The thicker foundation is often objected to.

7. Yes, it is a good plan to put a little brood in a new hive in which a swarm is placed, in order to keep the bees contented. If they are a little inclined to leave, the brood will make them contented, as they will not ordinarily desert it.—ED.]

Don't Hold the Smoker Too Close to the Bees.

On p. 303, May 15, are some pictures showing how to use a smoker. No one working for us would be permitted to do it that way. The hot smoke blown directly on the bees is cruel and unnecessary. The nozzle of the smoker should never be within a foot of the frames. The cool smoke will subdue the most vicious just as easily. Having worked with bees ever since 1849—except during the war—we feel competent to give the above advice. We have four apiaries, and, of course, have to do things systematically and rapidly during the hurry season.

G. F. MERRIAM.

Labor Troubles and the Honey-bee.

Dear little honey-bee, winging your way
To fields that are blossoming at dawn of day—
Come, let me question you—I hope to learn
Lessons in industry man should not spurn.

Labor men! railroad men! money kings! come
And bide a wee—listen to what should be done.
Dear little honey-bee, toiling all day,
Who pays your wages? when do you play?

When you stopped working, just yesterday noon,
Was it more wages or was it more room?
Ah, little honey-bee! self you forget;
The good of the hive is your benefit.

A sip would suffice you of all that you store;
And of multiplied millions man uses no more.
The wealth you have stored, hard labor has won;
Oh! would that be true of what man has done?

Who uses your treasure? you do not know;
Of gold man is saving, what more can he show?
Then, conning the lesson, to learn let us try
That giving is living—in self we must die.

Kibbie, Mich. EMILY H. JACKSON.

Our Homes

A. I. ROOT

Happy is the man that findeth wisdom, and the man that getteth understanding: for the merchandise of it is better than the merchandise of silver, and the gain thereof than fine gold. She is more precious than rubies; and all the things thou canst desire are not to be compared unto her.—PROV. 13, 14, 15.

Some of our older readers will doubtless remember about my finding the Grand Rapids lettuce seed and giving it a name about 25 years ago. I attended a bee-keepers' convention—I think it was at East Saginaw, Mich., and I was then full of my hobby, high-pressure gardening, and I gave at that convention a little talk on growing stuff. I had a good deal to say about lettuce, especially lettuce grown in greenhouses. Somebody suggested that, if I wanted to know what was going on in the world in the way of *growing lettuce under glass*, I should visit Eugene Davis, in the suburbs of Grand Rapids. I accordingly changed my route in going home so as to go through and stop off at Grand Rapids. In changing cars I got on to a train where there were but very few passengers. In fact, I was almost alone in the car. Just as we started off, however, one of the bee-keepers, whom I had become fairly well acquainted with, came into the car. Of course, I felt glad to know that I was not going to be entirely a stranger in a strange land. The new comer was George E. Hilton. I rose up, extended my hand, and told him how glad I was to meet somebody I knew; and when he informed me that he was to get off soon I apologized for coming immediately to what I had in mind. I said, "Friend Hilton, you are, I believe, a professing Christian."

I shall always remember the pleasant smile that came over his face as he replied something as follows:

"Mr. Root, the very moment my eyes fell on you as I entered this car I felt that I should be called on to answer that question. And now I want to tell you that I am *glad* you have spoken those words to me; yet it is true that I am not and never have been a member of any church." And then he went on to tell me about the little church near their home, and the earnest young minister who was becoming discouraged, he feared, because of a lack of support and encouragement from the business men of their little town. Before it was time for him to get off he yielded to my earnest pleading, and gave me his hand and his promise that he would go at once to the pastor of the little church and tell him that he had promised *me* to unite with the church—both himself and his wife, for he said he *knew* she would be glad to unite with him in so doing. In a few days, after I arrived home, he wrote me that they *had* united with the church, but before doing so he had persuaded his brother-in-law and wife also to unite with the church. A week or two later he informed me that he had been elected superintendent of their Sunday-school; later on that he, with the pastor's aid, had increased the membership of the church to quite a respectable number; and so it went on and on.* Dear friends, you who have had no experience in such matters can hardly understand the thrills that went through my soul when I was told of the *outcome* of my talk with friend Hilton during that short ride on the cars. Suppose I had yielded to the temptation to think that such matters would be out of place in traveling on a railway, or that folks would think me eccentric or fanatical, for I have just such temptations (as you have), and I am afraid I oftentimes yield to them.

What brings all this to mind just now is the sad news that comes to me this morning, July 14, that George E. Hilton is no more. He has gone to his reward, and has, no doubt, heard the Master say, "Well done, thou good and faithful servant; thou hast been faithful over a few things, I will make thee ruler over many things." The above favorite text of mine proved true in Mr. Hilton's life in this busy world. When he became superintendent of that Sunday-school, and worked so faithfully in building up that church, he won all of the Christian sentiment of the little town where he lived (it was a good deal in the backwoods of Michigan 25 years ago), and he gained likewise the esteem and respect of his fellowmen outside of the church. Who is there, friends, no matter what his belief, that would not reverence and respect the man who builds up the kingdom of God in his vicinity? Friend Hilton was soon chosen to important offices in his own town,† county, and State; and not long after his sudden start for righteousness he was sent as a Representative to Congress.‡ Ernest tells me that Mr. Hilton was one of the very first to start a rate of only two cents a mile on the railroads of Michigan; and after that State made that reduction, other States soon followed. So we can consider friend Hilton as one of the pioneer movers that brought about lower rates of travel. He has also been largely instrumental in getting better foul-brood laws, even though the bee-keepers of Michigan have recently been partly defeated in that work. In the language of scripture, "His works do follow him."

Friend Hilton visited Medina several times. I remember vividly his making a

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* It would seem that Friend Hilton's start in that little Michigan town was like the leaven which our Savior speaks of in his parable: "The kingdom of heaven is like unto leaven which a woman took and hid in three measures of meal till the whole was leavened."

† When a man's ways please the Lord, he maketh even his enemies to be at peace with him.—PROV. 16:7.

‡ He was, if I am correct, for many years postmaster.

stirring address to our large Sunday-school; and among other things he told of that incident of meeting your humble servant in the car on that eventful day. Please do not think when I refer to these "happy surprises" during my busy life that I wish to boast of what I have done. It was not *I*. It was *the Lord Jesus Christ* that took me, a poor stumbling and blundering sinner, and led me and pointed out the way for the work he has had for me to do. If you will put your hand in his, and say, "Here, Lord, am I, send me," he will use you in a like manner to bless and help humanity. In going back to a copy of GLEANINGS printed in December, 1887, I am reminded of the "baptism" I had received just an hour or two before I plead so earnestly with friend Hilton. Let me make an extract from Our Homes in that journal, page 951:

I was ready to start home; but for certain reasons I wished to purchase a ticket at first only to a neighboring city, and I asked the agent how much it was. He said $3.35. I gave him four paper dollars. The train was ready to start, and he hurriedly handed me a silver dollar, half a dollar, a dime, and a nickel. In my haste I came pretty near not counting it; but when I got the silver dollar in my fingers, and held it up, it occurred to me that I ought not to have a whole dollar back in change. In other words, he had made a blunder. Now, I am ashamed to say it; but I guess I had better acknowledge that self suggested putting all the change in my pocket, without telling him. I believe I have boasted several times that the "almighty dollar" never tempted me from the path of duty; but there I was, actually coveting that bright round silver dollar that I knew was not my own. I did not hold it in my fingers, I presume, a whole second, but in that second, self (or Satan) whispered, "You must have misunderstood him. He probably said $2.35." Then came the thought, "Why did he not give me back one of the paper dollars I gave him?" But self put in again, "There is not time to bother with it now, anyhow; besides, it is *his* business—not yours. You gave him the money, and he gave you back what you ought to have." Self seemed to get a little bolder here, and added, "Your expenses on this long trip will be larger, doubtless, rather than less than you had calculated; better hurry up, or you will lose the train." I can not tell even now, dear friends, why such thoughts should have come into my mind. It seems, as I think of it, that it was a remnant of that old life before I belonged to Christ Jesus. Then I used to have such temptations, and I used to yield to them, too, thinking, poor silly fellow! that I was adding to my stock of this world's goods. Why, it made me fairly tremble as I reflected of a professor of religion, and one who even presumes to point out the way for others, listening to such suggestions as the above. I do not know how long it took for me to recoil with my whole nature, and bid these evil thoughts be down and away, as I would speak to some ill mannered cur that, with muddy feet, might try to spring up and soil my clothes. I said, mentally, "Get thee behind me, Satan; do you suppose I am so silly as to think I could be happy with a dollar that is really not my own—a dollar for which I have rendered no equivalent? For shame!"

I believe it was Moody who once said that no man could be a Christian, with a single dollar in his pocket that belonged to somebody else; and I believe we should have better Christians if there were more who felt convinced of this. If this be so, you had better miss a hundred trains; nay, you had better lose even your life, than to go off coolly and deliberately with only a single dollar in your pocket that is not justly your own. "What shall it profit a man if he gain the whole world and lose his own soul?"

"My friend, I gave you only four dollars," said I. He looked at me, somewhat embarrassed; and as I showed him the change which he had given me back, he took the dollar and colored a little to think I had caught him, a ticket-agent, in such a blunder. I thought if he could forgive me, I could forgive him; and I took great pleasure in remarking to him that I did not want a dollar belonging to anybody else; and with a good-natured smile I suggested that "mistakes will happen," etc. He caught my eye, and his face brightened. The happy look that shone forth from my face seemed to have touched his spirit just right; and who knows but that the glimpse of sunlight went along with him as well as along with me? As I thought it over, it occurred to me that possibly God was trying me as he tried Abraham of old. Is it not possible that he is waiting and watching for men that he can trust? Who knows but that he has been saying, "I have a great deal of work for Mr. Root to do for me, and I want to be sure that he can resist temptation"? You know he said to Abraham, "For now I *know* that thou fearest God."

This trial, however, was but a preface to another.

It would seem that the dear Savior thought that the above test of my integrity was hardly sufficient, for I had another one on that same day. Read the following, a little further along after the above extract:

A few minutes more, and I was almost startled when the agent of one of the great union ticket-offices handed me *two* silver dollars more than I ought to have. I felt glad in my heart, however, to find there was not even the faintest trace of a desire to keep them. If Satan made just a little impression the other time, he didn't a bit here; and with it came the feeling, "This money *all* belongs to the Master, and not myself." So long as he supplies me with all I want and all I need, why should I covet any thing? Oh, the unsearchable riches of those who have their whole trust in the resources of Him who is Lord of all!

It was just after these two tests that I met Mr. Hilton, as mentioned above. And, by the way, let me call special attention to that statement by D. L. Moody, that "no man can be a Christian who is conscious of having a single dollar in his pocket that belongs to somebody else." Remember what David said: "Create in me a clean heart, O Lord, and renew a right spirit within me." And then he adds, a little further on, "*Then* shall I be able to teach transgressors thy way, and sinners shall be converted unto thee."

Neither I myself nor anybody else in this whole wide world can lead our friends into the unsearchable riches of a working Christian life until he has received that baptism of the Holy Spirit that comes from being honest, just, and fair, and cherishing love toward all our fellow-men. I do not know whose eyes are resting on these pages and taking in the words that I write; but remember, dear sister and brother, that, just as sure as you yield to the temptation to grasp and hold fast to the things of this world, beyond what is fairly and justly your due, just so far will you cut yourself off from the treasures laid up in heaven.

May the Lord be praised that such a man as our friend Hilton was permitted to live and bless, not only our circle of bee-keepers, but the whole United States. And now, dear friends, when the time comes for you to go, will the world be able to say consistently about *you* what I have been saying about our dear departed friend?

After the above was handed to the printers we received a kind letter from Bro. York, who paid him a brief visit a few hours before his death. From that letter I extract the following:

As I stood by the side of the bed he said: "*Oh! I have to die,*" in a faltering voice, and tears came to his eyes. I said: "Well, Bro. Hilton, we shall all have to go *some time*, and it probably won't be very long before many of your bee-keeping friends will be with you on the other shore." He said, "But I am not afraid to die. I would go to-night if necessary."

And so we talked together of the end that was so near to him, and of the future home. When we said a final good-by, of course we all felt it would be the last time we would meet on earth.

Mr. Hilton was a good man. He spoke tenderly of his wife and also his children. It was hard for him to leave them, for his life and hopes were bound up so much in his family. He spoke of the son, who was in the government employ in the far West, and of another son who had just graduated from high school, I believe. It seemed too bad that he had to be taken away from his family that he loved so much. But it must be all right, although we can not *understand why*. He was ready to go or to stay, whichever the call should be.

I thought perhaps you might like a little of the foregoing, as it was a personal experience that I had with him. He seemed appreciative of my meeting him at the boat when he arrived, also spending some time with him at the hospital, and then seeing him off the evening he left on his last journey to his home in Fremont. As the boat moved out from the shore it seemed just as if Mr. Hilton was "crossing the river" to that far-away city whence none ever return. There were profound impressions that came upon me as I thought of it in that way.

Money and every thing earthly all seem of very little importance when one comes to the end of life. Only a clean life and the resultant character avail when the time comes to answer God's call to come up higher.

Chicago, July 20. GEO. W. YORK.

"BY THEIR FRUITS YE SHALL KNOW THEM."

I suppose that most of our readers know more or less of the wonderful work done in our great cities by the evangelist who is better known as Billy Sunday. I confess I do not like to hear him called "Billy." It seems to me that "the Rev. Mr. Sunday" would sound very much better. And in the same line there has been considerable criticism in regard to his slang phrases when talking. But I have said, first and last, let him go on so long as his ministry, such as it is, is not only bearing fruit but good fruit. Quite a few ministers have criticised his methods. Some have said they would not want to invite him to their town; but at a recent Sunday-school conference a minister arose and remarked that he worked with Billy Sunday in a certain city two years ago; and so far as his converts not "holding out" was concerned he thought they had held out remarkably well, for many of them were going into other towns and neighborhoods, preaching the gospel in their own particular way. I suppose he meant, of course, it was laymen's preaching.

Here is a clipping from the *Plain Dealer*, giving some of the facts in regard to the recent work in Toledo; and God knows, if people generally do not, that Toledo, with its hundreds of saloons, has been for a long time a hotbed of wickedness and crime.

Evangelist Billy Sunday received $15,423.58 to-day from the citizens of Toledo as a reward for his six weeks' efforts to drive the devil out of Toledo.

This breaks all previous records established by Mr. Sunday, the largest amount he had ever received previous to his Toledo engagement being at Newcastle, Pa., where he received $13,200. A feature of the Toledo collection is that approximately $10,000 of the amount was given by people of ordinary means. The highest contribution was $1000 by Lamson Brothers. The next three highest were $500 gifts from the First National Bank, T. W. Warner, and $250 from Tiedtke Brothers.

The number of conversions reached approximately 7300, which also breaks all previous records. Sunday was so pleased with his Toledo offering, that, instead of closing to-night, he decided to preach one more sermon to-morrow.

Just think of it, friends—7300 converts! I wondered first if it was not a mistake of the printer. Now, another great revival evangelist, Rev. Mr. Bederwood, has been holding meetings recently in Akron, a pretty fair-sized city only twenty miles east of Medina. The result or outcome has attracted so much attention that I had one of my happy surprises when I found the following in a recent number of the *Sunday-school Times:*

WHY THE TOBACCO WENT.

The *Gospel Messenger*, of recent date, recorded this incident: At a recent evangelistic meeting in Akron, Ohio, a large package of tobacco was thrown on the platform just before the closing prayer was to be offered, and a voice in the large audience said, "I can't pray with that in my pocket." Not a word had been said about tobacco, but this was the signal to others, and before the meeting closed the platform had a goodly collection of tobacco, cigarettes, pipes, etc., willingly discarded by the owners. —*E. E. Lowry, M. D., New Madison, Ohio.*

There is a big moral to the above. Although not a word was said about tobacco, this new-born child coming into the kingdom of God recognized, without being told by anybody, that that package of tobacco on his person was a stumbling-block, and that it was inconsistent with his leading in prayer; and as an indorsement of his decision others followed. No wonder that the audience felt that that was *God's work* when more tobacco and cigarettes and pipes were contributed so as to make a "goodly collection." When an old friend of mine was once considering the matter of accepting the Lord Jesus Christ for his Savior and friend he almost startled me by saying, "Mr. Root, if I start out to be a Christian I have got to give up my tobacco." I replied, "Who said so, Fred?" He answered promptly, "I said so. A church-member has no business with tobacco." Now, I had not said a word to him in regard to tobacco and other filthy habits. It was *God's Holy Spirit* that took up its cleansing work with the acknowledged sinner in all of these cases. When the work of any revival results in conversions like these we may well stand back in awe, and recognize in it the hand of the Almighty. "By their fruits ye shall know them."

Considerable criticism has also come up in regard to the large amounts of money Billy Sunday has received. But my reply would be to this, that it has all been a voluntary and freewill contribution; and if Mr. Sunday uses it to help the helpless, instead of enriching himself, we can rejoice again. From the fact that he has refused tremendous salaries to work in some other way than evangelistic preaching, I am inclined to think he *will* make a good use of all the money tendered him.

HIGH-PRESSURE GARDENING

A. I. Root

"FROM PRODUCER TO CONSUMER;" A SHORT CUT.

Our good friend Philo made a great hit in getting everybody to grow chickens in the back yard, *because* it includes one of the shortest cuts possible from producer to consumer. Now, here is something else you can do in your back yard besides growing fresh eggs. Have a little garden. If you have not room to have a garden larger than your dining-room, have that kind of garden, and put a good big load of manure on it. Dig it up deep and work it into the soil. Before you put on the manure, however, get rid of all sticks, stones, and rubbish. Have the ground fine and loose. Now dig in the manure and work it down deep. Dig up the ground two feet deep if you can stand it. Then put in your seed and let the children help and become interested. For an illustration that comes home to us just now, new potatoes are worth *70 cts. a peck* at the groceries, or $2.80 a bushel, when they can be raised for *25 cts.* a bushel. When I was up in Michigan last, I told you the farmers were offered only 25 cts. a bushel. You may say that all soils are not suitable for growing potatoes. Well, I will tell you how to make them suitable. I knew it already, but I have just been reminded of it by visiting a neighbor's little garden. He is a man of about my age, but he gets enjoyment and profit out of his little garden. Well, last fall, after gardening was over, and just before freezing, he had the little garden spaded up in tall ridges. I think the tops of the ridges were about three feet apart, and the dirt was thrown up so it was almost three feet high from the bottom of the furrow to the top of the ridge. He evidently threw it up as high as it would stand, and this not only enabled the frost to pulverize every part of it, but these ridges were dry in the spring long before the level ground, and he put in potatoes, radishes, peas, and a great lot of hardy stuff in the latter part of March or fore part of April. As a consequence he had early potatoes of his own growing at exactly a time when they were 70 cts. a peck in the market, and there is plenty of time to grow more stuff, or a second crop on the same ground. It paid him big for all his time and trouble.

You may say that potatoes are not hardy. Down in our Florida home one of our neighbors planted a great lot of choice early potatoes. He is a bee-keeper from York State, and brought the seed from there. The folks who lived around there said it was too early, and that very likely the potatoes would get nipped by the frost. Yes, they did get nipped, and he and his wife were feeling blue to think they had lost all their potatoes; but, to their happy surprise, some favorable weather came right away afterward, and new shoots put up just below where the frost had done damage, and in just a few days nobody would know that the frost had ever touched them. They had all the table potatoes they could use, and sold some to the neighbors and to us; and I think they were about the nicest potatoes I ever tasted.

Now in regard to our little back-yard garden. If a frost comes, you can cover this up without much trouble, and it will be a great help to you to have two or three hot-bed sashes in which to sprout a few potatoes and grow vegetable-plants before you put them out in the open ground. You will have the very best of early vegetables. They will not be stale when you get them, and no middleman will have any thing to do with the profit. The *Rural New-Yorker* tells us that a farmer gets only about 35 or 40 cents of the dollar that his crops sell for. With this little back-yard garden he will have *100 cents* of the dollar for every thing grown, and have it fresh. By the way, do you know that green peas, green corn, and many other things are very much better if they are cooked just when they are picked? We have found this so true that Mrs. Root and I pick our green peas in the evening, when it is cool and shady, and cook them as soon as shelled, over a little 75-cent gasoline-stove. You know we do not have any suppers, so the cooked peas are just set away ready for breakfast. They can be quickly warmed up for breakfast, or kept over night in the fireless cooker, and then they will be already warm. Now, if you do not have such a little garden when this reaches you, you can start it right now, and grow a great lot of stuff (including early potatoes) before frost comes again.

POTATOES SHIPPED FROM FLORIDA TO ALASKA.

We clip the following from the Jacksonville, Fla., *Times-Union:*

> The Hastings potato-growers closed the most prosperous year they have known, Wednesday of last week. About 1200 cars were shipped from the entire section. Something of a sensation was created in the produce world by an order from a Seattle firm for three carloads of Hastings potatoes which they wanted to fill an order from Alaska—one extremity of the United States supplying another with this delicacy.

I am very glad to know that raising Irish potatoes for the early northern markets is getting to be a great industry in Florida. Growing potatoes in Florida to ship by the carload north is certainly a praiseworthy undertaking, providing, of course, the railroad companies will do their best to help their fellow-men by making the lowest possible rates of transportation. The great reason why we have peace and plenty, at least to a considerable extent, in every spot of our glorious country, is because of the tremendous strides that are being made in the way of transportation. When we get to sending potatoes by the Wright flying machines from Florida to Alaska I will give a write-up of the event—that is, if God permits me to live long enough.

PROFESSOR WILEY, UNITED STATES CHEMIST —SHALL HE BE DISMISSED?

The following is taken from the Cleveland *Plain Dealer*, headings and all:

WILEY WOULD BAR TOBACCO IN PUBLIC; PURE-FOOD EXPERT PREDICTS TWELVE YEARS WILL END PRESENT PRACTICE; THINKS DRINK-LADEN BREATH WILL ALSO BECOME OBSOLETE.

Dr. Harvey W. Wiley, the government pure-food and drug expert, who has spent the better part of his sixty years trying to induce people to eat clean food and use pure drugs, will spend a goodly portion of his remaining years in cleaning up the atmosphere of the United States.

The learned sachem of the Bureau of Chemistry to-day came out flat-footed against the practice of filling the air with tobacco smoke. He has joined the non-smokers of America, an organization whose object is to swat the smoker who insists upon blowing his smoke about the air promiscuously.*

He predicts that the next generation will look upon the man who smokes in public as a monster. A man may smoke in private to his heart's content, providing he blows his smoke up his own chimney; but smoking in public will be a thing of the past, according to the chemist, when his organization gets well under way.

"I predict that, within twelve years, smoking and tobacco chewing in public will have become obsolete," said Dr. Wiley to-day. "A man has a perfect right to drink, chew, or dip snuff in his private sanctorium, but he has not the shadow of a right to inflict unwholesome smoke and his vile breath on the community at large.

"There should be a strictly enforced law prohibiting smoking and chewing in public places or on the cars where other persons are obliged to be."

Dr. Wiley is not opposed to the use of tobacco in itself. He is in favor of allowing people to smoke, or even take a tablespoonful of mellow rye, providing no one is near to be offended.

As Prof. Wiley, right after this came out in the papers, was tentatively asked to send in his resignation, we are inclined to think his declaration in regard to tobacco has something to do with it. As we go to press, however, we gather that President Taft has reconsidered the matter, and that Wiley is going to stay with us. The Chicago *Inter Ocean* has a cartoon representing Prof. Wiley personating Don Quixote. The windmill that he is going to charge with his lance is the tobacco and cigarette business; and Lucy Page Gaston (that consecreated woman who has done more to banish cigarettes than perhaps any other person) is represented as cheering him on. May God help his people who love decency, good health, and righteousness, to teach the enemy that he has made a blunder; and that when the truth comes out we shall be able to say, "They that be for us are *more* than those that be against us."

THE WALL-PAPER "TRUST" OR COMBINATION, ETC.

On page 411, July 1, I spoke about selling articles on the five and ten cent counters at a very small profit—that is, making small margins on staple goods for household use. Ever since the five and ten cent stores were started there has been complaint about their "cutting prices" so that other people could not make the usual profit. Now, our good old Uncle Samuel has made a decision that any dealer shall be permitted to sell goods (that he owns) at whatever price he chooses. This law is what is called the Sherman act; and we are just now informed that a trust has been formed by the manufacturers of wall paper so the five and ten cent stores can no longer handle wall paper at cut prices. As there has been quite a little difficulty in enforcing this Sherman act, there is talk about not only a $5000 fine but a one-year imprisonment for the transgressors. Now, I hope I shall not be treading on the toes of any of my good friends when I take the ground that, in this "land of the free and the home of the brave," every person should be permitted to buy the things needed *wherever* he pleases; and not only that, he should also be permitted to *sell* whatever he grows, manufactures, or honestly purchases, without hindrance from any trust or combination, on the principle that friendly "competition *is* the life of trade." May God be praised for such a law as the Sherman act; and may all good people unite in upholding its just and righteous measures.

* Wiley is also guilty, so we are told, of telling the world that "Duffy's malt whisky" is not a *medicine* nor even *good* (?) whisky.

EIGHTY YEARS OLD, AND BEGINS TO FEEL YOUNG AGAIN.

Dear Bro. Root:—The 18th of last March I commenced my 80th year. I was 79. I have done lots of work this spring, spading up the garden and other things, and feel better able to do it than for many years. I have been following Terry's teaching, and am beginning to feel young again. Please renew my subscription to GLEANINGS, and send me a copy of Terry's book. I sent the copy I got of your company to my sister, and can't be without one.

Denver, Col. J. L. PEABODY.

I want to explain to our readers that, about twenty years ago, I made friend Peabody a brief visit. His health was so poor at that time that he could not stand being indoors, especially where there was a crowd of people. When he and I went in to talk to the inmates of one of the Denver prisons he remained only a few moments, and I found him, when I got through, out in the open air. I judge that he has been keeping out in the open air, and he tells us that he is following Terry. Spading up a garden at the age of eighty *is* pretty good for one who has been an invalid a great part of his life.

MRS. LIZZIE E. COTTON AND HER "CONTROLLABLE HIVE."

Those of our readers who were taking GLEANINGS 30 years ago (and I presume there are quite a number of them) will remember what a time we had in showing the truth regarding Mrs. Cotton and her hive. Letters from her victims came in from all sides, and other periodicals helped to show up the truth. I think that, in years past, it has cropped out, or started to crop out two or three times; but we supposed that the present stage of bee culture had made that same advertising unprofitable.

One of our subscribers, Mr. O. B. Griffin, of Caribou, Me., sends us the following:

Every family that has a spot of land can keep honey-bees and raise honey for family use or for market. One hundred dollars income from one

controllable hive of bees in one year. Lots of honey and lots of money keeping bees in controllable hives. No stings. No loss in winter or swarming time. Something new in bee management. For particulars write C. B. COTTON, Gorham, Maine.

Here is what he says about it:

Mr. Root:—The Maine *Farmer*, a good clean agricultural paper published in this State, is running the enclosed advertisement. I have protested, claiming the advertisement was misleading, and that to secure enough honey from one normal colony in one season (in this State) under normal conditions, to sell for $100, would be impossible, if sold at market prices. I would greatly appreciate the favor if you would write me your opinion regarding this.

Caribou, Maine. O. B. GRIFFIN.

Come to think of it, "$100 from a hive of bees" sounds a little familiar. In this case, however, it is *bees* and not chickens.

Health Notes

TUBERCULOSIS AND SOME OTHER THINGS.

In our neighboring city of Cleveland there has been held recently a convention of doctors, something like 500 being present. This number included not only the greatest experts of Ohio, but perhaps of the United States. There were two points brought out that greatly interested me. T. B. Terry, in his book, as you may know, makes the charge, and makes it pretty vehemently, that many of our family physicians are getting a bonus for sending patients to some specialist to have an operation performed. Of course, this is a branch of modern graft. For instance, some doctor who is more interested in a big fat fee than in curing his patients hunts up somebody who has a good bank account, and then when opportunity presents itself he persuades this man that an operation will have to be performed to save his life. Some of you know what an operation costs—two or three hundred dollars, and sometimes more, especially if the patient happens to be a millionaire and will stand "all the traffic will bear," as the railroad companies used to put it. Well, this doctor gets a percentage of the fee for hunting up patients. Now, while there is *some* of this kind of work going on, my impression is there is not much of it, especially among good Christian doctors who have stood the test for years. In regard to this matter, one of our prominent physicians in his address gave the following, clipped from the *Cleveland Plain Dealer:*

"I hold that the habit among certain physicians, of splitting fees on cases," says Dr. Skeel, "is nothing more nor less than bribery; and such a system ought to be wiped out forever. I refer to the custom of a regular doctor referring a case to a specialist, in consideration for which the regular physician gets a stipulated sum. The sale of patients to the highest bidder can never be condoned by a profession which stands first of all for service, and last for remuneration."

Besides the above, here is something in regard to tuberculosis:

A paper of interest to the laity as well as to the professional men was read by Dr. Charles S. Rockhill, of Cincinnati, on "The Prevention of Tuberculosis."

"Kissing spreads tuberculosis to a great extent," Dr. Rockhill said. "Look out for the servant girls in your homes that they do not become chummy with your children and caress them. Perhaps you do not know that, next to the laboring man, the servant girl represents the largest percentage of tuberculosis in America.

"There are more deaths from tuberculosis than all the contagious and infectious diseases put together. There are 100,000 cases of consumption in Cincinnati alone. That gives some idea of the extent to which this dread disease has spread in Ohio.

"I advocate the passage of a law that will prohibit the sale of liquor to tubercular patients. Many a tuberculosis germ is found on beer-glasses in the public saloons."

I am especially glad to hear that a council of doctors condemns the saloon; and, by the way, in all of our temperance talks I do not remember to have seen before a caution in regard to unsanitary beer-glasses. Now, if the doctors would only go a little further, and ask for a law that prohibits the sale of liquor to *anybody*, sick or well, we should think the millennium was near at hand.

CIGARETTES, CIGARS, ETC., AND THE PART THEY HAVE PLAYED IN RECENT CONFLAGRATIONS.

Our good friend A. T. Cook, of Hyde Park, N. Y., sends us the following clipping from the New York *World*, written, as you will see, by himself:

FIRE-SAFETY SUGGESTIONS: DOES IT PAY TO SMOKE?

With the tragic loss of 144 fair young lives in the recent factory fire, the Albany Capitol fire, the steamer Slocum fire a few years ago, where more than one thousand innocents met a most terrible death, and thousands more of losses, both great and small, all caused by smokers, one may well pause and consider if it really pays to smoke.

Besides fire losses and tragic deaths, the smoker greatly injures his own health, spends a vast sum of money that he could put to better use, and make himself obnoxious, and a nuisance to many of his best friends.

Hyde Park, N. Y., April 3. A. T. COOK.

There may be some sort of excuse for smoking pipes and cigars. In fact, a good many Christian men and prominent members of society are addicted to the habit; but there is certainly no excuse for cigarettes. Even the manufacturers themselves have never made any claim for them except that they enable the makers of them to make money. The man who smokes cigars usually has sense enough to be careful where he throws down his burning stubs. But the user of cigarettes sooner or later becomes too stupid either to know or care whether the act results in the death of innocent people (ofter women and children) or not. We are fighting down the liquor-traffic, and are we not about ready to demand, certainly all over the United States, that this traffic, especially where it permits the deadly things to get into the hands of children, be speedily brought to an end?

Gleanings in Bee Culture

Published by The A. I. Root Company, Medina, Ohio

H. H. Root, Assistant Editor | E. R. Root, Editor | A. L. Boyden, Advertising Manager
A. I. Root, Editor Home Department | J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX | AUGUST 15, 1911 | NO. 16

Editorial

Article by G. M. Doolittle on page 487, on how to keep comb honey, is seasonable and valuable. Don't fail to read it.

Mr. J. A. Hohnberg has been appointed State Inspector of Apiaries of Minnesota, with headquarters at 1241 Edgerton St., St. Paul.

THE NATIONAL CONVENTION.

Remember the National convention at the G. A. R. Hall, Court-house, Minneapolis, Minn., August 30 and 31. A full program for each day's session, with hotel accommodations and other features, is given in this issue in the advertising section, page 22. Gleanings will have one or more representatives at this convention—probably E. R. Root for one. While this has been a decidedly off year, there ought to be a large local attendance at least.

REPORT OF THE OHIO FOUL-BROOD INSPECTOR.

The Ohio Department of Agriculture has just sent out the first annual report of the chief foul-brood inspector. It contains 16 pages, showing what has already been accomplished in the way of eradication of the disease, the amount of territory in Ohio involved, and a full text of the law itself. In addition it gives a brief description of American and European foul brood. Those interested in Ohio can doubtless secure a copy by addressing the Ohio Department of Agriculture.

HONEY-CROP REPORTS.

The situation has not changed materially since our two last announcements. Reports continue to show that there will be a very light crop of clover and basswood—one of the lightest ever known. While there was a fair crop in California, the prices on honey all over the country should be firm. Whether they will advance or not will depend. Bee-keepers should not make the mistake, however, of waiting too long, for now is the time to get best prices. Write to the largest buyers, and accept the best figure you can get. If you wait, expecting better prices, you will be almost sure to be disappointed, as the best buying season will soon be over.

SACCHARIN BARRED FROM USE IN FOOD AFTER JANUARY 1, 1912.

In our last issue we spoke of the decision regarding saccharin being held up for a time. We have now received a circular from the United States Department of Agriculture, stating that saccharin will not be allowed in food after next January. 'Tis well; but we do not see why the authorities should have held up the decision, unless it was to allow the manufacturers who had a large amount of the saccharin in their food products to dispose of them to the people.

THE DEATH OF THE LAST SURVIVING CHILD OF THE REV. L. L. LANGSTROTH.

We regret to have to report the death of one of the members of Mr. Langstroth's family. The following letter will explain:

The A. I. Root Co.:—Thinking it will be of interest to the readers of Gleanings, I write to inform you of the death of my wife, the last surviving child of Rev. L. L. Langstroth. She passed away July 16 at 11 : 40 P.M., being 64 years and 4 days old.

Roxabell, O., July 23. John M. Jameson.

A few years ago we had considerable correspondence with Mrs. Anna Cowan, another daughter of Mr. Langstroth, but of late years we have missed her pleasant cheery letters. When she passed away we have not been advised. Mr. Langstroth left so deep and lasting an impression on the field of apiculture that we are always glad to get any news of any of the members of his family. Perhaps Mr. Jameson can give some information concerning Mrs. Cowan.

A NEW STYLE OF MAILING AND INTRODUCING CAGE; FOUL BROOD CARRIED IN QUEEN-CAGE CANDY.

One of the leading foul-brood inspectors of the country remarked to a member of our staff that he thought that foul brood was being scattered through the ordinary queen-mailing cages; that while, undoubtedly, some of the larger queen-breeders of the country were boiling the honey used in making queen-cage candy, there were some others that did not take that precaution.

Some stray reports have come in, tending to show that disease has been scattered in a few localities in this way. The responsibility, therefore, comes up to the manufacturer

of bee-supplies to make a cage that does not require the candy method of introducing. From present indications such a cage has been devised—one that will introduce a larger percentage of queens than could be secured from the candy method. The scheme provides for a flat wire-cloth push-into-the-comb cage that telescopes over an ordinary mailing-cage. The queen, on arrival, is released on to one of the combs. The wire-cloth introducing part of the cage is lifted off from the wooden part, and set down over the queen, released on a few cells of honey, sealed and unsealed brood. The cage is then pushed into the comb about ⅛ inch. In 24 to 36 hours the bees will tunnel under the strands of wire cloth projecting down into the comb, and release the queen without any action on the part of the apiarist. This plan of introducing is, of course, old; but the idea of having such a cage just large enough to telescope over a mailing-cage to save room is new. It was the late W. Z. Hutchinson who, if we are correct, guaranteed safe introduction in every case where this "push into the comb" cage scheme was used.

It involves the old principle of the Peet cage that was so successfully used over 25 years ago; but the Peet plan was much more awkward to apply than the one here outlined; and, besides, the construction of the cage was bad from the mailing point of view. Too many queens were lost in the mails. About that time the Benton cage was adopted by most of the queen-breeders; and the only feasible plan with such cage was the eat-out-candy method. But because disease is liable to be transmitted that way, GLEANINGS now proposes to go into a campaign urging the new way of introducing. This will not only eliminate the possibility of disease being carried in the mails, but insure a much larger percentage of safe introduction of queens.

Illustrations and a general description will be placed before our readers as early as possible.

CAPPING-MELTERS; WHEN AND HOW THEY DISCOLOR THE HONEY.

MR. R. BEUHNE, of Australia, a pioneer in the use of capping-melters, and the one who obtained the first patent in the United States on such machines, has in this issue, on page 489, the best article we have ever read. He says that while the cappings from *old* combs discolor the honey those from *new* combs do not when run through the capping-melter; that when cappings from *old* combs are allowed to drain cold, instead of being melted as they come off the knife, this discoloring matter adheres to the wax. If this is true (and Mr. Beuhne is an authority on the subject) it will be one serious objection to the capping-melter for the reason that most extracted-honey producers will use old combs because they have them, and because they will stand harder usage. New combs are objectionable unless they are well wired; and they will be rather expensive if one has to melt up old combs every three or four years, buy foundation, and wire it into frames, for your new combs can not be satisfactorily used unless wired.

It would appear that probably 90 per cent of the honey will drain from cold cappings, when allowed to stand. Assuming that the remnant of the honey would be discolored when the cappings are finally melted, this remnant would be so small in comparison with the entire crop of honey that it is a question whether it would not be money in the pocket to let the cappings drain in the good old-fashioned way, avoid the heat, and then melt them when as dry as they can be.

Mr. Beuhne, while admitting that the cappings from dark combs will discolor the honey slightly, if melted immediately, argues that this slightly darkened honey can be mixed with the entire crop, and not show much. For bottling purposes we doubt if there are many producers on this side of the globe who would be willing to mix their darker honey with the white and gilt-edged product that is perfection itself.

The more that we test out capping-melters the more we are convinced that Mr. Beuhne is absolutely right in every thing that he says. We do not, however, share his conclusions of the practicability of the machines for table honey. In the production of a fine article the old method of draining the cappings and then melting is the more practicable.

UNCLE SAM CHASING DOWN THE MANUFACTURERS OF BAD FOOD; NO GLUCOSED-HONEY ADULTERATIONS; OUR DEBT TO DR. WILEY.

UNCLE SAM is doing good work in chasing down those who adulterate and misbrand food and drug products. It is noteworthy that quantities and quantities of packages containing tomato catsups have been found bearing on the label "Benzoate of Soda;" but in every case where this preservative is used, millions of bacteria from the decayed fruit used were found, showing that the proprietors of these food products had been using half-rotten tomatoes, on the assumption that benzoate of soda would prevent further decay. In all cases, these catsups were highly flavored, we presume, for the purpose of covering up and disguising the otherwise uneatable stuff. What has been done with catsups has been done with canned half-rotten fruit. No small wonder that thousands of our people have been suffering from dyspepsia.

Among other things found to be adulterated was a large quantity of eggs, which, while not "adulterated," were spoiled, and, therefore, condemned. Sixty-nine per cent of the entire shipment was unfit for food. Except for Uncle Sam's interference the whole shipment would have gone into the stomachs of consumers.

Among other things condemned as adulterated or misbranded were frozen eggs, alfalfa hay, flour, peanuts, evaporated apples, coffee, vinegars, maple syrup, condensed milk, and a great variety of drugs, espe-

cially of headache remedies. It was found in the latter that many and most of them contained highly injurious drugs, and that all of them were misbranded in that the claim was made that they were "harmless" (?) and general cure-alls.

Of the several hundred instances of condemned food made public in the last few days, not one relates to adulteration of honey. This would indicate that bee-keepers to-day are not having to contend with the cheap glucosed honey as they did before Dr. Wiley got the national pure-food law enacted five years ago.

If hundreds of cases of adulteration and misbranding are found to-day under rigid pure-food laws, what must have been the number of bogus food preparations before our food laws were enacted? It is a wonder that the whole generation of us did not have to go to the hospitals, the madhouses, and premature graves, to say nothing of the far larger class who have escaped all three, yet have been "ailing" all their lives and wondering what was the matter.

Special thanks are due to Dr. Harvey W. Wiley, Chief of the Bureau of Chemistry, for bringing about a new order of things—a condition where adulteration and misbranding are rapidly disappearing because those concerned in the nefarious business are being arrested and fined. No man in the whole national government has done more to preserve the life and health of the American nation than Dr. Wiley, for it is he who set the ball rolling in the first place. If you haven't written the President, urging Dr. Wiley's retention in the Department where he has done such splendid work, *do so at once*. We believe Mr. Taft means to do the right thing in the matter, and it is up to *you* to let him know how you feel about the work of so useful a man.

WORKING FOR AN INCREASE; AN IMPROVEMENT IN FEEDERS; A SCHEME FOR SAVING SUGAR.

We have been conducting some experiments in building up nuclei into colonies. To that end we found that ordinary feeders give out the food too fast. Half a pint of syrup daily will start brood-rearing at almost any time of the year when the bees can fly; but, unfortunately, bees will take the half-pint out of the ordinary feeder in about an hour's time. So much food coming in *all at once*, then stopping short off, causes general excitement, making more or less of an uproar in the apiary. This unduly wears out the wings of the bees, makes them cross, and is liable to cause robbing, for the bees in the air will hunt high and low to find where this supply of food came from. This is a needless waste of energy and bee-life.

We believe that we have made the discovery (while not new it is new to most people) that our feeders as now constructed allow the food to be taken too fast; that means that the ordinary pepper-box feeder should have all the holes soldered up but one or two. Out of such a feeder it will take a good-sized nucleus all day to take half a pint of syrup. The supply of food comes in just fast enough to stimulate brood-rearing, and yet not fast enough to cause excitement.

It is well known that a very light *steady* honey-flow will cause brood-rearing to go on at a more rapid pace than a heavy intermittent flow. We have decided that, for stimulating, a feeder should be so regulated, if possible, that the bees will get a very small supply lasting during the entire 24 hours.

Our experiments are not complete yet; and, while we have not formed definite conclusions, we are simply giving our readers the benefit of our present impressions, so they can be trying it out for themselves. Many bee-keepers will find on their hands, this fall, colonies weak with no brood. Such bees, unless they have a fresh infusion of young brood during August and September, will not be able to survive the winter. If their owner, on the other hand, can give them half a pint of syrup so that it will take them 24 hours to get the half-pint, they will save their bees and get more brood. When a pint of syrup is given at a time, and the bees take it up inside of an hour, there is greater excitement; and when the supply of food is exhausted, brood-rearing has a tendency to come to a stand-still, for the reason, probably, that the bees fear to continue brood-rearing unless they have the prospect of a steady supply every hour in the day.

Those who have pepper-box feeders of any sort, or Boardman feeders with perforated bottoms, should have all the holes soldered up by a tinsmith except one or two. We find we can cut down to one or two holes. If one doesn't have either of the feeders mentioned, he can take an ordinary self-sealing tin fruit-can, punch a hole in the self-sealing top, no larger than would admit an ordinary pin.

If, by experiment, this hole is not big enough to let out the syrup fast enough, punch another hole and fill the can with syrup made by mixing sugar and water in equal parts by measure or weight. Invert the can over a colony of bees and then note the results. If you don't find that you get more brood for a given amount of syrup, we shall be surprised. In other words, this manner of stimulating should save a considerable amount of sugar.

Later.—Later experiments with the one-hole pepper-box feeder tend to show that the principles of slow feeding, set forth above, are correct and sound. Slow *continuous* feeding by which it will take the colony the whole *24 hours* to take up a pint of syrup, will produce more brood for the syrup used than if the same amount is taken out of the feeder in an *hour's* time. The one-hole feeder does not excite the bees in the least. Those whose colonies are not strong enough to go into winter, and who desire to save as much as possible in the cost of sugar, will do well to try the one-hole feeder.

Stray Straws

FRANZ RICHTER uses tomato-leaves to drive ants away from hives —*Bienen-Vater*, 140.

A STRAW, p. 450, says R. La Cense keeps the queen out of the super with an excluder. It should be "without an excluder."

THE LONG DROUTH has left the hives lighter than in the spring; but this morning, Aug. 1, we've had a soaker, and the world is turning green again.

DARK HONEY, says Jul. Frei, is richer in iron, lime, and phosphorus than light, and therefore more valuable from a medical viewpoint.—*Schweiz. Bztg.*, 285.

THEODORE GRAY, p. 474, if you use no excluder, better not put a section-super on a swarm for two or three days, especially if a previous start has been made in the super.

WILLIAM BEUCUS, you say, page 457, the queen's laying is unrestricted in spring, and restricted in the harvest. Is she not usually restricted in spring to three or four combs for want of bees to cover more?

M. WATHELET says, in *Le Rucher Belge*, that when he has cleaned and dried his extractor he coats with wax any rusty places, first heating them with an alcohol-lamp. Of course, the extractor must not afterward be cleaned with hot water.

W. H. LITTLEJOHN, p. 473, I've used lots of brood-frames that were boiled in lye, and no harm resulted. I've also boiled separators, but prefer to scrape them. I have a fine tool for scraping them. I wish the inventor would send me his name.

J. E. CRANE, that's a joke on me, sure enough, to make honey taste better with a pound of butter, p. 354. Of course it should be "make butter taste better." It's that villain, W. P. R., who is expected to make sense of any old thing I send in.

E. F. ATWATER is just right, *Review*, 176, when he thinks factory-made slatted excluders are too fragile. He wants the wood part ⅛ inch thicker. He may be right, too, that fewer zinc strips would be just as well. [How many others will endorse the statement of Mr. Atwater and Dr. Miller? If the wood-zinc honey-boards are not strong enough, the supply-manufacturer ought to know it. —ED.]

DR. KRAMER says, *Schweiz. Bztg.*, 275, if you put prepared queen-cells adjoining unsealed brood they will be fed, and adjoining sealed brood they will be emptied, because in the former place the nurses abound in food, while in the latter they are doing no feeding. If only sealed brood is in the hive, then put the cells where young bees are hatching, as these are fed by the older bees. [Dr. Kramer is right to a great extent.—ED.]

DR. E. F. PHILLIPS sends the cheering intelligence that American foul brood is in my county (McHenry). Now, what did I ever do to Dr. Phillips that he should want me to have all varieties of foul brood at the same time? [Say, doctor, if American foul brood gets into your apiary, I think you could practice the Baldridge treatment to advantage. You remember it contemplates the plan of putting bees in a clean hive on clean frames of foundation. All the good brood in the old combs is allowed to hatch, when the combs are melted up or destroyed. —ED.]

"IF A COLONY can be held back from swarming until they get nicely at work in the supers, the chances are they will not swarm at all," p. 447. How I wish it would work that way here! The rule is that no cells are started till after work begins in supers. [Possibly we put it a little strong; but, doctor, haven't you gone clear to the other extreme? Is it not true that, in a backward season, or in the case of a colony not overpowerful, the bees, especially the Italians, will sulk, and build cells before they go into the supers? A very light honey-flow will start swarming when it will not force bees into the super. A heavy honey-flow will force bees into the super and check swarming; therefore, when bees are working in the supers they are less inclined to swarm. Perhaps this is more marked in the Southern States than in the North. In our travels over the country, large honey-producers tell us generally that a light honey-flow starts swarming when a heavy one will check it, and generally (in the South, at least) stop it altogether. This is particularly so in Texas. Now, then, if bees are working nicely in supers, does it not imply a good honey-flow and little inclination to swarm?—ED.]

WHEN ROBBERS attack a colony, if the hive be removed the robbers pitch upon the nearest colony. So I have practiced leaving in its place a hive with a comb containing a little honey. The robbers clean out a little honey and then leave. I now find it is still better to have the hive entirely empty, only so it looks outside like the old hive. Just as effective, with less delay. [A far better plan, in our judgment, is to put a robber-trap hive in place of the hive robbed, and cage all the robbers, holding them in the trap for a couple of days, feeding them in the meantime, and finally dumping them in front of a hive in an outyard that needs a few more bees. The queen in the hive had better be caged for twenty-four hours.

In our experience, especially in the queen-rearing yards, it isn't wise to let robbers go back home. They should be caught and then transported to another apiary where the conditions are entirely different. Rather than let them loose to torment apiarists and nuclei, we would kill them. But some reader who is following these lines may ask, "What is a robber-trap?" It is a hive with a bee-escape over the entrance, so placed that the robbers will rush into the hive but can not get out again.—ED.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

HOW BEES SOMETIMES RECONSTRUCT WORKER INTO DRONE COMB.

On page 355 Dr. Miller refers to an item from my pen about old combs of worker cells being worked over into drone comb because worthless for breeding, because filled with pollen, etc. Well, doctor, I think if that sentence was printed as written I can take the cake for writing the clumsiest sentence of any one in GLEANINGS, and saying just the thing I didn't mean. What I intended to say, and the idea I meant to convey, was that sometimes old combs contain hardened pollen; and to get rid of the pollen the bees will tear down the cell walls; and after the pollen is removed they will, in rebuilding, build drone cells instead of worker cells. But, honest, doctor, haven't you ever found where, when there was no drone comb in a hive, the bees would tear down a piece of one side of a worker comb and rebuild drone-cells? I supposed everybody had seen it done. I have always been troubled with more drone comb than I cared for. When comb foundation had proved a success I said to myself, "Now I'll fix the bees so they can't build drone comb. I will just fill ths brood-chamber with worker comb and they will have to rear workers instead of worthless drones;" and I told them so in as many words, and it worked very well the first year; but when the snows of another winter had melted, and the time of romance had come to the insect world, they said among themselves, "It's a shame not to have a wedding or two in the family." "But how can there be a wedding without drones?" And some one wiser than the rest (perhaps it was the queen) replied, "Why not tear down some worker-cells and build some drone-cells instead?" And so to work they went, tearing down a patch on one side of a worker comb as large as the palm of my hand, and rebuilt with drone-cells; and as they worked they talked it over. I don't quite know what they said, there was so much buzzing; but I think they inquired one of another who was such a fool as to think bees could get along without a little drone comb.

THE PROS AND CONS OF CORRUGATED-PAPER CASES.

Mr. Foster asks me several questions on page 323 in regard to corrugated-paper cases, which I will try to answer. First, he asks if corrugated cases will carry honey as safely when shipped uncrated as double-tier cases when crated. That is a rather hard question to answer, as we have never used double-tier cases; but from our experience in shipping paper cases in small lots I should expect there would be but little difference.

Another objection Mr. Foster raises is that "the partitions makes it difficult to remove the sections of honey." It is not so difficult as you imagine, my good friend. As the partitions come above the sections it is both simple and easy to remove one or two partitions, when the sections of honey can be removed even easier than when packed solid as in wooden cases. "What are the advantages of the corrugated case where honey is not shipped other than in car lots?" In other words, of what use is it to pack in paper cases when you ship in car lots, and feel reasonably sure it will go through safely?" Well, I used to feel much that way; but the efforts to sell honey direct to retail dealers opened my eyes. We are apt to think if we can only ship our honey in a block or car lot to the large city dealer, that is all there is to it—it is his business to look after it then. It is out of our sight and out of mind; but we fail to remember that the large city dealer does not sell by the carload, but has to sell, in small lots, from one to a dozen or more cases to small retail dealers; and the carloads must sooner or later be broken up into small lots and reshipped in every direction, and very often gets pretty rough treatment. Now, these small shipments, if the honey is in wooden cases, must be crated, or run a great chance of getting broken, while the corrugated cases can be shipped with little danger of breakage, although uncrated. It costs in the large cities from a quarter to half a cent a pound to crate honey; and then the freight or express is more because of the additional weight. You remember what Mr. Byer told us some time back in GLEANINGS, that a dealer in Toronto told him he could ship these cases to the Provinces of Manitoba, Saskatchewan, and Alberta without breakage.

A Farewell to W. Z. Hutchinson.

BY DR. FREDERICK D. WEBLEY.

Is he gone—the good, the brave?
Surely him we can not spare;
Unto us his all he gave—
Gifts of mind and judgment rare.

One by one they pass away,
Masters of the honeyed art;
Who shall take their place that day
When we see the last depart?

Dauntless-hearted pioneers!
We inherit now the good
That they gave through all the years
For the cause of brotherhood.

It was they who led the way
Where elysian fields are found,
So they came at break of day
To the Happy Hunting-ground.

Honor to the early few,
Leaders of our gentle art;
Glad we give them honor due
And the tribute of the heart.

Those who love their fellow-man,
Serving with unselfish heart,
Serve God's providential plan—
Loving, choose the better part.

Santa Cruz, Cal.

Bee-keeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas

RIPENING HONEY ON THE HIVES.

For more than ten years we have followed the practice of leaving our honey on the hives until after the honey-flow. This insures a product that can not be obtained by any other method—a thick, heavy-bodied, well-ripened article that has a velvety taste and an excellent flavor, very much unlike the most of the honey on the market. It gives a honey that will be bought by any customer who may happen to get a taste of it if he likes good honey. "It is thick and ripe enough to chew," if left on the hives long enough; and the aroma that goes with such honey is lacking in that which is taken off earlier in the season.

Aside from the question of the quality of honey obtained by this practice we make use of it for another reason. This is a very important one with the bee-keeper managing large numbers of colonies in many apiaries. By tiering up during the honey-flows, and giving his entire time toward securing the most honey at that time, leaving the removal of the crop until the flows are over, an extra advantage is gained. The attention given to the bees during the flows insures for him a larger crop, and he can not afford the time to take off honey during this period. After the flow is over, there is nothing else to worry him, and his time is not worth nearly as much, so that he can make it more valuable by devoting it entirely to the harvesting of a crop of a superior grade of honey.

WHEN CHICKENS ARE A NUISANCE.

During one of our best honey-flows recently we were very much provoked by a number of our young chickens which disturbed the bees to such an extent that the loss to the colonies which were storing was considerable. We were very proud of our young stock of a little more than a hundred pure-bred chickens; but to find them each morning having a feast of the heavily laden bees as they were dropping in front of the hives on their return from the fields caused a great deal of vexation. It was impossible to pen the chickens off; and to move the bees during the height of the honey-flow, and that during the most severely hot weather of the summer, was equally out of the question. The only remedy left was to "shoo" the chickens every time they were found feasting on bees.

The way the chickens persisted in eating them in spite of the constant chasings showed that bees must have been appetizing food for them. The alertness with which the bees were picked up and pecked to pieces before being devoured was very interesting indeed, and it was seldom that a chicken was stung. The few cases in which they were stung did not seem to have any effect on discouraging their feasting. This was noted especially in the case of one of the young Rhode Island Reds which was stung twice during four days, but which was the most persistent little chap in the game.

Just how serious the damage might have been can be estimated, perhaps, if we consider that as many as twenty or thirty of the young birds were busy catching bees at a time; and upon several occasions, when they were watched for the purpose, it was found that a dozen bees seemed not to appease the appetite of a single bird. They were not catching drones either, as might be supposed at first thought, because there were none present, the swarming season having been over a long time. This has proven to us a thing we did not know before—that bee culture and poultry-keeping go well together; but that sometimes, at least, they must be carried on in separate yards. That is why we shall move the bees out of the poultry-yards as soon as the honey season is over,

DO BEES AND POULTRY PAY?

This is a question that has been asked us several times, and time and again we have answered that it does if it is followed in the right manner. We have made bee-keeping pay for nearly twenty years, and have made it pay well. We have always believed strictly in specialty in one certain line of work, and we still believe in it; but at the same time we are following the advice of some who claim that a busy man should have some side issue or "hobby" on which to spend his spare time, and thus sometimes get his thoughts off his main business.

Thus it is that we have mixed in the poultry business as a "hobby," with our extensive bee business, and we do not regret it either, since we have been very successful with the new venture. This matter was mentioned by us some time in the early spring; but at that time we had not had time to make any success out of the poultry business. However, we have found that the fun or even the work given to the chickens early in the morning, which is about the first thing we do, as well as in the late evening, after the bee work for the day is over, brings with it a certain amount of profitable pleasure that is not to be had without the "hobby."

Besides this the dollars-and-cents point of the poultry business is quite satisfactory, especially if it "pans out" pretty well. Aside from the large number of egg settings at a good price, there were sold a great many dozens of table eggs. Then more than a hundred young chickens were raised that are worth something since all our poultry are pure-bred White and Barred Plymouth Rocks and Rhode Island Reds. These will bring a good price for breeding stock.

Conversations with Doolittle

At Borodino, New York

HOW TO KEEP COMB HONEY.

"I have nearly a thousand pounds of honey which I took from the hives in June and early July, and it seems to be sweating, and some of the sections at the bottom of the pile smell almost sour. Is there a difference in the keeping qualities of comb honey?"

"Did you pile the honey directly on the floor?"

"Yes."

"I inferred this from your saying that the sections at the bottom of the pile were souring. When honey is stored on the floor the air can not go under the bottom of the pile, and, through lack of proper circulation of air, it often becomes watery near the floor and at the bottom-back side of the pile in even a well-ventilated room. Some kind of open-work platform should be fixed on which to pile the honey, so that there will be a current of air going up through it, and all about under the bottom of the pile. When I first commenced keeping bees I stored my comb honey in a room on the north side of the house, and piled it directly on the floor, as the most of those having bees about me at that time stored their honey in the cellar. But when I came to crate the honey for market I found that that which had been next to the wall and on the floor was very watery. Some of this honey had soured, and was bursting from the cappings of the cells, while that in other parts of the room away from the wall was in fairly good shape. The next year found me with a temporary platform fixed of slats, spread apart enough so that the edges of the sections would just catch on them, the platform being raised about sixteen inches from the floor. When another tier of sections was to go on top, strips of lath were placed between, and so on clear to the top of the pile, and in this way the air could circulate all around the sections. This method has proven a perfect success for nearly forty years."

"Do you still store your honey in that same room on the north side of the house?"

"No. Honey will not keep well in any cold room, for it will draw moisture rapidly every time it becomes much cooler than the surrounding air, and it always will be every time the room is warmed up by the temperature of the outside air. The pile of honey being slower in changing than the air in the room, it will sweat at all such times, and thus moisture is absorbed to the detriment of the honey, the bee-keeper, and the consumer. If such a room can be ventilated it will help much; but ventilation, unless coupled with warmth, will not keep honey to perfection.

"Again, I have found that a high temperature in a room is of little value if said room is so tight and close that no draft of air can carry off the moisture which evaporates from the honey; and the larger the pile of honey stored in any room, the greater should be the ventilation.

"An upper room right under that part of the roof which pitches toward the south is preferred by many of the New York apiarists, for the reason that the sun heats it up nearly every day, and there are enough cracks and crevices about the eaves, under the rafters, and out-of-the-way places to give just the right sort of ventilation required for the most perfect keeping of honey. But without an elevator, the storing of honey in such an upper room is no small task. Where such a room can be had, even honey that has begun to sweat can be restored to fairly good condition; but honey which has been kept in a poor room until it has begun to sour can hardly be made salable again."

"Do you take off many sections not fully capped over? I have the worst trouble with these where the cells are not sealed."

"Taking off sections not fully sealed should never be done, unless it may be those nine-tenths sealed at the close of the white-honey harvest, so that the dark honey shall not be mixed with the white, or at the end of the season in the fall, when, of course, we are compelled to take off all sections. Fully capped honey is not as likely to become watery and sour as is that which is unsealed; and as unsealed honey in any part of the sections makes such a section more or less unsalable, it is always best, if possible, to leave all sections on the hive until they are fully sealed. In no case should these partly filled sections be mixed in the cases with well-sealed honey when sending to market, for the one buying the honey by the case would become disgusted. Then, such a course will result in your whole crop bringing a less figure; for in finding unsealed honey in the middle of a case faced up with fully sealed combs, the one receiving it will not take the pains to procure a good price which otherwise would be done. Where you have such honey, and it is good enough for market, crate these partly sealed sections by themselves, and in this way you will get its full value without detracting from the sale of your fancy article. These little matters make all the difference between success and failure in our pursuit."

The Powell Gravity Strainer.

Mr. Powell's gravity strainer, as illustrated on p. 327, June 1, seems to be just the thing. But what need is there of the honey-tank? Why not draw the honey from the gravity tank's pipe at once into the five-gallon cans?

St. Louis, Mo., June 8. F. C. AMEISS.

[We do not know that there is any particular advantage in the honey-tank in connection with the Powell honey-strainer, except that the use of such a tank would render the filling of the five-gallon cans more convenient. If there were no tank one person would have to keep almost constant watch, for the capacity of the strainer is not very great, and the honey could not be shut off very long without overflowing the strainer-tank.—ED.]

General Correspondence

PURITY TESTS FOR BEESWAX.

1.—Chemical Tests.

BY WM. P. MUNGER.

There have been a number of different methods suggested for determining the purity of beeswax, but most of these plans have been either too complicated for the average person or so unreliable as to be practically worthless. We believe that this article and the one that will follow it in the next issue may be relied upon absolutely, as the writer is chief chemist with the Stromberg-Carlson Telephone Company, which fact alone renders further credentials unnecessary.—ED.

A majority of beeswax-producers and middlemen probably do not intentionally practice adulteration; yet as adulterations are constantly found, there must be some producers and middlemen who do adulterate beeswax. Considering the ease with which foreign materials may be incorporated with beeswax, and the impossibility of detecting many of these by inspection, it strengthens one's faith in his fellow-man to know that there are so few who practice adulteration, and so many who are able to withstand temptation. When adulteration is practiced, the extent of adulteration is apparently limited only by the skill of the operator and the amount and kind of materials available. Indeed, the range extends from water, dirt, starch or flour, and rock dust, added by the dishonest producers, to the precise mixtures of fatty matters, resins, and waxes compounded by large dealers. These compounds may be at first sold under their true names; but in passing through several hands they become gradually changed, so that the compound is beeswax (in label) when it finally reaches the retailer or consumer. It is this uncertainty as to purity that makes it necessary for even the small or occasional purchaser to be familiar with the simple and rapid methods for detecting gross adulterations. If adulteration is indicated by the chemical tests, it is not advisable to accept the consignment until a chemist can report on a sample.

For a person not having the advantage of a well-equipped laboratory and much experience, the best way of testing the purity of a substance is to make a comparative test. This is made by taking the sample and a sample of known purity, subjecting them to the same influences at the same time, and noting the difference in results, if any. In detecting adulterants by the following methods, such comparative tests should always be made until the operator has gained considerable experience.

The first step in testing wax is to eliminate all insoluble substances, whether they be unintentional impurities or such adulterations as starch, meal, sand-clay, yellow ocher, sulphur, gypsum, or heavy spar. When a portion of the sample is melted in a dish of water, the wax will rise to the top and most of the insoluble impurities will either settle to the bottom or diffuse through the water. As the wax may hold some of the impurities in mechanical suspension, the only sure way of detecting this class of adulterants is to drop a few thin shavings from the sample into a glass or test tube half full of cold chloroform or warm turpentine. The beeswax will completely dissolve in a short time, leaving any insoluble adulterants in suspension or on the bottom. Some samples of beeswax of known purity, owing to previous atmospheric exposure, will show imperfect solution when held between the observer and the light and shaken gently. Such seemingly imperfect solution is not to be taken as evidence of intentional adulteration. If bleached wax is being tested, it must be remembered that chloroform will dissolve only 25 per cent of the sample.

The second class of adulterations comprises fatty matters, such as sterine, stearic acid, tallow beef, suet, japan wax; resins as colophony (rosin), galipot, and burgundy pitch. Any adulterant of this group may be detected by boiling, for half an hour, one part by weight of wax with 35 parts by weight of sodium-hydroxide solution (this solution is made by dissolving one part of sodium-hydroxide sticks in seven parts of water, letting the fluid cool, and filtering through paper each portion as used). When the boiling is concluded and the solution has cooled to the temperature of the room, the wax should all separate, and the underlying liquid should not be opaque. The color of the underlying liquid will vary from colorless to a bright yellow; but deep color is not to be taken as positive evidence of adulteration or the presence of dye stuffs. When, to a portion of the underlying liquid, a few drops of hydrochloric acid are added, the liquid should not become turbid.

The third class of adulterants consists of soaps. This class can be easily detected by boiling the sample of wax in distilled water (for ordinary water contains sufficient mineral matter to affect the results) for an hour, and then, when the liquid has become cool, adding a few drops of hydrochloric acid. If the underlying liquid becomes cloudy or opaque, the presence of soap is indicated.

The fourth class of adulterants consists of mineral waxes such as paraffine, ozokerite, etc. The detection of this class depends upon the fact that moderately concentrated sulphuric acid does nor decompose paraffine like bodies when boiled for a short time with the sample, while other waxes and fatty acids would be decomposed by such treatment.

The test is performed by heating five parts by weight of beeswax with twenty-five parts by weight of sulphuric acid for fifteen minutes at 320° F. (160° C.). If, when the mixture has been cooled and cautiously diluted with water, no waxlike body separates, paraffine is absent.

If the wax has been bleached, then the

sample should be tested for the presence of injurious substances, which may have been formed during or remain from the bleaching. To cover most of the processes in ordinary use, it is necessary to test for the following substances: Charcoal, permanganates, dichromates, sulphates, dioxygen, free fatty acids, free alkalies. Charcoal would be detected in the test with turpentine or chloroform previously given.

Permanganates, dichromates, and sulphates would be extracted by the boiling water as given in the test for soaps. The permanganates and chromic compounds will give color to the water, the depth of color being proportional to the amount of compound present. Excessive amounts can be detected by making a comparative test with wax which has been carefully bleached, and noting the comparative depth of color. The sulphates can be detected by adding a few drops of barium chloride to a portion of the extract. A milky coloration indicates the presence of sulphates.

As dioxygen will be decomposed and volatilized by heat, it is not necessary to test for it.

The test for free fatty acids has already been given.

Free alkalies may be detected by dropping a piece of red litmus paper in the watery extract. If the paper turns blue, then free alkalies are indicated.

In addition to the above, there are many other excellent chemical methods which will detect one or more foreign matters in beeswax. As the operator must have considerable equipment and experience before he can be sure of accurate results, the methods are not of general interest, and are, therefore, here omitted. In the succeeding article a method will be given of detecting the presence of ordinary adulterants in beeswax by a simple physical test.

Rochester, N. Y.

CAPPING-MELTERS.

Some Causes of Unsatisfactory Results.

BY F. R. BEUHNE.

In GLEANINGS for Jan. 15, page 30, the editor mentions a number of drawbacks in the use of capping-melters. As I have probably had as much to do with melters or "reducers," as we call them in Australia, as any honey-producer, I should like to give my opinion in reply to the various complaints referred to by the editor and by Mr. W. A. Chrysler.

First, the editor says: "A capping-melter needs constant attention." The "reducer" I use (one at each apiary) requires less attention than any uncapping-tank, can, or box that I have ever come across. If packed on the outside to save fuel, if properly set up with a stove of the right kind underneath, and if protected from draft by a fireproof compartment, it is altogether automatic.

Next is the complaint of heat. This shows that a considerable amount of heat is lost from the apparatus because it is not covered on the outside; and from the stove, because it is not enclosed. This heat is not only wasted, but is a trial to the operator. When both apparatus and stove are properly insulated there is no more heat than there is when honey-knives are heated in a vessel over a lamp.

Third, there is complaint of the quality of the honey being injured. Now, honey may be injured in a melter by being overheated, by being too long in contact with hot metal, or with hot wax and slumgum. Keeping the honey running from the melter continuously, and separating it at once from wax and refuse will obviate overheating, and will prevent the waxy taste so noticeable when honey remains in contact with hot wax for a time.

Then there is the darkening of honey. This is considered by many as a result of the heating, when, as a matter of fact, it is due to the coloring matter from dark combs. This coloring matter is very soluble in hot water; and when old combs are uncapped with a wet knife there is more discoloration than when a dry knife is used. The cappings of new combs do not discolor the honey from the reducer; but when cappings of old combs are allowed to drain, instead of being melted as they come off the knife this coloring matter adheres to the wax; but, sooner or later, the cappings are melted, and it is then found in the honey, no matter what means have been employed in rendering.

Mr. Chrysler suggests pressing the cappings cold as a means of overcoming these difficulties. I used a capping-melter first in 1895; and after a few seasons, thinking that heat caused the darkening of the honey, I constructed a press to force the honey out of the cappings. But the honey was discolored just the same. Even more than I expected remained in the press cakes; and the more pressure I applied the darker it became when the cappings were from brown combs. After being convinced that heat was not the cause of the darkening, I returned to the melters, of which I constructed several different kinds, and finally adopted the tube grid, and continuous automatic separation by means of the U-tube principle, as the best way of shortening the contact of the honey with hot metal, slumgum, and liquid wax.

For the last five seasons every ounce of honey from cappings has run into the tanks along with the honey from the extractor, and I have not been able to detect any difference between honey with the cappings honey incorporated, and extracted honey by itself. Of course, there must be a difference, because when the honey from dark cappings is kept separate it shows a distinct dark hue; but when it mingles with all the honey from the extractor (at a temperature of 150 degrees), it is not noticeable after cooling down and clearing in the settling-tank. I

may here mention that the honey from the extractor runs through an apparatus which heats it to 150 or 160 degrees. All particles of wax, pollen, and air-bubbles rise to the surface in the tank, a strainer being inserted merely to keep the tank closed.

Some may infer that I extract mostly from clear combs; but this is not the case. The majority of my combs are dark; but they are straight—straight in the midrib; and when uncapping I scarcely touch the dark cocoons, the knife taking just the new extension of the old comb. Thus very little of the brown material gets into the cappings. Why should I have crooked combs when straight ones are so much better for the extractor, for the brood-nest, and for the operator?

Victoria, Aus.

DO QUEEN-CELLS ABOVE A COMB-HONEY SUPER BRING ON SWARMING?

Bees Enter Drawn Combs in Sections as Readily as in Extracting-frames.

BY DR. C. C. MILLER.

Dr. C. C. Miller:—I use Danzenbaker hives; and in the spring, in order to forestall swarming, I place an extracting-super on, allowing the queen to occupy the same until the beginning of the clover flow, or until time to put on sections. I then raise the extracting-super and put on sections below the excluder and extracting-super, brood and all. Now, the question with me is, does not the placing of brood above an excluder, with its certainty of having queen-cells started, thwart the very object I have in view by communicating, to the colony below, the swarming fever, by the presence of queen-cells above?

Nevada, Ohio. F. J. ARMSTRONG.

[Dr. Miller replies:]

When one or more frames containing unsealed brood are under or over the brood-chamber, these frames being isolated from the queen by an excluder or by some other means, there is more or less tendency on the part of the bees to start queen-cells on this isolated brood. It seems as if the bees have a feeling of queenlessness, and the greater the distance from the queen the more surely will cells be started. In the present case, a super of sections being between the brood-chamber with its queen and the brood above, the isolation is so great that cells will be started almost as readily as if this upper story were on a separate stand. Now, if the effect of this distance is so marked that the presence of the queen in the lower story will not have enough effect on the upper story to prevent the starting of cells there; conversely, the presence of cells in the upper story should not have enough effect on the lower story to start swarming there.

Although there may be no such danger as you suggest, there may, however, be other reasons why you should do some thinking before following out the plan outlined. Whenever I have tried having brood over a super of sections, it has always resulted in having the sections darkened, probably by bits of dark comb being carried down from the combs above. Just why they will carry this dark comb down, and will not carry it the same distance above, I do not know. It seems to be a way they have.

While it is a desirable thing to give the queen all the room she needs before the harvest, it may or it may not be a good thing to let the extra room remain to be used as an extracting-super. If you want the extracted honey, well and good. But if there is more profit to you in getting the white honey in sections, then do not leave on the hive the frames that have been used for brood, allowing them to be filled with the finest of the harvest. This is sometimes done with the idea that bees will begin work sooner in extracting-frames than they will in sections. It all depends upon what is in the extracting-frames and in the sections. If the sections be filled with drawn-out combs, and the extracting-frames with foundation, they will take to the sections first every time, and *vice versa*. If both are filled the same, I don't know that they would have any choice. Moreover, if there be in the super a single section filled with comb centrally located, work will begin in that section just as soon, whether the rest of the sections contain comb or foundation. In seasons of failure I have seen hundreds of cases in which the bees have put honey in the bait section, perhaps filled and sealed it, and not a drop in any other section. So for me to allow an extracting-super to be filled would simply give me so much extracted honey in the place of comb, with no advantage unless it be an advantage to have the extracted honey, which involves, of course, the possibility of a larger yield of extracted than comb.

Now I'm telling you how it is here. If there is something different in your bees or your locality, then you must act accordingly.

Marengo, Ill.

INCREASING THE CONSUMPTION OF HONEY BY ADVERTISING.

BY W. W. BROCKMIRE.

If bee-keepers expect to see an increase in the amount of honey used they will have to educate the public in regard to the habits of bees and the production of honey; for the average man thinks honey is honey, one flavor and one color, and that, when candied, it is a sugar-syrup mixture. For this reason many suppose that honey is adulterated when it is not. Bee-keepers ought to do something to counteract adulteration and comb-honey canards. This can be accomplished by a judicious advertising campaign through their organizations.

Now, I suggest this plan, which I think is simple and feasible: Better organization of bee-keepers by consolidating the National

and State organizations, and the authorization of National officers to print and issue labels for the use of dealers who sign an affidavit or agree to use the labels only on pure honeys (somewhat on the order of labor unions that issue stamps for marking union-made goods). The proceeds from the sale of these labels could be used for advertising in magazines (not bee journals) having a wide circulation, and also for printing and distributing instructive booklets on bees, honey, and recipes that call for honey, these pamphlets to be sent to any address upon application.

As to the advertisements, the main object of these should be to point out the superiority of honey to that of corn syrups, jellies, and molasses, and also to caution buyers that, when they purchase honey, to be sure that it bears the label of the National Bee-keepers' Association as a guarantee of purity.

Another means of advertising is to hold exhibitions at expositions and agricultural fairs, and again to distribute interesting literature.

Cincinnati, O.

EUROPEAN FOUL BROOD GETTING A FOOTHOLD IN SOUTHERN CALIFORNIA.

BY LEVI J. RAY.

Various opinions have been expressed and many articles have been written concerning the cause of the severe losses of bees during the past winter and spring in nearly every apiary in Southern California. The cold backward spring, lack of pollen, the dry weather of last summer and fall, have been mentioned among other probable causes, all of which may have affected the situation; but to what extent I am unable to say.

My partner and I have feared, from the first, that we had something to deal with which was worse than an ordinary case of spring dwindling, and the letter which I have just received from Dr. Phillips, at Washington, proves that our fears were well grounded. He says that the sample of brood sent him is affected with European foul brood.

We are requeening our apiary with young Italians, and are giving some of the worst-diseased colonies the McEvoy treatment. We have sent word to the county inspector to have him examine other apiaries in this vicinity, as a number of bee-keepers have complained of chilled brood and pickled brood ever since early spring. We have reason to believe that the malady is present in a number of apiaries in this locality.

As several carloads of bees have been shipped both to and from this valley already this season, I thought that the truth of the situation should be known, and I write this statement in order to prevent, as far as possible, any unnecessary distribution of so destructive a disease.

Monrovia, Cal., July 10.

[If European foul brood has gotten a foothold in California, the bee-keepers of that State should bestir themselves from one end of it to the other to hold it in check. While it is easier to cure than the American type of the disease, it spreads more rapidly. California bee-keepers should get rid of their old black and hybrid stock, and introduce Italians.—ED.]

THE ADVANCE OF APICULTURE IN NEW ZEALAND.

Bee-keepers' Associations on the Increase; a Model Disease Law; Ten-frame Hives Giving Better Results than the Eight Frame.

BY "PROGRESS."

Being situated on the opposite side of the equator to the States our seasons are naturally reversed; and when you see the smiling face and receive the hottest rays of the sun, our cold winds are sweeping across the plains and up the valleys of our mountains. This being mainly an agricultural and pastoral country, it is well furnished with rich clovers, the main stay of our honey-flow, while other nectar-bearing flowering plants and trees are in evidence in sufficient quantities to provide other food and pollen, both before and after the clover. Our winter is not severe except occasionally in the extreme South, so that our colonies, if left well provided for in the autumn, are almost certain to come out well in the spring, and, with the careful attention on the part of the apiarist that is essential to the welfare of the honey crop, they can be worked up strong without much trouble.

The main flow generally starts about the middle of November, and often continues until the end of February. Occasionally, however, on account of various climatic conditions the white-clover flowers are rendered destitute of nectar, and the bee-keeper in an all-clover district invariably thinks himself lucky if there is any surplus honey at the end of the season.

The hives used are the standard Langstroth ten-frame, as it is found that they give the best results, and an enterprising firm has installed modern machinery for the making of dovetailed supers. These are made from picked and very dry white pine, and are well finished in every particular. This firm also makes all other woodware necessaries, and supplies every thing pertaining to bee-keeping.

There are some 18,000 persons who own bees, and the number kept by each ranges from the man who keeps a few hives only to provide him with a relaxation from business, to the apiarist who sometimes keeps as many as 700 or 800 colonies, and who relies on these to provide him with a comfortable means of livelihood. There are quite a number of these latter; and the splendid quality of honey produced, and the averages per colony obtained, mark them as good and up-to-date bee-keepers.

I should like to impress one thing upon your queen-breeders; and that is, for them to discover a means whereby they could send their queens here in safety. Quite a number of men, including myself, have spent a considerable amount of money in trying to accomplish this object; but up to the present time, although various ways have been tried, the average of live queens landed has not exceeded one in about 200. Every bee-keeper here of any consequence recognizes the fact that the introduction of new blood from across the sea is very necessary, not only to improve the honey-gathering qualities, but also to keep up the stamina and vitality of the race. Should this object be accomplished I have no hesitation in saying that a considerable amount of business would be opened up between the two countries.

We have eight bee-keepers' associations in full swing, and the initial combined conference was held recently in Wellington, delegates from the different associations attending. It was decided that the association so formed should be named "The United Federated Bee-keepers' Association of New Zealand," and has as its Secretary Mr. Bray, late Government Apiary Instructor. Matters of importance to apiarists were discussed to some length, and a prosperous future for bee-keepers is looked forward to as the result of these associations.

My readers have by this time come to the conclusion that New Zealand is very wide awake to the promotion and protection of bee-keeping as an industry, and they enjoy the privilege and benefit of perhaps what is the best apiaries act in the world. There are at present two apiary instructors employed by the government to carry out the provisions of the act, and bee-keepers look forward, and are hopeful that this number will be doubled in the near future. A model apiary and queen-rearing establishment is also run by the state, and here cadets from all parts of the dominion are taught the principles of scientific bee culture; and if they pass their examinations at the end of the season they are given a certificate of proficiency, thus enabling them to start at a salary with some large apiarist, or to commence for themselves with confidence.

Wellington, N. Z.

A PLAN OF REQUEENING FOR THE BUSY HONEY-PRODUCER.

BY GEO. SHIBER.

In such a poor season as this, with practically a drouth all through harvest, when one wonders how the bees secured any thing at all, let alone any surplus, it is gratifying indeed to find a colony that has produced over 75 lbs. of clover and basswood honey this season, and these bees would, no doubt, have made twice as much in a good year.

It is evident that such a queen is the one to be used as a breeder. I think her bees are full-blooded Italian, as they have all the characteristics. We have named her "Jane" for identity. She is of good size, with a long large abdomen. (I have never seen many small queens that were especially good.) I am using this queen for requeening all the undesirables, and also for increase. (I have no queens for sale.) This is the way I have proceeded:

After the flow she was put into a new hive to form a nucleus, and made just strong enough to avoid the danger of their building drone comb. Then a frame containing an inch or two of comb or foundation was given; and as soon as this was built out a little, and contained just hatching larvæ, it was taken out and another put in its place. The comb with the young larvæ was given to a strong queenless colony. After ten days, twelve or fifteen cells were found.

Last fall I gave my way of introducing queens and cells to full colonies. In brief it is this: Find and destroy the poor queen; then move the hive containing the colony to be requeened *to a new location*, and the virgin will be almost certain to lay on time without being worried by older bees; and not much is lost, as the flow is over, and the old bees will go into nearby hives, and in a few days a new colony may be placed on the stand which was occupied before the removal of the hive. In this way there are no gaps in the rows.

Mr. Hutchinson, in his book, outlines a good plan for requeening—give the colony, after removing the queen, a frame of larvæ, with slits cut in the comb, "and the job is done." Now, with me the job would not be done, for I should expect about ten per cent of such queens to be missing, or else that they would be "no good." But if about ten days from the time the larva was given, the hive is moved to a new location, so as to get rid of the old bees, every thing ought to go well. In short, this is one of the best kinks I have stumbled upon in some time. I am, at this time, July 15, putting the plan to test, and it certainly makes good.

There is no temptation to let a "fairly good queen" go through, for she won't be any better next year. I do not know of any work in all apiculture that pays so well as weeding out poor stock.

Randolph, N. Y.

[Something over 25 years ago, when we not only had charge of but did all the work in our bee-yard, we had a shipment of 25 imported Italian queens. Not having any place to put them we formed 25 two-frame nuclei in the morning. Toward night we introduced one of these nice imported queens to each one of the nuclei. The old bees during the day had gone back to the old stand, and, of course, there were left in the nuclei nothing but comparatively young bees and hatching brood. All the queens were successfully introduced. On valuable queens we have used the same plan a good many times without fail.—Ed.]

BEE-KEEPING IN FLORIDA.

Some Representative Bee-men of Florida.

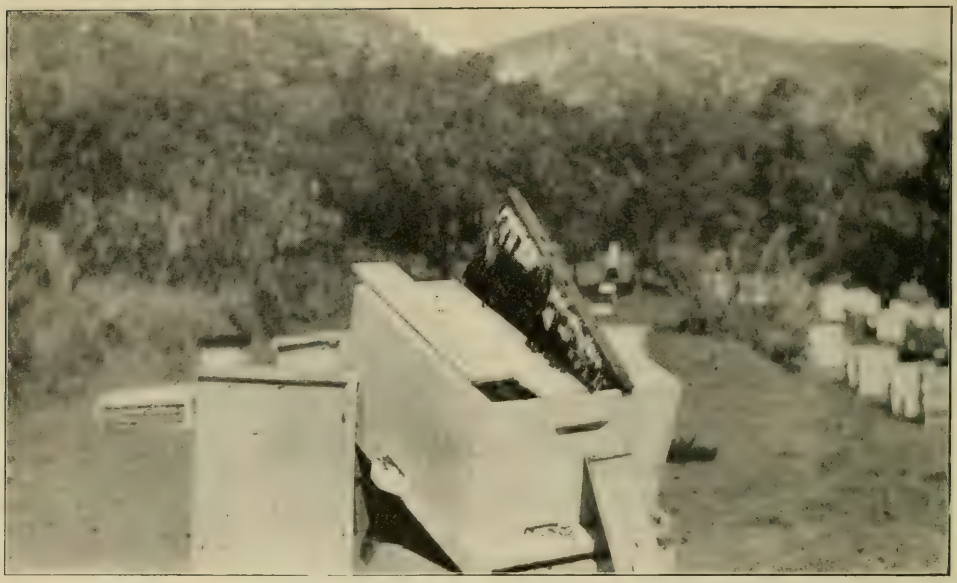
BY E. G. BALDWIN.

Continued from last issue.

On the beautiful Coronada Beach, below Daytona, stands a structure of unique interest, and the owner is equally interesting. I refer to Mr. H. C. Longstreet and his bee-house. He is not a specialist, as are the men already named before, but he comes from an old bee-line, for his father, Cornelius H. Longstreet, moved down from New York to Florida in 1883, bringing 30 colonies of bees with him. Bees were hard to get in Florida in those days, and Mr. Longstreet showed his aggressive and determined nature by bringing that number of colonies the entire distance. At first he located at Mt. Dora, near Apopka, where he kept his bees for seven years. Then, becoming interested in the mangrove honey on the East Coast, he tried moving fifty hives to the coast by wagon, rail, and boat. He left his son, H. C., in charge of those remaining at Mt. Dora. Landing with his bees at Coronada, a small island off the coast, he found the undergrowth so dense that he had first to hew out a place for even the hives to stand. Then bears and ants led him a merry chase for many years. The bears would emerge from the swamps near by at night, march up to a hive, and, with one blow of a paw, send it swashing. Then they would grab up two or three frames of honey and brood, and make off with them. Many hives would suffer thus in one night. Many a night has Mr. Longstreet sat up, rifle in hand, waiting for a shot at the intruders. The worst feature of this nightly vigil was the horde of mosquitoes. He had to wear two pairs of trowsers, tuck them into tops of high boots, and don a bee-veil — a comfortable garb for a sultry summer night! He used to recount many exciting experiences. On one occasion he chased a bear



Fig. 15.—Mr. H. C. Longstreet's bear and ant proof house-apiary at Coronada, Florida. Although built back in the '80's it is still in service.



H. Perkins' "mormon" mating hive, an ordinary ten-frame hive divided into four compartments by tin, each having a separate entrance.

around his honey and bee-house, Bruin keeping just out of his reach, till it was hard to tell which was pursuer and which pursued. Finally the bear made off for the hummuck, and a rifle-ball went speeding after him—with what result Mr. Longstreet never knew, for, while he found traces of the effect of the shot, he never came upon Mr. Bear.

The ants were almost as hard a proposition. They fairly swarmed over the place at night. In order to outwit both kinds of intruders, Mr. Cornelius Longstreet was forced to build the bee-house shown in Fig. 15, bear-proof and ant-tight. This was and is still the only bee-house of the kind in the State. It is 30 ft. long, and holds 80 colonies that are numbered inside the house and outside as well. It is shingled, roof and sides, the entrances being ¾-inch holes bored through the walls. The alighting-boards were painted different colors to aid the bees in locating their own hives. The shingles had to be nailed with an extra row of nails at the bottoms to prevent the bears ripping them off with their claws in their frantic efforts to get at the honey after the house was first built. You can still see their heavy scratches on the outside of the shingles about the entrances. The extra rows of nails can also be seen.

The ant-proof feature of the house is shown in the first two views. Sixteen piers, formed of 4 × 4 stuff, covered with concrete, and made of heart pine, furnished the foundation. About half way up from the ground, zinc cups surrounded the uprights, each cup being about 1½ inches wide, and ½ inch deep. These were kept filled with cotton-seed oil. To prevent flying bees alighting in the oil and being lost, Mr. Longstreet devised a pair of fenders for every pier, made to drop down in front of the cups when in use, but capable of being raised for cleaning or refilling of cups. So long as weeds and grasses were scrupulously kept cleaned away from the piers the device worked to a charm; no ants were found inside the house; but let the owner forget them for a few weeks, and the pests swarmed through the house as much as ever. For this need of constant watchfulness, and also because the nocturnal ants are much less common than formerly, Mr. Longstreet now places his extra colonies in apiaries outside of the house, shown in the last view, and finds that they now do as well as inside. He will not, therefore, build another house of this sort. But it served its day and did it well. The bears, too, have practically all disappeared from that immediate section.

Before finally settling on the coast Mr. Longstreet "trekked" three times from inland to the shore, moving his bees each way. They were in two-story hives, the entrances closed with screen wire, the tops also covered with the same material, with an empty super between the top screen and the hive to give clustering space for the bees. They were moved without accident, and the migrating paid financially.

Mr. Longstreet, Sr., used, and the son still uses, the Betsinger hive, size 15 x 9½. Many of the original frames, brought from New York, are still in use in good condition in the apiary of the son. Twenty-seven years of continuous use for frames is a good record. Years ago the apiary was Italianized with stock of the Root strain of Ital-

ians, procured from Mr. F. A. Salisbury, of Syracuse, N. Y. Historically the old bee-house is a landmark, almost the last of its kind, and possesses a novel charm because of its many unique principles.

De Land, Fla.

To be continued.

RAISING GOOD QUEENS UNDER UNFAVORABLE CONDITIONS.

Regrafting Method; the Mormon Mating-hive.

BY H. PERKINS.

Any method of raising queens should, first of all, make for good strong long-lived queens. Economy, reliability, and rapid production are also important points, and must not be lost sight of. It is a comparatively easy matter to raise good queens when weather conditions are favorable and the bees are strong and swarming; but it is a much more difficult task to accomplish the same results early or late in the season, or during an off year. It is to the latter conditions that I especially devote this article.

In my opinion the most important part of good queen-rearing is raising good queen-cells, which includes knowing how to create strong cell-building colonies and keep them in tune for cell-building. I have never been able to raise uniformly good cells in any other than strong colonies, above a queen-excluder, or in the brood-chamber when swarming preparation or supersedure was in progress.

For early cell-building I begin preparation in the winter season by setting my colonies in groups of five or six. In the spring, as soon as they will average five combs of brood, I select the strongest colony of each group; and on a warm day, about noon, when bees are flying well, I transfer one or two combs of sealed brood from the two nearest colonies to the strong one, and move the colonies, thus reduced, far enough away to compel the returning bees to enter the strengthened one, which is to be a cell-builder as soon as the major portion of the brood given it hatches. In two days after, weather permitting, I treat the remaining colonies of the group the same way, giving the brood to the cell-builder to be. The result is that, in a short time, the cell-building colonies will have their supers filled with young bees, which is just the condition needed for super-cell building.

Care must be exercised not to overdo the thing; and colonies thus strengthened must be well fed, especially during bad weather; for so early in the season the honey-flow can seldom be relied upon to furnish sufficient stimulation for cell-building.

Just as soon as my cell-builders have a super full of bees I put two combs of partly unsealed brood in the super to provide a good cluster, and put on the queen-excluder. The second day after, they will be ready for business, and I give them a culture of grafted cells between the two combs of brood.

If the number of cells accepted in this way is not satisfactory (which is often the case early in the season), I resort to the swarm-box to insure satisfactory acceptance. I will explain here, for the information of those who do not already know, that a swarm-box is a narrow box designed to hold three frames (and is best made from an old super), a wire-cloth bottom, and a board for a cover.

In stocking my swarm-box I use one comb of honey and one of thin syrup to provide moisture, and into the space between I shake about two quarts of bees and leave them confined for six hours before giving them the cells, which I leave with them over night, indoors if the weather is at all cool. In the morning the cells should be accepted and ready for the reluctant cell-builder, and the swarm-box bees returned to the colony they came from.

A queenless colony of medium strength, without unsealed brood or natural-built cells, will do as well. Under unfavorable conditions it is often impossible to get even strong colonies to build good long well-fed cells from one grafting. To overcome this difficulty I employ what I call regrafting, which I will here describe.

When I anticipate having to regraft my cells, I use larvæ two days old for the first graft, and allow the bees to work on them thirty hours. I then remove the culture from the cell-builder to the grafting-room, and, with a hot knife, clip off the end of the cells to reduce their depth. I then remove the larva with a very small hook made from foundation wire, and agitate the jelly with a blunt-pointed stick to disseminate the limpid fluid which always surrounds the queen larva of advanced age.

After waiting about five minutes to allow the surface of the jelly to stiffen a little by evaporation, I regraft the cells with larvæ from my breeding-queen. I always provide a swarm-box or kindred means to accept my regrafted cultures before giving them back to the cell-builders, because the bees are much slower to go to work on them than when grafted the first time.

I regraft only when it is impossible to get good cells built any other way, for it is a painstaking operation; but the results obtained justify the effort.

Many bee-keepers fall into the error of believing that the substance resembling peach-gum, found in the bottom of hatched queen-cells, is evidence that the cell contained an excess of royal jelly; but this is not always the case. The substance alluded to is often nothing but residue, and may be found in cells where the inmate starved to death before hatching.

When a queen-cell is sealed, nature sets to work to complete the job if possible. If the supply of jelly has been short, the queen will also be short. If it has been too short, the inmate will never hatch. If the supply was enough, or more than enough, the queen will be fully developed, but that is all.

To build cells, I quite frequently employ colonies that are superseding; but I always



Fig. 1.—S. D. House's nucleus hive for mating young queens, one comb only being used.

remove them as soon as they are sealed, to avoid having them destroyed after the manner of natural-built supersedure cells. Likewise, colonies preparing to swarm may be taken advantage of, their cells destroyed, and a grafted culture substituted with the very best results, but available only during the swarming season.

I regard queenless colonies for cell-building (even though they are strong) as the last ditch, and only to be resorted to when all other methods fail, as they often do, especially toward the close of the season.

It is under such conditions that regrafting comes to the rescue of the beekeeper by compelling the bees to keep the cells open longer than they otherwise would, and all the while adding to the supply of jelly.

For early-mating purposes I use a hive of my own design, shown in the illustration, which I call the mormon mating-hive. It is a ten-frame hive-body with three perpendicular saw-kerfs ½ inch in depth, and 3½ inches apart, run in each end, with kerfs to correspond, in the hive-bottom. Into these kerfs are fitted three sheets of heavy tin, thereby dividing the hive into four completely isolated two-frame compartments. An entrance is provided on each side and end, and four individual covers with a large cover to cover all. I like this style of hive because it takes the standard-size frame, and can be stocked from any hive in the apiary, and for the same reason can be easily united for honey-gathering, or converted into a two-compartment hive for wintering by withdrawing two or more of the tin partitions and closing two of the entrances. The heat communicates freely through the tin partitions, and thus approaches the natural conditions of a full colony. For summer mating a much smaller and more economical hive may be used. I consider the mormon hive more especially adapted to the needs of the bee-keeper who raises a few hundred queens for his own use than for the queen-rearing specialist.

Returning to my regrafting method, I wish to say that I do not want my readers to infer that I claim to be able to outdo nature, for I do not. I often find the jelly, left in regrafted cells after the queen hatches,

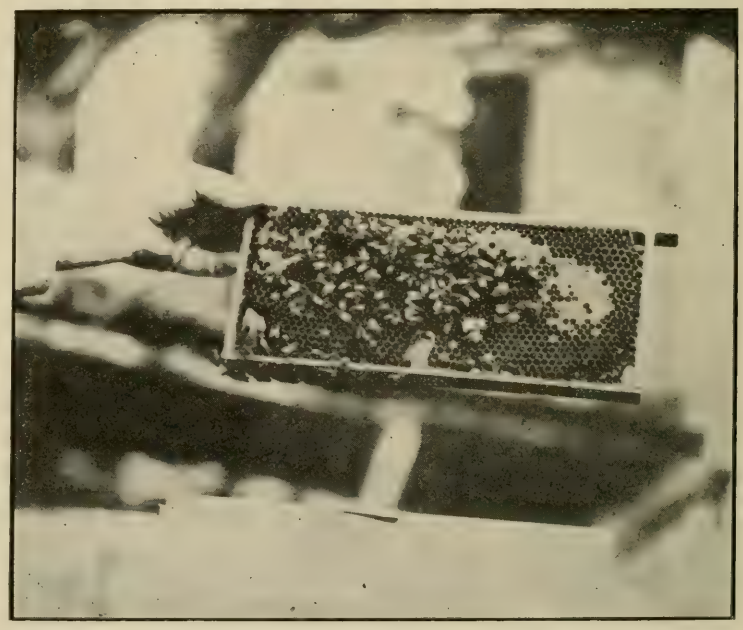


Fig. 2.—A comb about to be inserted in the nucleus-box, showing the number of bees used.

to be white and plastic, and enough to fill the cell more than the depth of a wooden cell cup. I have often had hatched cells which measured 1¼ in. in depth, but I have never created a monstrosity, nor could I ever see that queens thus raised were any better than those raised from natural built swarming-cells; but I do claim to be able to raise uniformly good queens by this method when it would otherwise be impossible to do it.



Fig. 3.—A comb from which the third queen has just mated.

If I am not mistaken, regrafting in one way or another has been practiced by others. The idea was first suggested to me by Mr. John Nippert, formerly of Phœnix, Arizona. The details as given there I worked out myself.

The quantities, proportions, estimates, etc., as I have given them here, are not intended by the writer to be inflexible, but rather to be subject to local and weather conditions, also to the judgment and experience of the bee-keeper.

Los Angeles, Cal.

HOW THE AGE OF QUEENS AFFECTS SWARMING.

Year-old Queens Swarm Much Less than the Two-year-olds; a New Form of Nucleus for Queen-rearing.

BY S. D. HOUSE.

During the last week of June and the first two weeks of July we went through the busiest part of our work for the season, and with this vast amount of work demanding our attention I took time to make some observations for future use.

The early part of the season opened with bright prospects. Bees wintered well and built up fast. During fruit-bloom the majority of the colonies needed extra room, which was given by adding brood comb. June 1st the clover was blooming finely. I don't think I ever saw a finer stand of clover in this section, and the weather conditions seemed perfect for a good secretion of nectar; but, alas! there was but little or no secretion, the bees barely making a living. During this dearth of honey the bees gathered an unusual amount of pollen, which occupied a considerable part of their combs; and, with the very light flow of honey, egg-laying was checked. These conditions produced a desire on the part of the bees to supersede their queens, and at the same time to swarm. Usually the swarm would issue with the old queen about the time the young queen commenced cutting herself free from the cell. The old queen, being clipped, was picked up and caged, and the swarm returned to the hive, the hive meanwhile having been opened and all queen-cells destroyed with the exception of one if the stock was pure Italian. If not, I destroyed all cells and gave a pure Italian cell. The swarming impulse among these colonies was so great that the bees would issue with the last and only virgin queen in the hive. Often, while the virgin was attempting her mating-flight, the swarm would issue with her. Sometimes the bees would come out and the young queens refuse to leave the hive, so that there would be attempts at swarming several days in succession. I found that the excessive heat and insufficient ventilation were the principal causes of this persistent swarming. The raising of the hives upon four one-inch corner blocks put a stop to the trouble.

At my home apiary, about 20 per cent of the colonies swarmed, and I noted this fact — that about 95 per cent of those colonies were led by a queen that was coming two years old. The 80 per cent that did not attempt to swarm had queens reared last season, or the early part of this season. These colonies on July 12 had from 60 to 90 pounds of comb honey, while the 20 per cent that







Model British apiary owned by Herrod & Stuart at Luton, Bedfordshire, England.

swarmed had from 20 to 30 pounds. Why this great difference? First, the younger queens, with greater vigor for egg-laying, would not allow the bees to clog the brood-nests with honey and pollen. If the brood-chamber becomes clogged with honey, bees are slow to start work in the supers, and will usually prepare to swarm (unless they have an *exceedingly large hive*), before starting their supers.

To start bees in supers under the above conditions, unseal the honey and drone-brood; cut out cells and cell-cups, if any, or remove two or three combs of brood and honey, and give in their place frames filled with full sheets of foundation. The brood removed will form a good nucleus, which will build itself into a good colony by the end of the season where increase is desired.

And, again, the fact that those young queens are at the head of a larger family, and also that they have greater activity in egg-laying, seems to inspire the worker bees to greater activity. So much for *young* queens.

HOW TO GET YOUNG QUEENS.

Bee-keepers as a rule are not particular enough in breeding their queens, usually allowing each colony that swarms to re-queen itself from its natural cells. Such queens are vitally the very best; but vitality is not the only qualification desired. We should have a standard of qualifications, and breed to that standard. Queens also must be line-bred if we expect to improve the strain. This work can best be done by a specialist, as the large producers of honey



Exhibit at the Orange County "Carnival of Products," Santa Ana, Cal. Mr. Roy K. Bishop, who sent this picture, wrote that their Bee-keepers' club has 42 paid-up members who represent about 90 per cent of the industry in the county. The large cage at the right was used for bee demonstrations.

have not the time to give that the work demands.

As soon as the rush is over, say about July 15, I take several strong colonies, dequeen them, and place them over feeders. As they start cells from their own brood, on the sixth day I cut out all cells, using the royal jelly from them to start the cups, giving about 24 cups to each colony. I take combs from the center of the brood-nest, cut off from the bottom of the comb 2½ inches, and insert the bar with cups and larvæ, and close up to the brood. After the cells are sealed I remove them and place them in an extracting-super until the eleventh day, when they are given to the nuclei, Fig. 1, to hatch and mate.

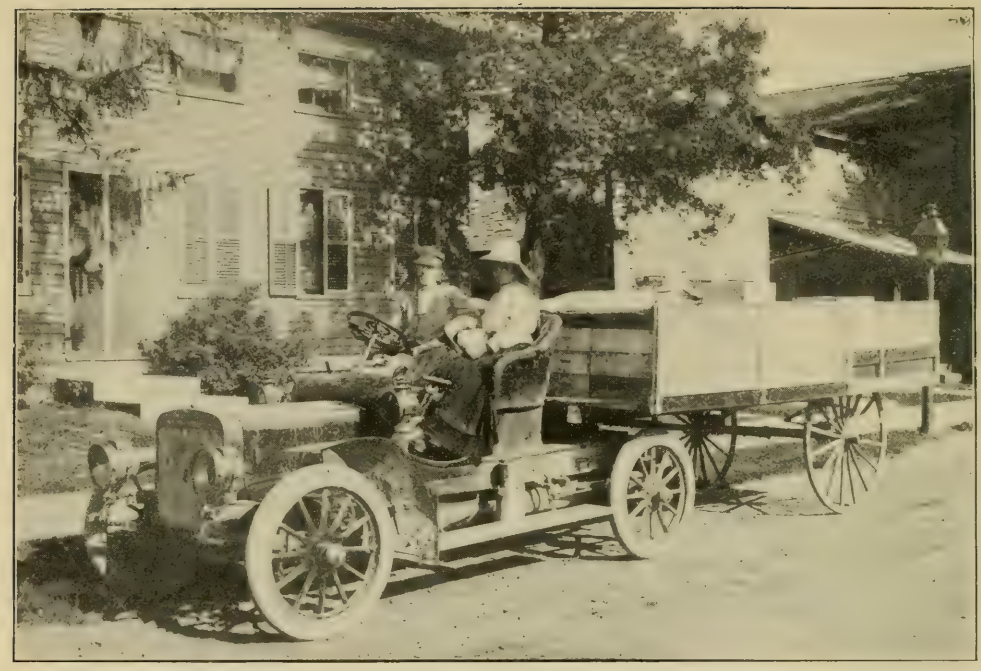
To make this nucleus hive, take two ⅜-in. boards, the size of a regular shallow brood-frame, and nail on one side of each a ⅝-in. rim of wood. The two boards are strapped together at the bottom, with strips of tin, the frame containing the comb being between. A piece of tin folded at right angles makes the cover, and a ⅜-inch hole the entrance. At an out-apiary I take from a shallow extracting-super combs filled with honey and bees. Fig. 2 shows the amount of bees used. I put these in the baby nuclei and take them to the home apiary. In this way the bees will not desert the nuclei, and I give them a cell ready to hatch. If we allow the young queens to lay for a day or two the same nucleus will make several queens. Fig. 3 shows a frame from which the third queen has mated. I do not have these small nuclei sitting too close to strong colonies, as the young queens making their maiden flight are apt to return to the stronger colony. The larvæ that we transfer to the cups should not be over twelve hours old to get good queens. Queens will mature from much older larvæ, but their usefulness is of short duration. The conditions in cell-building colonies should be as near to the natural swarming impulse as possible.

Camillus, N. Y.

A MODEL BRITISH APIARY.

BY D. M. MACDONALD.

I have pleasure in presenting GLEANINGS' readers with an illustration of what I have selected as a model British apiary. It belongs to Messrs. Herrod & Stewart, and is situated at Luton, Bedfordshire, about thirty miles north of London. The site is an ideal one, lying on the gentle slope of a low hill facing nearly due south, and the situation is well sheltered from the cold prevailing winds. The spot with its surroundings presents, as a whole, a most pleasant picture. As can be seen, the hives, which are mainly of the well-known W. B. C. type, are arranged systematically with ample space between individual colonies, and also between rows. It will soon be an apiary in an orchard, because the young fruit-trees and bushes are fast growing up to add to the picturesque appearance. These are so arranged that they not only lend themselves to the adornment of the scene but also to present well-defined landmarks for the bees of each colony when returning from the



F. B. Cavanagh's Jackson automobile with trailer attached for carrying bees and supplies to and from out-apiaries.

fields, and also to guide young queens arriving home on their mating-trip.

Baby and three-frame nuclei are scattered about promiscuously in the season, as queen-rearing is an important branch of the business. The sale of swarms is, perhaps, the most extensive in the country, and a large trade is done in honey-selling. Luton is very favorably placed for such a business, as it is centrally situated, and in close touch with several of the leading railways leading to all parts of the compass. The management of the apiary is mainly in the capable hands of Mr. Stewart. It is really a school of apiculture where a goodly number of youths of both sexes are grounded in all the essentials of bee-keeping; and every year student-helpers pass from its portals to all parts of the world, well fitted to manage any apiary.

The apiary was greatly admired by the delegates from various countries who attended the recent Franco-British conference of bee-keepers. The late Mr. Broughton Carr, after whom it has been named the W. B. C. apiary, considered it a model of what a collection of hives should be, and it is illustrated in the latest edition of the "British Bee-guide" as a typical and specimen English apiary. Any one visiting it can not but admire not only the artistic arrangement as a whole, but the perfect specimens of hives, the powerful colonies found everywhere, the neatness and system of every individual feature. The honey-house, storeroom, workshop, and study are each perfect of its kind, and models of what such places should be in one's ideal of these adjuncts of every apiary. The honey-house is large and commodious, and fitted up with all requisites for carrying on an extensive sale of this popular commodity. In a corner are specimens of honey from almost all parts of the world, and samples of all grades of the home-produced article are in evidence. The workshop has a full equipment of tools of all kinds required in hive-making or repairing. Perhaps the store-room is in a way the most commendable feature. Every thing has a place, and every thing is in its right place, so that, in an emergency, tools and implements are always to be found when they are required —a point too often neglected in many apiaries. The photographic room proved of great interest, as some excellent specimens of the art are stored on shelves, laid by in cupboards, or exhibited on the walls. Here, too, is a powerful microscope, for the owner has been a diligent student of apiculture in more branches than that of honey-producing, and has studied not only *Apis mellifica*, but also many other hymenoptera. A capacious fumigating-chamber forms part of the equipment, and combs are placed therein periodically to insure their being kept sweet and clean.

Mr. William Herrod has been for over a dozen years a prominent English bee-keeper, and recently he has pushed his way by sheer merit to a place in the front rank. He is well-known on this side as the Secretary of the British Bee-keepers' Association, and under his able guidance this society bids fair to add to its influence and prestige. He

acts also as chief expert to the British Beekeepers' Association, as well as being their librarian and lecturer. He is expert and lecturer to several of the leading county associations, and frequently acts as judge at some of the principal honey shows, and he has had the unique experience of being honored with lecturing on bees before the king and other members of the royal family, as well as several foreign royalties.

Mr. Herrod is a first-class hive-maker, and can turn out a hive as perfect as any manufacturer. He is an excellent amateur photographer, and has gradually accumulated over 600 lantern slides covering every phase of bee-keeping. Some good specimens of practical manipulations were noted, and flowers adapted for pollen and nectar supply were admirably illustrated; but perhaps the most interesting were some of the more delicate features of the bee's anatomy. This collection is being steadily increased, and will soon number 1000.

One of the most interesting departments of Mr. Herrod's manifold duties is his lectureship at Swanley Horticultural College, where he educates a large number of men and women, and the good work he performs is certified by the extensive list of graduates who yearly qualify for experts' certificates.

Mr. Herrod has recently acquired the proprietorship of the *British Bee Journal* and the *British Bee Record*, and from the beginning of this year he has been acting as joint editor of both publications. Under the very able guidance of the senior editor he is acquiring a knowledge of the technical work, and gradually fitting himself for the full duties of the office when Mr. Cowan lays down the reins. That such a day may be very far distant will be the sincere prayer of every bee-keeper, not only in these islands, but wherever apiculture is being carried on. Mr. Herrod has a noble tradition to uphold, and it is no mean position he will occupy in filling the place of such lights in the apicultural world as Messrs. Abbott, Peel, and Cowan; but I feel confident he will worthily carry on the good work of the past thirty-nine years, and still further advance the banner of progress in apiculture.

Banff, Scotland.

THAT AUTOMOBILE TRAILER.

BY F. B. CAVANAGH.

For a man to make two trips, each of 50 miles, with 25 hives of bees, and in a single night, would be impossible with a horse. With an automobile we covered the 100 miles with plenty of time for loading and unloading.

The car is a two-cylinder 24-horse-power Jackson, with the detachable tonneau removed and a trailer attached. The trailer is built to carry 1200 lbs. individually over the rear springs, while the front end, resting on the deck of the auto, will carry easily 600 lbs. more. When empty the front end of the trailer is about all one man cares to lift, and is very nearly the same weight on the deck as the tonneau would be. If the readers of GLEANINGS desire it I will furnish a mechanical description of the trailer later.

It will be noticed that the front end is on a bolster held by a single bolt through the reach. The bolster connection is of great importance, in that it must be very strong, and flexible, to bend not only for the side ruts and in turning, but also as hills or knolls raise or lower the trailer wheels out of line.

We do not shut the bees in nor do we fasten the hives together in any way. A removable wire cage completely surrounds the hives (the front section was left off in the picture), so that nothing can fall off the load. If daylight approaches, causing the bees to fly, we draw the canvas top tightly over the load (it is tacked to one side), and confine every bee to the cage. A fine breeze circulates through the hives; and, although the weather was very hot, but few bees tried to escape through the screen. I suppose it must have taken their nerve to see through grated bars the landscape swiftly whirling by. The worst feature was in unloading the bees at night, and, as every bee-keeper can imagine, they "didn't do a thing" but sting, sting, sting, with bees all over the hives when we reached the yards. However, with good smoke we managed very well, and left the trailer quite free of bees each trip. I never care if bees are out of the hives so long as the stragglers are at the yards, one or the other, so that they can hunt a hive when daylight appears.

Were I to sign my name and say no more, the bee-keepers would all be wanting a trailer *a la* motor; but I must mention the less rosy side. The weight of the bees and the hard pulling at from 5 to 25 miles per hour got away with the 3½-inch rear tires in a short time, so that one blew up with a cannon-like report on next to the last trip. So completely demolished was it that we removed it and ran in on the rim, and hauled another load a short distance the same way.

At another time a loose screw in the timer cost us three hours; and, again, two punctures caused slight delays. Part of the time I had a friend of jovial and adventurous temperament, but the novelty and joy of the rides gave place to weariness as the "wee sma" hours approached. Moving bees is strenuous work, even with an automobile trailer; but it is very easy on the bees. They have a nice cool ride, with little jolting, which is soon over. Scarcely a hive will shift from its position *en route*. Our roads are mainly gravel, although there were several miles of the worst kind of sand, and some hills where all the power was needed on low speed.

The picture shows only a load of supers, as we had no conveniences for picture-taking when the bees were moved.

With this, my first trailer load, I burned out a bearing in the crank-case by not having the mechanical oiler working. Seeing

a weakness here, I installed a dash oil-gun so that a small additional quantity of oil could be forced into the crank-case whenever needed. It is very essential, especially in doing heavy work with an automobile, to use plenty of oil all the time. Likewise to keep tires well pumped up, and every thing well tightened about the machine.

Tires are the largest unavoidable expense. After blowing up a 32×3½ tire I installed 33×4 tires of heavy-car type on rear wheels, also extra inner casings in the front tires, which reinforce the outer casings.

We figure that, while an automobile is expensive, speed is essential in out-apiaries scattered as far as 20 miles apart. A horse would take three hours in going 15 miles, or six hours spent on the road. The auto makes the same distance in ¾ of an hour or less, and with much more comfort; consequently we work our eight yards nearly as easily as though they were near home. In a day of ten hours the horse outfit leaves four hours to work with bees, while the auto leaves 8½ hours, or 4½ hours in favor of the auto in each day's work. A saving in wages of four men for 4½ hours a day is 18 hours for one man. At 20 cts. per hour this makes $3.60, which more than pays our expense of the automobile trip. Does it pay to own an automobile? We think it pays us well, although not so much for hauling bees as we anticipate for the extracting-power outfit, motor drawn, which is nearly completed. It contains power extractor, engine, steam capping-knife, combination gravity and wire-cloth strainer, and, in fact, every thing we could think of for convenience, all mounted on the trailer, and covered with canvas and wire cloth. At a later date we may expose our little selves at work taking the spoils from the bee with this horse-terrorizing contraption.

Hebron, Ind.

[We had the pleasure of visiting Mr. Cavanagh early in the season, at which time we took some pictures which will be shown later. With a number of outyards, scattered as they must be, an automobile for an extensive producer is a money-saver, especially if equipped with this very ingenious trailer. For business purposes we believe that nothing is better than a used car, rebuilt and overhauled at the factory. Such a machine, while a little out of date, perhaps, in a few details, is just as good as a new one for hard service, and at a cost of only about half the price of a new outfit.—ED.]

SOWING SWEET CLOVER WITH OTHER CROPS.

BY FRANK COVERDALE.

The writer of the following is, perhaps, the best authority on sweet-clover growing of any man in the United States if not in the world. His extensive experience in growing sweet clover himself, and also his opportunity of picking up information on the subject, owing to his position as lecturer before farmers' institutes, and as contributor to various agricultural papers, has made him the authority that he is.

Mr. Coverdale has promised a series of articles for GLEANINGS a little later. The following is an extract from one of his recent letters.—ED.]

White sweet clover can be sown any time from early spring until August 1, but no later in this locality. I prefer sowing it the first week in May, in good rich ground only.

Judge Quarton, of Algona, Iowa, sows white sweet clover with champion oats—about 20 lbs. of the hulled seed to 1½ bushels of the oats per acre. He cuts his oats high, then gets a fine crop of hay in October, and the second year pastures the ground.

A thin crop of barley will make good if sown on rich ground, if the drouth is not too severe. But I have never found a catch of sweet clover when sown on poor worn soil. The soil must be well supplied with humus or lime, or both. Any pasture where either cattle or hogs have been grazing for two or three years will, when plowed and put in fine shape, give excellent results. In other words, the sweet clover will be a sure catch. Twenty pounds of seed per acre will pay every time.

Timothy also goes well with sweet clover. It is true that one can sow white sweet clover on almost any fairly good soil and get a catch in spots, but this is not very satisfactory. The same field, if seeded to other legumes and timothy, then in a year or two plowed up and seeded to sweet clover, will give very satisfactory results. The humus will answer every purpose, and the lime also sweetens up the soil so that it will grow. Sweet clover will not do well in the Middle States until the people learn what kind of ground to sow it on.

Delmar, Iowa.

Is it Advisable to Feed Cheap Glucose to Stimulate? Can we Prevent Syrup from Going into the Supers?

How will cheap glucose syrup do for stimulative feeding for warm weather? I want to increase for a fall honey-flow. My bees are weak in numbers, and I shall have to get my colonies stronger or I shall not get much honey this fall.

I wish to ask if you know of any device to be used in stimulative feeding so as not to have it mixed in the sections or extracting-combs, as we know that, under the pure-food laws, mixing glucose spoils our honey for market, as we find that a small proportion of glucose is bad, and is easily detected.

Lexington, Ind., July 8. L. E. MACE.

[We would not advise cheap glucose for stimulative feeding under any circumstances. Nothing is cheaper than the very best quality of granulated sugar. Glucose has so little nutriment for the bees (for the price) that you will find that granulated sugar will be just as cheap, if not cheaper, and far *safer to feed*. Again, we doubt very much if you can get bees to take glucose at all. We tried some experiments a few years ago, giving the bees glucose diluted with warm water; but they simply would not take the vile stuff. You can get them to take it by mixing it with honey or with sugar syrup. But that is poor economy. What is the use of feeding bees something that they don't like and will not take? We might as well recommend mixing oats and sawdust together to feed horses.

We know of no device that you can use to prevent syrup fed in the brood-chamber from going up into the supers if you allow the brood-chamber to become too full of the feed. In fact, we know of no reason why you should feed when the honey-flow is on. Unless bees are gathering honey from the field, the supers ought to come off.—ED.]

Heads of Grain from Different Fields

Feeding in Order to Get Bees in Good Condition for Winter.

I am up against the worst drouth that this part of Kansas has ever known; and as I have about 90 colonies of bees, and they are now getting absolutely nothing, and I see no chance for their getting any thing this season, I am figuring how to get them through the winter. Possibly, if a rain would come soon, there would be a little in the fall; but I think it unlikely. Now, what bothers me is this: The bees have practically stopped rearing brood. Very little can be found anywhere. If I let them go with a big feed from the Miller feeders in the fall I should think that there would be few besides old bees, and they would go the route and die in the winter. It seems to me that, if I begin feeding them half a pint of thin syrup about Sept. 1, and keep it up for a month, and top that off with a Miller feederful of thick syrup, I should have a lot of young bees, and plenty to get them through. I never had so many bees before, and never had the drouth either, and I do not wish to incur any more expense than is needful; but as I am at much trouble and expense I do not propose to lose the bees either, and ask you if I am right or not.

This locality has had no rain for five weeks, with a temperature close to (and often above) the 100 mark all the time. The corn will make a good crop yet if rain comes within ten days, as it has been well tended, and all moisture conserved. Wheat was extra good, and oats also. Hay was short. Pastures are as brown and dry as a griddle cake, and I have to feed my cow which runs on three acres.

Sabetha, Kan., July 11. FRANK HILL.

[You are "up against" a peculiar proposition. If your bees have stores enough so that they can get along until about Sept. 1, or, say, even two or three weeks later, it would be better to begin feeding them then than to feed them now. Your colonies are overpopulous just now; and with no prospect of getting any honey these bees are consumers. If you go to feeding them now, these bees will eat up a large quantity of stores. It would be our judgment to let them get along as they are until the strength of the colony is reduced somewhat, and then begin feeding somewhere later in the season. This will start brood-rearing provided you have young queens. If your queens are old you may not be able to get them to lay much, even if you start feeding.

Stimulative feeding should be practiced—that is, half a pint or a pint of syrup daily should be given until the brood is pretty well through the hive; then as the season draws to a close—that is to say, when there is danger of cold weather coming on—we would advise giving one large feed so that the hive will be full of stores. Possibly the stimulative feeding that is kept up during the time brood-rearing is on would fill the hives full enough. But we have found this: After a considerable period of stimulative feeding, the old bees will be worn out and the colony will dwindle in strength very rapidly, and by mid-winter there will be a small force unless you take pains to see that a large amount of brood is raised. See editorial remarks on stimulative feeding elsewhere.—ED.]

Swarms that have Lost their Clipped Queens Divided into Nuclei.

I should like to know if any one has tried dividing a colony that has lost its clipped queen in swarming into three or four nuclei, and stacking the hives one on top of another, with a flat bottom to answer as top and bottom between each story, facing the second story backward, the third forward, etc.

I have tried this plan, but have failed to keep the bees together (which was the object), and at the same time save a few queens. My experience has been that the bees swarmed, and left only one queen in the stack. I explain it this way: They have such a desire to swarm that they are not satisfied, or they hear the piping of the other queens in the other stories, and become excited from that source.

Canton, S. D., June 17. L. A. SYVERUD.

[We do not know that anybody has tried the plan outlined, of tiering three or four hives one on top of another, with the entrances facing in opposite directions. If so, they have never reported the result. It seems quite reasonable to suppose that, during the swarming season, the piping of one queen in one of the hives might be heard by the bees in the hive above or below, and thus excite the colonies in the whole stack. Your explanation is probably correct.—ED.]

Was the Queen Fertilized in the Hive? Italians vs. Blacks for Robbing.

I have a fine large queen that was fertilized in the hive. The old queen was killed in a queen-trap which I left securely fastened and in good shape on a good hive. I cut out cells and left a large queen just hatched, and there was nothing but capped brood in the hive. Twelve days after, the young queen had pretty nearly filled frames with eggs, and there were lots of young larvæ. The trap was still secure, and the young queen was very large. This is the third case I have seen like it.

Do pure Italians rob as badly as those not pure? I have a number of pure swarms, and all the spring they were on hand when I opened a hive, and now they keep coming into a building where I am sorting and scraping honey. They are very noticeable by their yellow bodies, and black bees are conspicuous by their absence.

This is the poorest year I have yet seen for honey.

Marshall, Mich. G. F. PEASE.

[There is some mistake about the young queen being fertilized in the hive. Either she was in the old hive together with the old mother at the time the queen-trap was put on the hive by you, or else she managed to go through the perforated metal. Occasionally we find a very small virgin that will go through the zinc; and if the queen was not in the hive at the time the trap was placed on it we should conclude that this queen must have passed the metal, met the drone in the air, and, in the usual way, came back again. Almost every report of this kind, when carefully investigated, has shown that the mating took place in the air in the regular way.

As a general thing it is considered that pure Italians are less inclined to rob than the ordinary black bees. We have noticed this: That black bees and hybrids will usually be very conspicuous when robbers are about, while leather-colored Italians will not be seen at all. For example, at one of our outyards we had just one colony of black bees, and about a hundred colonies of pure Italians. There was a case of robbing on, and we should say that there were a dozen black bees to one yellow one. On the other hand, it often happens that the very best workers of Italians will be the meanest robbers in the whole apiary. It is possible that the yellow bees that you had were fine workers. The old red-clover queen that we had something like 30 years ago, whose bees would actually store honey in the supers while other bees were doing nothing, and killing off drones, was the mother of the worst robbers we have ever had. If there was any robbing going on we could always find they were coming from that hive more than from any other. As a general thing, however, we should say that bees that are inclined to rob are not good workers, and it is seldom that good workers are mean robbers.—ED.]

Buckwheat—how to Grow it Profitably Without Interfering with Regular Crops.

The past season we tried growing buckwheat on a small scale. We always wanted to grow some, but did not want to take up the land at the expense of the regular crops. While it is a paying crop I do not believe that it pays well enough to sow it on land worth $150 to $200 per acre. But, on the other hand, if it can be grown in between your regular crops without interfering, but aiding the same by putting the ground in first-class condition, it is worthy of our consideration.

We plowed three acres as soon as the wheat was harvested in the field, to be sown to wheat again in the fall; but on account of the drouth prevailing at this time we could not sow the buckwheat until July 21, when we had a light rainfall; and despite the continued dryness it was in bloom by Aug. 16. For some reason or other (dryness, probably) the

bees did not work on it to any extent till September, at which time there was a regular line of bees from the apiary to the field.

As soon as it was ripe we cut it with a grass-mower, and, later, hauled it in, thrashing it at the same time. We had ten bushels of buckwheat, and the straw was put on the orchard as a mulch for winter. While the yield was nothing extraordinary, it should be remembered that it was very dry at the start, and that the chickens had free range of the field, of which they readily took advantage. The buckwheat was fed to the chickens during the winter by way of a dainty, and was greatly relished by them.

When the field was sown the soil was in very bad condition, owing, as before stated, to the dry weather; but after harrowing it once with a spring-tooth harrow, after the removal of the buckwheat, it was as fine and loose as necessary; and at this writing, the wheat (now nearly ready to harvest) is up to that put in in the usual way. So in summing it up it can be seen to be quite profitable, the expense being only for the seed and labor.

Lititz, Pa., July 10. C. B. SNAVELY.

Brushing all the Bees on the Ground to Get Rid of Laying Workers.

On page 376, June 15, W. W. Durham tells how he got rid of a laying-worker colony. He said: "On looking at them the following morning I found a few dead bees in front." My view would be that, if he had looked around on the ground, he would have found more than a few dead bees, and that he simply destroyed his old hive, and had a swarm to replace them; so, except for getting a new queen, he was no better off than before. To be sure, he got rid of the laying workers, but also of all of the rest of the colony. Am I not right?

A short time ago we had a laying-worker colony that refused to start queen-cells, so we took the colony some distance away and took out all of our frames and brushed the bees on the ground, then put back our frames and exchanged places with a strong colony. As the laying workers can not find the location of their hive they were left on the ground to perish, while the rest of the bees flew back to their old location where we had placed a strong colony. We then gave the hive that had the laying workers a chance to make a queen, which they did, and to-day it is one of our strongest colonies. Is not this an easy way?

MRS. L. B. CAMPBELL.

Santa Fé, Isle of Pines, W. I., July 6.

Prairie Clover as a Honey-plant.

I am sending you a sample of flowers which are all over the hills and prairies here, and from which my bees gather a large amount of honey. The last of the alfalfa was cut a week before sweet clover came in bloom; but in the mean time a heavy flow was on, and I was puzzled. While bringing home our tractor we ran out of gasoline, and were obliged to take a crosscut of two miles to the valley; and all the way I found these flowers, and bees working on them everywhere. Many of my hives have four-comb supers on, and the flow is not more than half over. Please let me know what kind of flower this is. There is another just like this, only the petals are bright red. The pollen is the same color.

Elmo, Mont., July 19. A. H. BELL.

[The plant inclosed with the above letter is what is commonly called "prairie clover." Gray's Botany tells us it belongs to the pulse family. From that book I quote: "Prairie clover: family, *Pulse;* genus, *Petalostemom;* species, *Macrostachyus.*" I think that, during the past few years, this plant has been sent us several times, as I find we have a specimen of it in our herbarium. It does not follow that it yields honey every season, as above described. There are many plants that give a large amount of honey occasionally, when every thing seems to favor, while they may not give another like it in some years.—A. I. R.]

The Cause of the Beeswax Explosion.

On p. 31, Jan. 15, I read your account of an explosion of beeswax. You are correct in presuming it was caused by the immediate conversion of water to steam. It was found by Faraday that when water is freed from air the cohesion of atoms is so great that it does not boil until it reaches a mean temperature of 262° F. The wax inclosed the water, thus closing off the air. These same conditions (a film of oil surrounding water) is the accepted theory of the cause of most boiler explosions. When water does boil under these conditions we have a terrific rupture or explosion.

Joliet, Ill. JOHN E. STALEY.

Shipping Bees from a Warmer to a Colder Climate in Midwinter.

Would it be possible to ship bees in hives from South Boston, Va., to Alberta, Canada, in January or February? How should they be packed—with or without screen on top?

South Boston, Va., July 29. G. H. BERG.

[It would be much easier to ship bees from Canada to South Boston, Va., than from the latter place to Alberta, Canada, during the time mentioned. To answer your question direct, we don't know whether you could ship bees at that time of the year into a colder climate, without bad results, or not. As a general thing, we do not consider it advisable to stir up bees before they go into a long winter sleep; and yet, on the other hand, we have known cases where colonies were moved in midwinter by sleigh and by railway train, then put into winter quarters, and yet came out in the spring in fine condition. If you put the bees, after moving, into a nice quiet cellar, having a temperature not lower than 40° F., nor higher than 50°, the chances are that the bees will come out in the spring in good order, even though they be moved in January or February.—ED.]

Massachusetts Convention of Bee-keepers.

The Massachusetts Society of Bee-keepers held their annual field-day meet at the home of Mr. H. W. Britton, Stoughton, Mass. Situated in a beautiful pine grove, gradually sloping southwesterly to Britton's Pond, a large and handsome sheet of water, and broad meadows with extensive woodlands in the distance, makes the situation of the Bungalow Apis an ideal one. When we add to this the cordial welcome and genial hospitality of Mr. Britton and his family, an ideal day, and three or four hundred enthusiastic bee-keepers, the instructive address of Burton N. Gates, our efficient State Inspector, and the competent handling of bees by President Britton, Benj. P. Sands, and the "Bee-king," M. W. Barrett, it may be seen that nothing was lacking to make the day a bright memory to all who were fortunate enough to be present.

Resolutions were adopted favoring a stringent regulation of spraying, by the coming legislature.

Several members were added to the roll of the society.

Everett, Mass. T. J. HAWKINS.

Bee-keeping in Southern Florida.

Can you give me any information as to the success of bee culture in Southern Florida below the frost-line? that is, do bees do well in the sub-tropics of the United States?

Richmond, Ind., July 19. F. N. FAGIN.

[You will see by a series of articles now running in this journal, from the pen of E. G. Baldwin, that bees can be kept very profitably in Southern Florida. We would refer you particularly to the article in our issue for July 15, p. 426. There are many locations much further south in Florida that yield considerable amounts of honey. One of the most extensive bee-keepers in the world is located near the extreme end of the peninsula.—ED.]

Two Extremes in Treating Foul Brood: Which is Right?

The McEvoy treatment of foul brood seems to stand between two extremes. I have a bee-keeping friend who says, "Burn every thing that was ever touched by foul brood—not only the frames but the hive-bodies. Burning them out, charring them till coffee-brown, will not protect you." There is another extreme. A certain writer said in GLEANINGS some time ago that he places the affected colonies on top of a strong colony which will clean house thoroughly. He also says that he will use the extracted combs that were on top of diseased colonies, the following season. Isn't that rather risky? Kindly let me know your opinion on the following question:

My colonies got foul brood late last fall. The colonies showing foul brood got the McEvoy treat-

ment. For the sake of safety I cut out all combs from extracting-supers, melted the wax, and boiled all frames about ten minutes. When taken from the water some of the wax and slumgum, swimming on the surface, adhered to the frames. Would you consider it absolutely safe to use such extracting-frames again? I do not wish to take any risks. The man who places diseased colonies on top of others would say they may surely be used. My bee-friend here in Detroit would say, "Destroy them." Foul brood is certainly enough to try the bee-keeper's soul. It broke out on me again this spring; but now I hope to have it under control.

Detroit, Mich., June 1. L. LIST.

[There is a golden mean in this matter of disinfecting hives. We advocate using a gasoline-torch or a little dry straw, scorching the inside of the hive. This is ample. It is not necessary to char deep.

In nine times out of ten..and possibly ninety-nine times out of a hundred, it would be safe to use extracting-combs that have never contained brood, that have been over a sick colony. But there is a chance; and on the principle of erring on the safe side we would advise melting up such combs.

The treatment that you gave your frames was sufficient to disinfect them, in our judgment. We should have no hesitation about using them again.

Queen candy may carry the disease if the honey of which it is made is not boiled; see editorial remarks elsewhere. Most if not all queen-breeders boil their honey before making candy of it.—ED.]

A Swarm Brought Down with a Spray-pump.

I am a Leghorn-egg farmer, and a bee-keeping friend of mine presented me last April with a fine strong colony of black bees, and, being in the greenhouse district, I suppose they made increase very fast, for nearly a week ago I noticed signs of a desire to swarm. Yesterday, May 28, at 9 A.M., going by the hive, I noticed the air full of bees, and a quart or two in front of the hive. Being very busy, and not knowing how to go about it to stop the swarm, and not being confident of being able to handle it, even if it did settle near my place, I strained my confused mind to devise some means to stop it, and this is the presumably unscientific thing I did: I got out my sprayer, put on the spray-nozzle, and soaked every thing in sight—hive with a quart or two of clinging bees; the entrance, and into the hive as far as the spray would go; also the bees in the air as far as I could reach. Within five minutes the bees in the air had settled on the hive, when they got another good soaking, and I was delighted to see them all going into the hive as fast as their bedraggled condition would allow them. However, they were not cooled off as much as I thought they were. About noon the same day I noticed what I supposed to be a hanging ball of bees in a tall hickory-tree about ten rods over in neighbor Coulon's garden; but on going out to the hive I found every thing quiet, and thought my eyesight must have deceived me. However, about 5 P.M., my duties taking me under that particular tree, I found the air full of bees, and the swarm in the tree (for swarm it was), melting away as fast as it could. Well, I considered that swarm as good as lost, for I expected every moment to see them strike out for their new home; but, no! there was another surprise for me. In five minutes they were all circling in the air, and then they went back to the hive. I then immediately opened up the hive, an old eight-frame one, found the queen on the fourth frame, and transferred these four frames of brood and comb to the new hive; put a new hive on the old stand, and closed both hives up. I found one queen-cell on frames transferred to the new hive.

Mt. Clemons, Mich. T. J. ASHLEY.

The Mischief King-birds can do in a Queen-rearing Yard.

I have been troubled for the last two years by king-birds catching my bees, and especially the young queens. I know they catch bees, for I saw one perched on the top rail of the grape-trellis which runs over my hives, and every minute or so he would dart out and come back with a bee in his beak, which he killed by rubbing it on the trellis.

Two or three of these birds could make serious inroads on the workers in the spring, as sixty bees is a low estimate for each bird per day. But the worst is, I find it next to impossible to get a young queen started before August, when these birds leave the vicinity. Last year I had two colonies queenless for a long time, and at present have two queenless, one of which has been so since June 8, which I tried to requeen by the use of West protectors and queen-cells, and have given them eggs, and brood-frames with capped queen-cells; but they hatch and disappear. The hives are rather close together (eight in a thirty-foot row), but I have them grouped and painted in contrast, and, further, I succeeded last year when the hives were not so well defined, but after the king-birds left.

This afternoon I saw an old king-bird and three almost grown ones perched on the telephone wires which run over our yard forty feet south of the hives, all busy. I understand these birds are protected by the law, and I should like to know if any thing can be done to dispose of them in a case like this.

Elyria, O., July 24. WM. J. MILLER.

[Nearly forty years ago, when A. I. R. was learning his A B C's, the writer, a lad then about ten years old, observed king-birds catching bees in exactly the way you have described, and quite as often. The birds would have some perch, and every now and then would take a rapid flight over the bee-yard, catch a bee, return to the perch, and kill its victim. We saw the birds catch hundreds and hundreds of bees, and at that time we remember A. I. R. complaining that he lost a good many young queens on the mating-flight. We were authorized to kill them off with a rifle, when the nuisance disappeared.

We think there is no question at all but that the king-birds are responsible for the loss of your young queens. A queen-bee when in flight is larger, and would be more apt to attract the birds than the ordinary worker-bees, and hence a very much larger proportion of them would be killed than of the workers. The obvious remedy is a gun. We do not think there is any law that prevents your shooting them off when they are destroying your property, for king-birds are known to do a lot of damage in a queen-rearing yard. The law permits one to shoot rabbits on his own premises when they are barking trees or otherwise destroying property, even though the season is closed for shooting them. While the law makes no provision for king-birds, under the circumstances no one would raise any objections to your shooting them, we are very sure, unless you have some jealous neighbors who would be inclined to make you trouble.—ED.]

Is the Killing-off of Drones a Sure Premonition of a Drouth?

We have had very peculiar conditions for this section of the country. April 15 our bees were getting honey from a profuse bloom of white clover and horehound. May 1 a cold snap, with frost, struck us, which stopped the honey-flow, and a drouth set in which continued until June 20. However, we had premonition of the drouth, as the bees began killing off all drones, and even the young queens from colonies which had swarmed—a sure indication of a long dry spell. I notice that many of your correspondents report this condition, not knowing why the bees did so. But it is an infallible sign. At this time the clover has come out again, and the bees are at work on that, and on catnip and sumac, as well as other flora, with a good crop of goldenrod coming on for a fall supply of honey.

Reed's Spring, Mo., July 12. N. T. GREEN.

[Your statement is only partly right. Bees may kill off drones when a drouth is in prospect; but if they do so it is not because of the drouth but because honey is failing. In the same way they might kill off drones when a long wet spell is about to come on—not because of the large amount of rain, but because no honey is coming in. When bees start killing off drones we consider it an infallible sign that honey is beginning to fail, if it has not failed altogether. Beyond that, such actions mean nothing.—ED.]

Knew the Effect.

TEACHER—"Tommy, do you know, 'How doth the little busy bee?'"

TOMMY—"No; I only know he doth it!"

—*Technical World Magazine.*

Our Homes

A. I. Root

It had been good for that man if he had not been born.—Matt. 26:24.

I, the Lord thy God, am a jealous God, visiting the iniquity of the fathers upon the children unto the third and fourth generation of them that hate me.—Ex. 20:5.

A few days ago we were to have a board meeting. Some things were urgent, and we were all assembled except Ernest. I had seen him but a few minutes before; but when he is busy he sometimes dodges about so suddenly that it is hard to keep track of him. While I was making inquiries I distinctly heard him talking. I looked in his office, in Huber's office, and opened doors right and left; but although I continued to hear him talking earnestly and plainly he was nowhere to be found. His well-known tones rang out sharp and clear from the *empty air*. I stood with wide-open mouth contemplating this new wonder in the universe; and then, dropping my eyes a little, I saw a girl making the keys of her typewriter rattle while the sounds from the phonograph pointed in my direction; and then the crowd around me laughed at my bewilderment. Just think of it! Sixty years ago the children were telling in school that a man across the way from the schoolhouse had a machine that would make your picture stay in a looking-glass so it could be shown among your friends. People would not believe it; but in an incredibly short time those old daguerreotype pictures were being passed about. The people rejoiced, and are rejoicing *still*, that we can not only *see* our friends of a former generation, but we can see how *we* looked sixty years ago. And *now* after we are dead and gone, our children can not only see our pictures but they can *hear* the well-known tones of our voices—yes, long after we are laid away in the silent tomb. The wonders of electricity are astonishing us day by day. One of the papers recently stated that Edison had invented a storage battery not much larger nor heavier than a well-filled suit-case that would run a little automobile a hundred miles, and it could be *stored* in *four minutes*. Perhaps this was an exaggeration, but something like it is fast coming. Wireless telegraphy goes around the world. It is going to help us explore the north and south poles if there is any thing there *worth* exploring. We are to have wireless telephones, and perhaps wireless transmission of power. Flying-machines now carry packages to vessels out on the sea, and come back again.

In speaking of these wonderful achievements in the way of science and industry, about two years ago I asked the readers of Gleanings what would be the next; and a good brother away off in California answered me that our *Lord Jesus Christ* was coming back to the earth with healing in his wings; and I honestly believe that the Holy Ghost has commissioned me this sunny afternoon in July, 1911, to tell you *how* and in what *shape* he is going to answer the prayers of his people.

Now, dear friends, please do not be startled, and hastily decide that your old friend A. I. Root has for *once* in his life got off his base when he announces to you that the next stride in the way of lessening human *misery*, *sin*, and *crime* will be in the line of *preventing people from being born*. Jesus just once in his life said of a certain person (Judas), in the language of our text, "It had been better for that man if he had not been born." Sometimes we are tempted by Satan to say, "I wish I had never been born." This, of course, is a wrong and wicked thought. No one who has ever been accorded the gift of a human life should ever so far forget himself in ingratitude to his Creator as to make such a speech or harbor such a thought. After God has given us a human life to live, it is our first duty to thank him for it, and, next, to make the best possible *use* of existence. Now, do not misunderstand me. When God issued the command, "Thou shalt not kill," I am sure he meant it to include *ourselves*. We have no right to hasten our death in any way. I am sure of this; and I feel impressed, also, that we have no right under any circumstances to *hasten* the death of *any* one. It is a sacred and solemn gift from the great Creator, and we should preserve it under all circumstances to the last minute. Notwithstanding this, I firmly believe the time is coming when it will be right and proper to restrict the indiscriminate peopling of the world with *criminals* and *imbeciles*. In the issue of the Cleveland *Plain Dealer* for July 22 the Board of Health of the State of Ohio has an article on the "sterilization of those who are mentally defective." Dr. R. H. Grube, of Xenia, O., in an address, said, in speaking of our asylums for imbeciles and insane, "Two-thirds of the inmates of these institutions ought never to have been born." Further along in his address he says, "The State of Ohio is paying more attention to the extermination of hog cholera than it is to the work of preventing the propagation of imbecile citizens." Further along he says, "In the State institution at Jeffersonville, Ind., there have been 500 cases of sterilization, without a fatality or harmful result, and to the vast betterment, both mental and physical, of the unfortunates." Just one more quotation: "In one institution in Indiana is a woman, born semi-imbecilic, who has seven children, all imbeciles, and a burden to themselves and to society. The development of that family was a crime, the like of which that State now wisely prevents."

Now, pardon me, dear readers, if I take a stand that I have never taken before; and I believe it is the Holy Spirit speaking through me that suggests this measure. Last Sunday afternoon the Root Co. and all our neigh-

borhood were rejoicing because of a telegram from our good friend Mr. Udo Toepperwein, of San Antonio, Texas, saying that his great State had "gone dry as powder," and I was going to announce it to our readers in this journal, with much rejoicing; but since then the papers tell us that the rejoicing was premature. The great State of Texas, the biggest one of the Union, has gone wet by the insignificant majority of 6000. Now, why is it, friends, that God has seen fit to withhold, for the time being, the answers to the prayers of his people? It is because we have, in our stupid selfishness, permitted a host of *imbeciles* and *degenerates* to be born that *should have never been born.* The conflict now going on all over our land seems to indicate that vicious men who have no regard for man nor God, nor fear of the Devil, come pretty near *overbalancing* the good, and that emancipation, not only of our own country, but of the *whole wide world*, must come in by stopping certain people from becoming parents and others *from being born.* But that is not all there is to be done. While we stop needless burdens on one hand, we must, with equal alacrity, encourage the birth of good men and women. There are not only childless homes with good God-fearing parents, but there are thousands of homes with only two or three children, where the world would have been greatly benefited by four or six, and possibly more. Look back across the ages, and view the good and great who have come out of large families of children.

The *American Magazine* for August has a beautiful story illustrating this point. The professor, who is the hero of the story, says to the woman of his choice (one of a family of eight childen), when she spoke of the misfortune of being brought up in such a large family with small means, this hero (for such he was) said to her, "In these days when a woman thinks she is entitled to ignore entirely the question of children, if she feels that way, or at most to bring up one or two that the family income provides for luxuriously and easily, there's something magnificent in a woman like your mother, who starts *eight* destinies instead of one. Responsibility—that's what people are afraid of. But it seems to me there is no responsibility like that of decreeing that young lives simply *shall not be.* There's a higher tribunal than the social tribunal of this world, Miss Paget, after all, and it seems to me that a woman who stands there, as your mother will, with a forest of new lives about her, and a record like hers, will—will find she has a friend at court."

And *I* suggest he might have added, "My dear girl, had your good parents thought that *two* or *three* children were enough, *you*, my priceless treasure, would never have *known existence.*"

The world is going wild over poultry. Every page of the poultry-journals is urging getting rid of the scrubs, and breeding only from the best. Do not, by any manner of means, let any poultry remain in your flock that lays crooked eggs, and that has the egg-eating habit or any other trait that you do not want. Breed from the best; and in bringing things along this line to a high degree of perfection, Kellerstrass gets $2.00 an egg, and $100 or more for choice males up to the standard. And so it is all through creation, with plants and animals; and yet as I write, hardly has there been a suggestion made in the way of improving humanity, created in *God's own* image. We can not kill off our criminals as they do the "undesirable citizens" in the poultry-yard; but, may God be praised, we *can*, without doing any great harm to anybody, stop peopling the earth with fools and midnight assassins. I know that bad men *can* be "born again," as in the case of Jerry McCauley and other famous workers in the slums of our great cities; also George Müller, who did so much for the poor of London. Let us go on preaching the gospel, and converting sinners as far as it is possible to convert them, and turn them from the error of their ways; but at the same time let strict laws be enacted to prevent the hoards of criminals that now burden our public institutions, and prey on our hard-working innocent people.

Let me give you a brief illustration of the possible depravity of a human being. A few days ago, in the streets of Cleveland, a tramp accosted a man who looked kindly and benevolent, telling him he was hungry, without work, etc. The good Samaritan took him into a restaurant, paid for a good square meal for this tramp, and then told him where he thought he could find a place to work, etc. While doing so he made a short cut through an alley. When half way through the alley this imp of Satan in human form knocked down his benefactor and robbed him of his watch and money, and left him wounded and bleeding, to be cared for by the police. What shall we do with such a man? If caught, I should say *sterilize* him, and then imprison him for life unless there is some good evidence that he has really *repented* of his former wicked life.*

The Cleveland papers tell us that crime is on the increase. Ever since the mayor raised the lid and told the delegation of ministers that he was going to enforce the law according to the *people's* wishes, and not according to his *oath of office*, crime has been on the increase, and criminals have flocked into Cleveland because they saw in the papers that the saloons were again open all night and Sundays. Now, I honestly believe, and I do not hesitate to say of the man who robbed the one who gave him his supper, it were better for him, as the Savior said of Judas, if he had never been born; and it is our Christian duty, as citizens of our great country, and as God's children, to put a stop to giving birth to such men as far as we can; and I do not know but it would

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*Two of the best of our presidents, as you may recall, were foully murdered by men who ought "never to have been born." In fact, it was a stupid blunder to permit such degenerates as they were to *have a place* on this world of ours.

have been better if some of the mayors of some of our *great cities had never been born.* But since they are *already* born, we ought to have enough good men and women to prevent their being put into such important offices for the protection of our people. May God be praised that the State of Indiana has made a break, and already declares she is going to *stop* breeding criminals. Is it not of as much importance to breed good citizens as it is to encourage a better strain of poultry, horses, cattle, and *swine?* May God help us in this new commission that seems to have just recently been placed on our shoulders.

While dictating the above article a clipping from the Cleveland *Press* of July 22 was handed me. The quotation below is from Edward R. Johnstone, superintendent of the New Jersey home for the feeble-minded, and from his talk we judge he is authority:

There are 300,000 feeble-minded persons running at large in the United States, outside of institutions, says Johnstone.

"Idiocy is a matter of heredity," he says. "We have traced many cases, and have uncovered some terrible proofs. Most of our efforts are being directed toward preventing idiocy.

"Over 100 years ago a young man of a proud family, with a huge family tree, wronged a feeble-minded girl in an eastern village. Then he went his way, married a girl of fine family, reared children, and died, highly reputed, in 1837.

"But the feeble-minded girl gave birth to a son of feeble mind. And this son became the father of 13 children, several of whom were idiots. The busy, changing world didn't pay any attention to the terrible thing that was going on. One of the feeble-minded sons married a feeble-minded woman. They had 19 children! Civilization paid no heed, not any more than it does to-day to the marriage of incompetents.

"One of their feeble-minded sons found a feeble-minded woman. No one stopped them; they brought 11 children into the world! One of their idiot daughters lived with four or five different men, and bore 11 children.

"And the last one in the line of horrors is a little girl, in our institution, who has the mind of a child of two!

"I believe in segregating or performing operations upon all men and women whose marriage would produce defective children. This one youth who wronged the feeble-minded girl over a century ago was the ancestor, through this girl, of 1146 human beings. Of 580 of them we couldn't trace the records. But we found 262 feeble-minded persons, three epileptics, and only 157 normal persons among his illegitimate offspring."

So far as we can discover, the above statements are too terribly true. Not only the United States but the whole wide world has been guilty of prolonging this terrible wrong, this fearful curse on humanity, and allowing it to go unrebuked. From the above it would seem that medical science at the present day is equal to the task of rendering *women* sterile as well as men. May God help us to do our duty.

As we go to press I have not been able to determine just how far feeble-minded persons are permitted to vote. Very likely most of them would not of themselves care to vote or think of voting; but with the present craze for votes by any "hook or crook," it is not unlikely that many feeble-minded men have been permitted or bribed to help perpetuate crime. I suppose that *cruelty* will be suggested; but even if this is true, what is this little cruelty now compared to cursing unborn generations?

Another point comes in right here. Are there not persons who honestly *wish they* had "never been born"? We have proof of this in the number of suicides that are becoming more and more frequent; and I believe that investigation will show that most of these suicides were persons not fit or competent to become fathers and mothers. They consider their lives so worthless that they ruthlessly throw them away. It may be well to remember right here that our saloons, as has been abundantly demonstrated, are, more than any other one thing, responsible for bringing into the world cripples, idiots, and imbeciles. The saloons help to keep up this army of degenerates, and the army of degenerates help to keep up the saloons. Shall they any longer be permitted to make our laws and to block the way of enforcing such righteous legislation as has just been, by a narrow majority, a failure in the great State of Texas?

Just as I was closing up the above I found in our copy-drawer something along the same line, sent us several weeks ago, as follows:

Whatsoever a man soweth, that shall he also reap.—GAL. 6:7.

Mr. Root:—In my work, which is preparing work for the bindery in the college library here, I collected a volume of your interesting papers on bee culture. I found in them a space devoted to temperance. In collecting the October number of "Survey" I found a powerful temperance lecture. It is not long, nor is it of the stereotyped edition. It was this: "A man, an alcoholic, married a feeble-minded woman, a daughter of alcoholic parents. The offspring of the union were three miscarriages and eight feeble-minded children — one of whom was deaf. Seven of these children are at large."

Oberlin, O., April 20. EMMA J. CARL.

It would not be at all strange that a drinking man should take up and marry a feeble-minded woman, the daughter of alcoholic parents. The brief clipping does not tell what the *outcome* was of turning loose *eight* feeble-minded people. It does not even suggest how far the curse extended down through future generations; nor does it tell how much it cost to keep up asylums and prisons to care for such progeny. May God be praised that there is now a widespread movement on foot to *forbid* marriage, by proper laws, State and national, in cases like the above.

SELLING GOODS AT A FAIR AND HONEST MARGIN OR PROFIT, ETC.

After the Home paper for July 15 had gone to press, another reason occurred to me for selling goods on a small margin. If for any reason your customer wants to return the goods you can, if sold "close," take them back and give him his money, without much loss or inconvenience to yourself. Let me give you an illustration. Fifty years ago I put up a sign and started business as a jeweler and watchmaker. As there were two other shops of the same kind already in our little town, I knew I would have to work hard to succeed. After I had been in business perhaps a year or a little more I ventured to put in a stock of watch-

es. I had one watch that in those days was considered a pretty fine timepiece. I think the price was twenty or twenty-five dollars. I finally suceeeded in selling it to an old gentleman who seemed very cautious and careful, and I spent considerable time with him in making the trade. A few days afterward he came back and laid the watch on the showcase. I asked him if there was any thing wrong with it. He said there was nothing wrong at all, for it was just on the mark with my regulator, and he spoke something as follows:

"Mr. Root, the watch is all right, as you say; but now if I tell you I have changed my mind, and would rather not have the watch, how much money can you afford to give me for it and take it back?"

It was a great disappointment to me, for I was short of funds, being new in the business, and I thought hard for a second or two. Finally I made my decision, and then looked up in his face and said, "Mr. C., I sold the watch to you, as I said, at a small profit compared with the usual profit on watches; but under the circumstances I will take it back and give you *just what you paid* for it."

Said he, "My young friend, if you really think you can *afford* to do that I should be very glad to have the money in place of the watch."

With a rather disappointed feeling in my heart I did the best I could to look cheerful while I reached into my drawer and counted out the necessary sum he had paid me. I was going to take the watch and put it back in the showcase. Then came one of my "happy surprises." He began to laugh, and pushed the money back toward me, saying, "Here, my boy, put your money back in the drawer. I was just testing you. A friend of mine told me when I got home that I had been swindled. He said the watch was not worth half what I paid for it, and declared *you* would not give *half price* for it back again. Now, I have lived long enough to know something about human nature, and I told this man that I felt sure I could not be mistaken. I said that frank, honest-looking boy would not take more than a fair price for the watch; and now I have proved you, and you have come out of the ordeal just as I *expected* you would. I will do what I can to help you build up a business on that basis."

From that time forward, as long as the old gentleman lived he was a staunch friend of mine; and as he was an old, well-known, and prominent citizen, it was worth a lot to me. I think I have mentioned before that the two other jewelers, before many years, dropped out and left the trade all in my hands. Now, with the above in view you can readily understand that it was no particular disappointment on my side when something unexpected transpired so that the dear old "cabin in the woods" in Northern Michigan is back in my hands again.

Health Notes

POSTUM CEREAL COFFEE, AND SOMETHING IN REGARD TO OTHER COFFEE SUBSTITUTES.

Even if the Postum Cereal Co. has made a million or more with Postum and grape-nuts, I think the whole wide world can give them a vote of thanks for having *awakened* the whole nation to the damaging effect of coffee and other unnatural stimulants; and it is really almost laughable to think that a man should *get rich* by showing up the harmful effects of coffee that is put forth by means of some of the most extravagant advertising ever seen. While we have used Postum cereal in our home, and like it very much, Mrs. Root and I have often wondered why they should put the price even higher than that of real coffee, and why the people should be willing to *pay* an extravagant price for something that could be made at home for about *one-tenth* of what the Postum cereal costs; and why do they continue to keep up such extravagant prices for something made of wheat, molasses, etc.?

There has been a great deal said about short cuts between the producer and consumer. The farmer raises wheat, and gets for it 80 or 90 cts. a bushel. He usually sells the whole crop and then goes and buys a sack of flour, that has passed through half a dozen hands from the wheat he has just sold, to the grocer's counter, giving each middleman a good profit. Perhaps at the same time he buys the sack of flour he gets a package of Postum cereal, paying 25 cts. per lb. for the wheat he has just sold for a little over 1 ct. per lb. Well, this matter was just brought to mind by a little bag of roasted wheat containing a postal card which reads as follows:

I mail you to-day a sample of our roasted wheat —best made in percolator. Let it pump 30 minutes or more; teaspoon heaping full for 2 cups. I put in some ground as we use it—enough for 8 cups; not good unless ground. Keep it in a sealed can. You will grow to like it—entirely wholesome "wheat soup," made of choice wheat, pure New Orleans molasses, and a little best butter, cost about 3 cents a pound! T. B. TERRY.
Feb. 18.

We clip also the following from a recent number of the *Practical Farmer:*

TWENTY-SIX CUPS OF CEREAL DRINK FOR ONE CENT.

Some weeks ago I sent samples of our roasted wheat "coffee" to officers of the largest manufacturing firm of its kind in the world. Three of them have tested it and reported. The president says: "Wife and I like it very much; in fact, better than any other of the cereal drinks that we have tried." Another officer says: "We tried your cereal drink for several mornings, and enjoyed it greatly. We have used other cereal drinks at our home, but like yours better, even if it does not cost 25 cts. a pound. We have your directions for making it, which were in *The Practical Farmer* for Jan 28." These are the

straight opinions of wealthy business men. They are too well posted to drink tea and coffee. And notice they have saved the article telling how to roast the wheat; and it need cost you only 3 cents a pound and the trouble of roasting; 26 cups for one cent! And it is good. And there is no enormous profit going to make millionaires of manufacturers.

T. B. TERRY.

I suppose the above refers to our establishment, because we *are* probably the largest manufacturers of bee-supplies in the world. Now about real coffee. Two or three times a year I drink real coffee—sometimes, but not often, *strong* coffee, such as is usually served at public eating-places. I never take a full cup, however, for it is too strong for me. I call for half a cup, and then I fill it up with milk. Some of you may ask why I drink coffee at all. It is because I want to keep tab on the customs of our people; and I want to study the effect on myself. Of course, in using coffee so seldom, it produces an unusual effect. Half a cupful of strong coffee, even at mealtime, banishes sleep, and makes me talkative, or inclined to be so; for I hope I have enough good sense to keep still when I am under the influence of any stimulant. I do not know but coffee may have a necessary place in diet, or, rather, in medicine. When I am obliged to be up late at night, or traveling, or at a lecture, a little strong coffee helps me amazingly to hold out; but I am not at all certain that it is the proper thing to use coffee, even in such a case. When one is sick or faint when traveling, a little coffee will brace him up until he gets home, and may be it is all right; but one who wants to live to a good old age, and to preserve his strength and faculties, certainly can not afford to use real coffee; and I for one greatly *prefer* wheat coffee or "wheat soup," as friend Terry is pleased to term it.

A. T. COOK'S DOMESTIC COFFEE-BERRY.

By the way, I have just been testing Cook's coffee-berry. Of course, it is not a new thing; but after using Terry's wheat coffee I thought I would try the soja-bean coffee once more; and I am glad to say that I find it very nutritious, and pleasant to taste; in fact, I like it for a change fully as well as the wheat coffee; and, by the way, I notice by the papers that the soja bean is rapidly coming to the front as a very nutritious and cheap food for all kinds of domestic animals. The berries themselves, or beans, if you choose, contain a larger proportion of nutritious food than almost any other article of diet; besides, as the plant is a legume it greatly improves the soil where it grows by taking nitrogen from the air. All sorts of crops grow ranker and stronger in the ground where a crop of soja beans has been entirely removed. If plowed under as we do clover, it is, perhaps, one of the best if not *the* best plant in the world to bring up the fertility of worn-out or exhausted soils.

Friend Cook says in his catalog the coffee berry is a "big thing" for chickens, and I notice the *Petaluna Weekly* advertises soja bean meal as a substitute for meat for poultry. I have now a beautiful stand of it in our garden.

A BREAKFAST FOOD AT LESS THAN TWO CENTS A POUND, EQUAL OR SUPERIOR TO ANY THING ON THE MARKET.

Mr. A. I. Root:—I have read your writings for a number of years, and like them very much, especially those about health foods. We have a way of preparing wheat which I think makes a better breakfast food than any on the market, and at the very cheap price of one and a half cents a pound—that is, at the retail price of wheat here: It is cheap, healthful, and delicious, and very easy to prepare. Sprout clean wheat, grind in a food-chopper, and bake till crisp. If it is boiled for ten minute before grinding it will grind easier. It may be eaten like grape nuts without further preparation, or may be cooked like rolled oats, but not so long.

North Yakima, Wash., Feb. 18. V. V. DEXTER.

Many thanks, my good friend Dexter; and I will say to our readers that, while I have not yet had time to test what he recommends, I feel absolutely sure it will prove to be all our friend says in regard to it. While sprouting oats for chickens of all ages during the past winter (and we have been doing it continuously) I have often thought that sprouted grains would be a delicious and nourishing food for the human family. The Chinese already have sprouted peas on the market; and the malted-nuts preparation is, if I am correct, the result of sprouting the nuts. During the past winter a great part of our food has been clean wheat, grown right here in Medina last year on our own farm, and ground in a little hand mill I have frequently mentioned. Set the mill so as just to break the wheat grain; then with a sieve take out the fine flour, which makes better graham bread than any graham flour that can be found on the market. The ground wheat that does not go through the sieve is then cooked in a double boiler, cooking it several hours. This form of breakfast food served with butter, cream, and good honey, is about the most delicious food I ever ate, and also one of the most healthful and nourishing. In writing to T. B. Terry, Ernest made the remark a few days ago that it was a dish fit for a king. Terry published it in the *Practical Farmer* and I can fully indorse the statement. Now, then, let us go to work and have *sprouted* wheat for the people, just as we have been having sprouted oats for chickens; and I am sure that multitudes will find there is nothing better in the way of a cheap, nourishing, and healthful food.

OUR GOVERNMENT'S CHEMIST'S OPINION OF THE DRUG BUSINESS.

We clip the following from the *Union Signal* of May 11:

Dr. Harvey Wiley, government food and drug expert, says: "Unless something is speedily done to stop the growth of the drug habit, the United States will become a nation of weak-minded and befuddled people!" He attributes the large and ever increasing number of dope fiends to the fact that doctors prescribe harmful drugs when not at all necessary, and says a physician should never prescribe opium or morphine unless it is for the purpose of saving life, for when a drug is given for some trivial illness, the odds are strong that the patient will continue to take the drug and will finally become a slave to the habit.

May God be praised that we have a government chemist who is not afraid to speak out God's truth, and who can not be bribed

to favor any business speculation, especially where it touches on the health and well being of the people of our nation.

CUTICURA AND SOME OTHER THINGS; A CORRECTION.

Dear Mr. Root:—In your health notes for March 1 you speak of a spot on your back that you thought was eczema. For nearly 30 years prior to February, 1910, I was troubled with a spot on the inside of my left leg, near the groin. It grew till about three inches in diameter, and at times itched intolerably. I used cuticura soap, but to no avail. In February, 1910, I had a violent spell of sickness which lasted into March. When I got well I found the itching spot on my leg was entirely gone, and I have not had the least indication of it since. Nothing at all was done to cure it during my sickness. In fact, the doctor never knew of it, as I did not tell him.

Electropoise and Oxydonor are the most contemptible things that were ever sent out to gull the public.

Peru, Ill., March 28. E. H. WHITAKER.

Well, friend W., from the above it would appear that a "violent spell of sickness" sometimes does a body good; and I want to express a hearty amen to your closing sentence concerning Electropoise and Oxydonor. For some reason or other I have not yet been able to get our State, or, better still, the United States, to take hold of this thing.

By the way, several of our subscribers have called my attention to a mistake that the printers made when I spoke of 50 cents a box for the Cuticura ointment. What I said, or meant to say, was that this 50-cent box contained not much more than a *tablespoonful*. By a blunder, when it got into print it read *teaspoonful*. To come right down to fact, the box contains about *five* level tablespoonfuls. God knows I did not mean to be unfair with the Cuticura people, especially as the spot on my back has never reappeared; in fact, it is a hard matter now to find even the scar of it.

Temperance

THE EXPRESS COMPANIES AND THE LIQUOR-TRAFFIC IN PROHIBITION TERRITORY.

I have just clipped the following from the Chicago *Advance:*

Approximately 20,000,000 gallons of liquors annually are shipped by express, principally from mail-order houses, direct to consumers in prohibitive States. This startling fact was developed in an inquiry conducted by the interstate-commerce commission into proposed changes in express classifications which resulted in an advance of rates on packages containing liquor. Jacksonville, Fla., probably the largest shipping-point for liquor in the South, sends out between three and four thousand packages of one or two gallons daily, and Norfolk, Va., Cairo, Ill., Emporia, Va., Louisville, Ky., Portsmouth, Va., Roanoke, Va., and Savannah, Ga., ship more than 100,000 gallons each annually.

I also clip the following from the *Freight-payer and Consumer:*

The decision of the Supreme Court, that this traffic was interstate, and superior to interference by the State governments, gave the industry a tremendous impetus, and established the express companies as the carriers of practically the whole of this traffic.

The movement is more active in the South than in other sections of the country, partly because of the extent of the prohibition territory there, and partly because of the large quantities of very cheap whisky manufactured and shipped there for the consumption of the negro population."

I hardly need remind our friends that there is already a nation-wide protest against the exorbitant charges we are obliged to pay the express companies, and because they are blocking parcels post, which would, of course, break down their schedule for carrying stuff. Well, *this* is bad enough; but when it transpires that we can not enforce prohibition just because the express companies of the United States have discovered that there is "big business" in going into the liquor-traffic, the last straw is being added to the load the hard-working people have been carrying. Several times in my life, while remonstrating with friends of mine who have "acquired the appetite," I have been told they had *got* to have the drink, as they could not *live* without it. People in such circumstances generally have very little means to supply the demands of appetite. Oftentimes—in fact, almost always—there is a poor wife and mother and a lot of hungry children dependent on this unfortunate slave of drink. Well, in addition to the high price consumers have to pay on liquors, in the way of licenses, government tax, etc. (it is a tremendous one too), as you will notice in the above clipping, the express people have *advanced* their rates for carrying *liquors*. I have before reminded you that, when we go down to our Florida home, a great lot of express packages of all sorts and sizes are dumped off at every little railroad station. I have since been told that these packages are liquors from dealers here in the North. A large portion of these express packages are called for by colored people, and our last clipping explains it. We have a United States law forbidding the sale of intoxicating liquors to Indians, because under its influence they become crazy drunk and commit crime. Now, why in the world should there not be a law made to keep the same liquors out of the hands of the colored people — especially the lazy and dissolute? They have committed crime, and are committing crimes, mostly under the influence of liquor, that a respectable magazine would hardly want to name in print—crimes that our American Indians have *never* been guilty of so far as I can discover. Now, after we by hard work, and by the expenditure of much money, have made many counties, towns, cities, and States dry territory, why in the world should these express companies *continue* robbing our hard-working people? why should they be permitted to *undo* our temperance work, and bring the results to naught because they are going

to get a little more money out of it? May God help us in our efforts to cause a halt on the express companies, in just the same way we *have* succeeded in calling a halt on the brewers and distillers.

THE FIGHT FOR RIGHTEOUSNESS IN LOUISIANA.

I am enclosing you some newspaper clippings of the fight against the return of saloons in Caddo Parish and in Shreveport, the second largest city in the State. We are often accused of being a lot of crawfish-eating, wine-drinking, crazy Frenchmen who don't know when Sunday comes. Well, I must admit that some of us, at least, are not what we should be; but we are trying to ditch and reclaim some of the low lands and whisky districts; and if *we* don't succeed, we are going to raise a lot of men and women who *will*. Read the clipping, and tell us what you think of Louisiana and its people.

Montrose, La., June 2. O. A. LILLEY.

I will explain to our readers that Bro. Lilley sent a long clipping from which I extract the following:

The prettiest part of the parade was the baby battalion, which was headed by a baby carriage drawn by eight little tots. The buggy was beautifully decorated in white, and above the little baby in the buggy was the white dove of peace. Following these came a number of mothers pushing their babies, and after these came ladies, some with children by their sides, and some carrying little tots in their arms.

The air was hot and sultry; but amid the dust of the streets the eyes of all seemed to shine with a holy light of determination which made possible in other ages the crusades when men, women, and children marched across the hot sands to win back the Holy Sepulcher, only to die in the fruitless effort.

I want to say to him and all others who are fighting and praying, that there is no question in regard to success if the good people do not lose their enthusiasm and backslide. It is true that the saloons have come back into a few towns and counties; but investigation has invariably shown that it was because so many people had a notion that the "drys" were going to win any way that they stayed away and did not vote. Just think of it, friends, if you have not already done so. While these mothers and fathers and the little children are fighting for every thing that is good and pure and holy, the opposing party have nothing to offer in defense of their traffic, except that they want the nickels that justly belong to these hard-working men, women, and children.

OVER $5000 FINE, AND A YEAR IN JAIL.

We clip the following from the *Rural New-Yorker:*

The severest sentence ever imposed on a violator of the local-option law in Douglas County, Ill., was given to Horace W. Sorrells by Judge Dolson at Tuscola, Ill., May 3. Sorrells was sentenced to 360 days in the county jail, was fined $4900, and must pay $556 court costs.

May the Lord be praised that our nation of people are waking up to the importance of law-enforcement—especially to the importance of punishing those who do not heed our local-option laws. Defiance of law of any sort is a serious matter; but when our States and counties have enacted righteous laws to keep intoxicants away from our children, and older ones who need protection, it is of the utmost importance that "transgressors" be speedily taught that their "way" is indeed "hard."

THE SUNDAY-SCHOOL MAN AND BREWER.

The following was sent us with a kind letter from a man who says he is going to take GLEANINGS as long as he lives, even if it does not say a word about bees:

Dear Mr. Root:—I send you a clipping from my county paper that gives one good reason why the wet vote wins out in some places. I hope the day is coming when at least all Sunday-school men will vote dry.

Along in November, when chill was the weather,
Two ballots were cast in a box together—
Two ballots were cast in together.
They nestled up close like brother to brother;
You couldn't tell one of the votes from the other
You couldn't tell one from the other.
They were both rum votes, and sanctioned the license plan,
But one was cast by a jolly old brewer,
And one by a Sunday-school man.

Lake Cicott, Ind., July 17. THOS. C. JOHNSON.

Yes, my good brother, in times past the Sunday-school man and the brewer have, at least to a great extent, been voting the same ticket; but, may the Lord be praised, just now the Sunday-school man and the brewer seem to be parting company for good and for ever.

CONDITION POWDERS, ETC., FOR POULTRY AND OTHER DOMESTIC ANIMALS.

On page 381 I spoke of what the North Carolina Experiment Station was doing about "poultry tonics." Well, the following clipping from the North Carolina *Progressive Farmer* gives some of their reasons for charging a dollar for their paper:

NO PATENT STOCK FOODS.

We are not in partnership with any of the schemers who would swindle you. For example, one of the most outrageous frauds being perpetrated on the American farmer is that of prepared stock foods—common meal, bran, etc., with a little cheap sulphur, salt, Epsom salts, pepper, saltpeter, etc., added to change the taste, and the mixture (hardly more valuable than ordinary ship stuff) put up in flaming packages advertised in big illustrated advertisements in farm papers, and sold to gullible farmers at from $250 to $2250 a ton. And yet *The Progressive Farmer* is the only leading farm paper in the country in which you will not find these stock foods advertised—the only paper that has dared stand by the farmers and expose the whole miserable fraud. Some time ago the chief Southern contributor of one of the farm papers most largely circulated in our territory wrote an article giving the truth about this gigantic swindle, and sent it to this same paper. The reply came back: "The —— Stock Food Company pays us $3000 a year for advertising, and we should lose if we were to print your letter. Please don't insist."

This was that farm paper's policy; and if *The Progressive Farmer* would consent to take $3000 or $4000 a year for helping foreign corporations swindle you into paying $2000 a ton for flavored wheat bran—oh, yes! we might sell you our paper for 50 cents, or 25 cents a year, or we might even be able to give it away in clubbing offers with your county paper. But we are not going to do it.

Their concluding argument touches on a point that should be considered by the editor of every home paper. Is the periodical published for the benefit of the farmer and to protect his interests, or is it published to exploit some patent-medicine advertising? If the latter, do not be surprised and do not complain, if you find your paper in a little while without subscribers.

Gleanings in Bee Culture

Published by The A. I. Root Company, Medina, Ohio

H. H. Root, Assistant Editor
A. I. Root, Editor Home Department
E. R. Root, Editor
A. L. Boyden, Advertising Manager
J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX SEPTEMBER 1, 1911 NO. 17

Editorial

Don't wait too long for better prices or you may get left. Now is the time to sell.

WHY SINGLE-TIER SHIPPING-CASES ARE BETTER THAN DOUBLE TIER; TWO VERSUS THREE INCH GLASS.

Mr. R. B. Slease, of Roswell, New Mexico, a bee-keeper who has had some twenty years' experience in shipping honey, votes in favor of the 24-lb. single-tier shipping-case with two-inch glass. He says the trouble with the double-tier case is that it is too nearly square; that express men are "just as liable to chuck it down on its side as any other way." "The single-tier case," he goes on to say, "will always go flat or on one end." He does not favor three-inch glass, because that width weakens the case too much.

R. L. Taylor, in a letter just received, writes:

> There may be honey that looks better behind a three-inch glass, but I have never seen it. It's my opinion that a two-inch glass is better every way.
> Lapeer, Mich., Aug. 10. R. L. Taylor.

Our older readers will recognize Mr. Taylor as one of the officers of the National Bee-keepers' Association, an old-time contributor to *The Bee-keepers' Review*, an occasional contributor to Gleanings, and one of the prominent bee-keepers of Michigan. This question of the proper width of shipping-case glass is an important one. Dr. Miller favors a three-inch glass because he thinks it shows off the honey to better advantage. While this is probably so, the added width weakens the case rather more than the difference in proportion to the two widths would indicate. See what Mr. Foster, in his department in this issue, page 517, says on the subject.

NOT GUILTY AS CHARGED.

There has been some little discussion going on in Connecticut concerning the question whether bees puncture sound fruit. One correspondent in *The Connecticut Farmer*, who takes issue with the statements made in our A B C and X Y Z of Bee Culture, that bees do not puncture sound fruit, says the perforations of plums, which he alleges the bees made, "were quite too small and delicate to have been made the by tiniest beak of bird." In this he shows his woeful ignorance. The facts are, there are several birds that make very small perforations. One of them in particular, the Cape May warbler (*Dendroica tigrina*), makes an incision no larger than would be made by a common darning-needle. Some of the holes are no larger than would be made by a common pin. We have caught Cape May warblers in the very act of making perforations on grapes, and immediately examined the fruit after the bird had flown, and before any bees were on the job. Of course, the bees later on, if it be during a dearth of honey, visit the damaged fruit and suck the juices out until it shrivels up into a withered mass.

It has been proven over and over again that bees will not puncture sound fruit, although they will help, many times, to despoil fruit already damaged that would rot unless used at once.

HONEY-CROP CONDITIONS: A CAUTION CONCERNING THE RECENT ADVANCE IN PRICES.

It is becoming more and more apparent that the honey season east of the Mississippi River and north of the Ohio has been more nearly a complete failure than for many years back. While there are bee-keepers here and there who have been favored with exceptionally good crops, the great mass of producers throughout the northeastern portion of the country have secured no surplus; and those more favored have hardly enough to carry their colonies into winter quarters without feeding. Clover and basswood honey will be scarce this year — particularly in the comb.

The conditions west of the Mississippi have been much more favorable. It would appear from our Rocky Mountain department, this issue, edited by Mr. Foster, that for his section of the great West there will be a fair crop of alfalfa. Some of the other alfalfa States will have from a light to a fair crop. California, from the latest reports, taking the State as a whole, has had a good crop. Some bee-keepers in the southern portions of the State, however, will have a

much lighter yield than they expected. Consumers in the East will have to take Western honey. It is just as good, but the flavor is different.

Western honey, owing to the lightness of the Eastern crop, has advaneed from half a cent to a cent and a half over last year's prices. Producers, however, should not make the fatal mistake of making too radical or too rapid an advance, as dealers will refuse to pay the figure, and buy other commodities involving less risk. This statement is not based on theory, for we can furnish the names of a number of large buyers who will not pay the prices now asked. If these men drop out permanently it will have a bad effect on the market. The more active buyers we can have in the field, the better for the trade. It will not do to advance further, as we are fearful that it will queer the market, with the result that prices will take a slump when the buying season is over. Let us hold the present prices if we can; but let us not go higher.

"FIFTY YEARS AMONG THE BEES."

NOT many in our ranks have been keeping bees continuously for half a century. There are many who are alive to-day who kept bees fifty years ago, but they have dropped out of our ranks, or at least we do not hear from them any more. If there is one man in all the United States who can be properly classed as the Nestor of American bee-keeping—a man who has earned his bread and butter from what he knows about bees for a period of nearly fifty years, it is the genial editor of Stray Straws, the man who has the reputation of having a smile that won't come off. For fifty years Dr. Miller has been playing and working with his bees. Playing? Yes, the sage of Marengo, 80 years young, has all these years been making his work a play. It is quite remarkable that one of that age should be so full of enthusiasm; and more remarkable still that his hobby of fifty years ago is his hobby to-day—one that has been a money-maker.

It is rare indeed that one can sell his crop of fruit or honey before it has been produced. But Dr. Miller is one of those men who have been able to produce such a fancy article of comb honey that he has been able to sell it, not only by the carload, but before the honey-flow had actually begun. The man who knows *how* to play, and make his play *pay* in dollars and cents, like this, ought to be able to tell others how to do it. If there is any one in all our ranks who knows how to tell what he knows, it is the author of Stray Straws and "Fifty Years Among the Bees."

It is needless to say that Dr. Miller's style is conversational, attractive, and easy. He takes the reader into his confidence, and talks to him just as if he were in his actual presence. He uses no "highfalutin" expressions, but writes in the plainest and clearest English. He talks familiarly of the members of his own family; and after you have read the whole book you feel as if you had been spending a delightful summer outing with the sage of American apiculture.

The new edition of "Fifty Years Among the Bees" is not only thoroughly revised but considerably enlarged. It is printed on a high quality of enameled book paper, thus bringing out the original photographs of the author, so that they stand out clear and distinct. The price of the book is $1.00, postpaid.

A NEW OLD SCHEME FOR OUTDOOR FEEDING; HOW BEES HAVE THE POWER TO EJECT THE EXCESS OF WATER FROM THIN SYRUP WHILE ON THE WING.

A FEW days ago we received a letter from Mr. J. E. Hand, the inventor of the Hand bottom-board, one of our regular contributors, and a prominent queen-breeder of Northern Ohio. As his letter presents a rather new idea in outdoor feeding we are glad to place it before our readers:

Mr. Editor:—In a recent number of GLEANINGS you quote Mr. Pritchard as saying that scientific feeding is preferable to an ordinary honey-flow for queen-rearing, but leave us in the dark as to what constitutes "scientific feeding." With the hope of gaining further information from Mr. Pritchard upon the subject I will outline a system of open-air feeding that, while it may not be exactly scientific, approaches very closely to the conditions that exist during a natural honey-flow, with the advantage that it is under the control of the apiarist.

While we can scarcely hope to improve upon nature's methods, we can imitate them so closely as to enable us to rear queens during a dearth of nectar that are every whit as good as those reared under the swarming impulse in the midst of a natural honey-flow. There has been no nectar to be gathered in our location since the first of July, and no prospect of any change for the better during the remainder of the season. About Aug. 1 many of our nuclei had become almost destitute of stores, and the feeding problem began to loom up before us with alarming proportions. The situation was rendered more aggravating by the fact that the bees had become so ravenous that it was a difficult matter to cage queens or manipulate frames without creating an uproar among them. Finally it became evident that something had to be done quickly; so we arranged ten of our old-style feeders in a line close together uppn benches, and filled them with syrup, half sugar and half water. This gave us a feeding surface of about 15 square feet and 2 inches deep, the pans being provided with slats standing on edge ¾ inch apart, so the bees could get the feed without any danger of drowning.

Now for the results: We soon found that the feed was too rich, as it caused too much excitement among the bees, and they gathered it up too rapidly. After some experimenting we found the conditions that prevail during an ordinary honey-flow. There was no excitement about the feeder nor in the apiary—only that quiet and contented hum that gladdens the heart of the bee-keeper, and tells him that his troubles are at an end so far as robbing and starvation are concerned. Nor were we disappointed in this respect, for the next day after starting the open-air feeder we caged queens and manipulated frames exactly as though we were in the midst of a natural honey-flow, with no signs of robbers anywhere.

The conditions that approached more nearly to those existing during a natural honey-flow were found when feeding a ten-per-cent solution—that is, nine parts water to one part of sugar. We have about 400 nuclei and 75 full colonies in the yard, and the feeder above described affords ample room for stimulative feeding when feed of the proper consistency is used. The amount of food taken by the bees is regulated by making it richer or poorer as required, and is under the control of the bee-keeper. When feeding for winter stores the feed should be considerably richer than for stimulative feeding to produce an artificial honey-flow. Half and half

sugar and water fed in the open air during August and the fore part of September will place the bees in excellent condition for winter.

Since adopting this system of open-air feeding we get better queen-cells: the bees are stimulated to greater activity, and the queens mate two or three days earlier. Breeding is going on at a rapid rate, and our hives will be filled with young bees to go into winter, which, in connection with well-ripened stores of sugar syrup, is about the best kind of life insurance for bees. In order to practice open-air feeding profitably, one should be isolated a reasonable distance from neighboring bees. Every queen-breeder is supposed to be so situated.

An ideal open-air feeder would be a pan 6 feet long by 3 feet wide, and 4 in. deep, provided with a frame-work of slats standing on edge ¾ inch apart, with a thirty-gallon tank to supply the feed through a half-inch pipe having a faucet to regulate the flow. If located convenient to the water supply, the tank could be filled in a few minutes each day, and would not require further attention. I do not advocate the feeding of thin sweetened water for spring stimulative feeding, as it exhausts the vitality of the old bees that have come through the winter, and causes them to drop off rapidly. I have about come to the conclusion that in the fall is the right time to practice stimulative feeding.

J. E. HAND.

A few days after this we drove down to Mr. Hand's place, some 35 miles away. After talking with him about his switch-lever bottom-board we went out to the bee-yard, where we found this new scheme of feeding in operation.

"There," said Mr. Hand, pointing with some pride to a lot of outdoor feeders, "I believe I have solved one of the problems that confront every queen-breeder during a dearth of honey. I have here what corresponds to a natural light honey-flow. All my hives are in splendid condition. Bees are rearing brood, and the cell-building colonies are at work constructing cells."

"But," we said, "haven't you found that this outdoor feeding wears out your bees unnecessarily?"

"Not if the feed is made *thin* enough. Notice that there is no excitement, no crowding, and no bees with the fuzz worn off their bodies when the feed is richer. See here."

So saying he picked up a common galvanized pail, poured in about ten quarts of water, then a quart of sugar. With a common dipper he stirred the mixture until it was all dissolved. He next poured this over the feeders and *on the bees*. Some of the bees, during the pouring, were pushed into the syrup, or what was in reality nothing more than sap or sweetened water. They would climb up the sides of the feeder, and take wing as if nothing had happened. We then tasted the sweetened water, and remarked, "Mr. Hand, we can scarcely taste any sugar at all."

"That is true," he said; "but it is strong enough to keep every thing booming here."

"But," we interposed, "think of the quantity of water that the bees have to evaporate out of that kind of sap."

"Say, Mr. Root, just follow me."

We walked back some fifty feet, and, turned about, faced the feeders. We were then looking toward the sun and the dark background of the trees.

"Now," said Mr. Hand, pointing, "you watch those bees as they fly out, and you will find them shooting tiny squirts of water when they are ten or twenty feet away from the feeders in the air."

Sure enough, tiny streams of water were being shot out from each individual bee. Some squirts seemed to be eighteen inches long. Then we recalled what A. I. Root had written in the old A B C book, under the head of "Water." You will remember how he told about bees on the wing ejecting water on large dinner-plates he had set out to catch the spray.

We raised the question whether the bees did not discharge a large portion of the water in the nectar on the wing before entering the hives.*

Our host thought that bees do not have to evaporate *all* the excess of water from the nectar that they bring into the hives. While admitting that *some* of the water is removed by the fanners at the entrance, he contended that this sugar-and-water mixture was not so wasteful of bee-life as we might suppose, because the bees will discharge water from thin syrup in precisely the same way that they discharge water from their nectar. "Then why not," he argued, "follow nature in this matter of feeding?"

A short time ago we received a letter from Dr. Miller, who, while indorsing our slow method of feeding in the hive through one or two small holes in a pepper-box feeder, suggested we would find it much to our advantage to make a one-to-three syrup instead of a one-to-one syrup.

While outdoor feeding is an old idea, the scheme of using sweetened water (ten of water to one of syrup) is a rather new one. It is going back to a weak nectar. If the bees have a delicate apparatus in their bodies by which they can separate the excess of water from the sugar while on the wing, and before they get to the hive, is it not possible that, when they are fed in the hive with a thin syrup, they rush out of the hive to discharge the excess of water rather than to find where the syrup comes from. We are asking for information, for we don't know. Of course, other bees in the air are attracted by these wild commotions, and they immediately start on the hunt, prying around the entrances.

This is a very interesting field to exploit —the more so since one of our queen-breeders, Mr. Mell Pritchard, who has just passed his 10,000-queen mark, says he thinks this scheme of outdoor feeding of sweetened water is one of the biggest things that have been presented to the queen-breeder, and possibly honey-producer who has a lot of weak colonies that need stimulating and feeding in order to get them in proper condition for winter. Later we will answer Mr. Hand's question on what he meant by "scientific queen-rearing."

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*In later years A. I. Root, with the members of his family, while watching bees take copious drinks of nectar from the spider-plant, repeatedly saw them load up with nectar, and, as they left the blossoms, discharge the excess of water in the form of a tiny squirt of pure water. The writer distinctly remembers this as though it were yesterday.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

J. E. CRANE, p. 485, if my bees ever tore down one side of worker-comb and rebuilt drone-cells I never noticed it.

WESLEY FOSTER, however it may be in Colorado, here we have whole combs of brood sealed, not a cell missing. If, as you say, p. 452, only ¾ of the eggs laid come to maturity, there ought to be unsealed cells mixed in. Wish the Washington savants would tell us about it.

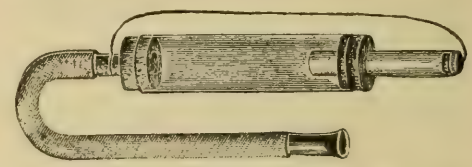
THREE WEEKS after swarming, Lizzie J. McCalmont found in the mother colony a queen but no eggs, page 473. Was not the only trouble that the queen had not yet begun to lay? The virgin emerges about a week after the swarming, and lays when eight or ten days old, say sixteen days after the swarm issues. In this case it might easily be five days later, either because the swarm issued before the sealing of the first cell, or because of delay in fecundation.

TO PROTECT passers-by from an apiary within 25 feet of the street, a fence of poultry netting 40 inches high was erected. The netting had a two-inch mesh, but the bees all flew over it, not one going through, although one colony was only 12 inches from the fence.—*Schweiz. Bztg.*, 229. [We have not tried this, but we believe it is true. In the same way, bees do not like to fly through tall grass and weeds to get to their entrances; and yet we bee-keepers are careless enough to force them to wear out their wings prematurely.—ED.]

THE QUEEN of No. 64 was caged and the cage stuck in the entrance of the hive. Nine days later an egg was found in a queen-cell. Colony very dark. Did a worker lay that egg or carry it from the cage? [We have had a couple of cases where queens laid eggs in a queen-cage and the bees deposited them in queen-cells, or queen-cups, and raised queens. Dr. L. A. Simmon, of Auburndale, Fla., will shortly tell of a very remarkable case that came under his observation. He showed us the cage of queen-cells and the queen.—ED.]

HERE'S my latest feeder for a small quantity at dusk in hot weather: A tumbler of syrup at the entrance, with cork-chips for a float. If the evening be cool, kick the hive and then run. [This scheme will work; but a beginner ought to be cautioned not to place too much food before a weak nucleus, for they might not be able to take it all out before morning. Your advice to "kick the hive and run" had better be practiced by all beginners when putting food out this way in front of an entrance, otherwise the bees might not discover it.—ED.]

THE EDITOR of *Australian Bee Bulletin* says bees can not transfer eggs, for even he himself has tried it and failed. [This statement is surprising. The fact that our friend failed to move eggs and have them hatch is by no means proof that the *bees* can not do it. Bees can do a thousand and one things that we can not do, and there are a few things they do that we can do, and one of them is moving eggs. If our friend, the editor of the *Australian Bee Bulletin*, will spend a summer in a large queen-rearing yard he would probably change his mind. See answer to Straw in this issue regarding the queen of No. 64.—ED.]



AUFSAUGEFANGKAEFIG (suck-up-catch cage) is the name of a new contrivance for catching a queen without touching her with the fingers. The cut from *Ill. Monatsblaetter*, 59, needs little explanation. Place the end of the little glass cylinder, give a quick suck, and the queen will be in the cylinder, when you will put in the plug. Of course there is no chance for the queen to pass into the rubber tube.

I HAD A CHANCE to try carbolic acid for robbers. A fierce attack was made upon No. 109. I dipped the tail-feather of a turkey in a bottle of carbolic acid and drew it once across the front of the hive just above the entrance, then dipped it again and drew it just once across the alighting-board. A solid phalanx continued to fly at the entrance, but not a robber passed through that two-inch space perfumed above and below. The effect continued for fifteen minutes, and every fifteen minutes for the rest of the day I painted the entrance afresh. In the morning the robbers were at it again. I carried the hive into the cellar, and put in its place an empty hive of like appearance. Next day I returned No. 109, closing the entrance to one square inch. There was no further trouble. [We have tried experiments somewhat similar, but the acid seemed to confuse the inmates of the hive as well as the robbers. We did not, however, apply it in just the way you describe, around the entrance. As we now recall, we sprayed a weak solution over the entire entrance, robbers and defenders alike. We will try it again at the next opportunity, and perhaps the results will be more favorable, providing we make a "dead-line," so to speak, an inch or so from the actual opening of the entrance itself. Robbers would have to pass the "dead-line" necessarily, while the defenders of the home would not, and would, therefore, have the advantage. You do not say whether the carbolic acid you used was full strength or diluted; but we infer full strength. Please enlighten us if we are mistaken—ED.]

Bee-keeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

THE HONEY CROP.

The crop of white honey has been good in places. The lower Platte Valley in Colorado has had a good return, as has also the Arkansas Valley. The Arkansas Valley west of Pueblo, a district where bees have never gained much surplus, seems to be improving, and the crop this year will be of some importance. Northern Colorado, having lost from 25 to 75 per cent of its bees, will not have a crop of any shipping importance, though the bees have done well where water was abundant and grasshoppers and frost not too severe on the alfalfa.

The western-slope crop will be fair—good in places and poor in others. This part of the State will probably ship more honey than the eastern section. Taking it all together the crop will be larger than for two or three years.

THE RELATION OF THE BEE-KEEPER TO THE FOUL-BROOD INSPECTOR.

It may not be out of the way to remark that the bee-keeper who knows foul brood and its treatment, but who waits for the inspector to look at his bees, should be apprised of the "cost of something for nothing" in this case. The bee-keeper is the greatest loser, his neighboring bee-keepers coming next. It is gratifying to know there are not many such, though there is a certain type of individual who has a wrong idea of his personal responsibility for his own bees and the duties of the inspector. If all the bees were kept by a specialist there would be small need of inspection; but as this is a land of equality of opportunity for all, even to the extent of having the right to blunder, I suppose we shall have foul brood with us continuously. And then the ranks of veteran bee-keepers have to be recruited from among the host of beginners, so we should not feel too badly toward the uninformed individual.

THE NEW COLORADO INSPECTION LAW AND THE OLD ONE.

Some new developments have taken place, and have been heard of since writing last. Governor Shafroth vetoed $3000 of the $5000 appropriated for the biennial period, which leaves $2000 to do the work until November 30, 1912. The county inspection law is not repealed except where it conflicts with the State inspection law. The inspector for the State is the writer, who will act under the direction of Prof. Gillette, State Entomologist. It is desired to coöperate with the county inspectors, and aid them in every way possible. It will not be possible to take up work in counties where the county will not support its own inspector. The funds for this work will not permit. I should like to hear from bee-keepers in Colorado where inspection is needed, so that arrangements can be made to coöperate with the county inspectors, and all interested bee-keepers for the thorough prosecution of the work.

Dr. Phillips, of the Bureau of Entomology, will be with us in September; and if your county would like to arrange a meeting of the bee-keepers and county inspectors, Dr. Phillips, Prof. Gillette, and myself will probably be able to attend if we can arrange dates.

THE CASE OF THE DOUBLE-TIER CASE.

Dr. Miller has been about the only champion of the double-tier case east of Colorado who has spoken his views in the bee-journals; and now to think that the reasons he has for preferring the case are not *my* reasons! He likes the double-tier case because of the greater amount of honey shown, and asks for the three-inch glass. I like the 2½-inch glass far better than the three-inch; and the two-inch glass is wide enough for any market conditions. A double-tier case with three-inch glass can not have the front strips more than one inch wide, and that is *not* strong enough, Dr. Miller to the contrary notwithstanding. He must remember that his Straws are blown by the wind further than Marengo or Chicago or Illinois. One can not expect a freight-handler or express-driver to know the exact amount of jar which a case of comb honey will stand. I will conflict with the editor when I say the object of the glass is not for the benefit of the handlers, but to display the honey to the customer. There is not one freight-handler in five but would drop a case just as far whether he knew the contents or not, unless he was warned by a caution-mark. The bulk of the comb-honey product is shipped in carrier-crates, where the glass is not exposed, and in car lots where the loading is done by men familiar with the goods, and is unloaded under the buyer's supervision. Comb honey does not ship any more safely, if as safely, in glass-front cases with glass exposed as where crated, or the glass protected and so covered up. If the glass is exposed, a foot is more likely to be put through the glass accidentally, or the corner of a box crushed through the glass. A large percentage of the cases where the glass is exposed will be turned glass side up by careful but inexperienced (with honey) express and freight men.

I would vote for a half-inch-thick cover and bottom before I would vote for three-inch glass. Two-inch glass will admit of wide and strong strips, and 2½-inch glass is as wide as should be used. I would prefer the appearance of a two-inch glass, double-tier case, to one of three inches. I have seen the two-inch glass and the 2½-inch glass in double-tier cases, but I have never seen the three-inch. Have you, Dr. Miller?

NOTES FROM CANADA

J. L. Byer, Mt. Joy, Ont.

Dr. Phillips, in speaking of the two kinds of foul brood, says, on page 407, July 1, "There is usually little odor in European foul brood." I hardly think that will apply to the Ontario brand, as some of the worst-smelling cases I ever came across have been of the European foul-brood variety. A few weeks ago I was called to look at a case of this disease, and the combs could be smelled ten feet away on the windward side of the hive. The colony had been an extremely strong one, and had evidently got the disease by robbing, or finding a vessel that had contained honey, as practically all the brood was dead. Probably the large amount of dead brood was responsible for the rank odor; but whatever the cause, the smell was certainly disgusting.

EXTRACTING THE LIGHT BEFORE THE DARK HONEY COMES IN.

Editor Hurley says, in the July *Canadian Bee Journal*, "at the close of the basswood flow or other light-honey-producing plants, start the extractor going promptly if you are living in a locality which gives you a buckwheat flow. There is no excuse for letting the two become mixed." Begging your pardon, friend Hurley, this scribbler would beg to differ with you, and say that often there is a really good excuse for allowing the two to become mixed; and I want to say right here that in many seasons, in quite a few localities, the anxiety to keep the two separate results in a lot of green honey going on the market. By all means keep the two separate when possible; but rather have a mixed *ripened* honey than green pure basswood or thistle honey *unripe*. We have been there, and have been under temptation, too, and that at no later a date than the season of 1910. Basswood gave a light flow, and thistles yielded the best I ever knew. Just as they were about over, some fields of buckwheat began to bloom. The honey was unsealed and thin; but my! how we were tempted to get off an extra thousand of white honey, especially after the season had been none too good! In fact, we yielded to temptation and took off a few hundred, and then were ashamed of the quality we had. I may as well confess that I was afraid to dispose of the 200 odd pounds taken off, and later on I fed it back to a strong colony and had a lot of sections finished with it.

1911 A YEAR OF FAILURE.

This is Aug. 12, and still the weather is *dry—very* dry. The season of 1911 will go on record as a series of disappointments for the bee-keepers of our vicinity, for now it looks as though the buckwheat would not yield more than enough for winter stores, if it does that much. First of all, the clover was badly damaged in the early spring; then warm rains freshened up what was left, and the farmers left many acres for seed that should have been plowed under. The extreme drouth and heat of May seemed to take all the vitality out of the alsike, and, as a result, it yielded practically no honey, and, as thrashing proved later on, practically no seed. From one to two bushels to the acre is the average, whereas seven and eight is not an unusual yield other years. Twenty miles west of us, where the clover wintered well, I am informed that the yield of seed is proving to be good. The extreme heat of July, coupled with the great drouth, made it look for a while as though we should have little if any buckwheat; but some heavy showers for a few days in succession soaked the ground so that quite an acreage went in. Our hopes again soared up with visions of a crop of buckwheat honey, and the feeding bill cut out—a nice prospect, you know, after a failure in the white-honey crop. Now it is so dry that many acres of buckwheat are in bloom while the plants are not over a few inches high. There is still hope if we get rain inside of a few days; but at present the weather looks far from showery.

CLOVER KILLED; MOVING TO PASTURES NEW.

As mentioned in a former issue, the clover sown this spring is reported to be about all killed, and the problem now is what to look ahead to for another year. With this thought in view, we have already picked out a location about 100 miles from home; and if all goes well, two or three hundred colonies will be shipped there next spring. It is the old story of taking the mountain to Mahomet, if Mahomet will not come to the mountain; and, under the circumstances, I know of nothing better to do; for with no clover in our locality, nothing short of a miracle would give a crop of honey. True, basswood did give a good surplus crop *ten* years ago, so perhaps we have a *chance* of getting a crop from that source.

The conditions I have described will also apply to a great many other localities in Ontario this year, judging from letters I have received from different parts, and it looks as though the man who depends more upon *wild* feed for his bees than on cultivated plants as a source of nectar will be better situated for a year or two until things are normal again. The location I have mentioned, and which was visited a few days ago, is one of the kind that does not depend on cultivated plants for nectar. Aside from the alsike and white clover that are in the meadows, thousands of acres of raspberry, willow-herb, goldenrod, and an abundance of basswood constitute the main source of supply.

Conversations with Doolittle

At Borodino, New York

AGE OF BEES; A SINGULAR FACT IN REGARD TO DRONES.

"An old bee-keeper told me that many bees live to be a year old. Is this a fact?"

"The worker-bee rarely lives longer than 45 days during June, July, August, and September; while those emerging from their cells in September may live until the next May or June, if not injured by our winters, their life being prolonged above the 45 days in proportion to the work that they do or the hardships they are required to undergo. I have never known a worker-bee to survive a single year. Nothing in the bee-business has given me more pleasure than experimenting to ascertain the different ages of bees and the different offices they perform at certain ages when in normal condition. When these conditions are not complied with, the colony is thrown out of balance, and the bees perform any office of the hive feebly until they can adjust matters. Then it is that very young bees go into the fields when they will bring less than one-half the load that the bees over 16 days old will carry. Old bees will rear queens which are not of half the value of those reared when there are plenty of nurse bees, as is the case when a colony is in a normal condition; and some workers will even lay eggs."

"When worker-bees lay eggs, what kind of bees come from them?"

"Nothing but drones. As these worker-bees are not what we call fertile, nothing but drones can come from their eggs, any more than from an unfertile queen. Now, while queens reared by old bees will become fertile and lay for a time, their life is short. In these experiments I have found that queens reared under the most favorable circumstances attain the age of three, four, and often five years, even under the great stimulus which is brought to bear on them under our modern bee-keeping, where a queen is often coaxed to lay more eggs each year than did the queens of our fathers. Many queens at the present time lay from 3000 to 4000 eggs daily; while in the day of the box hive, if a queen laid from 2000 to 2500 eggs daily she was doing remarkably well. On one occasion I had a queen that lived and did good work until she was nearly six years old, and many of my queens have done good service until nearly or quite five years old. On the contrary, I have reared queens early in the spring or late in the fall, and, with one or two experiments during midsummer, with all old bees, which did not live more than six months or a year; while during their life-time they never kept more than from four to six Langstroth frames full of brood with all the coaxing I could do. As a rule, neither all old bees nor all very young bees rear queens unless some accident happens to force them to do so. It is not a good plan to adopt the accident policy if one wishes to rear queens which will tend to produce better bees than those we already have.

"The worker bee is in the egg form three days; in the larval form, five or six days, and in the pupa form twelve days. After emerging it takes the bee from a half to a full day to get fully straightened up, soon after which it begins preparing chyle for the larvæ of the hive, doing this work very largely until it is from six to ten days old, when, if the weather is pleasant, it comes out of the hive for the first time to avoid the accumulated excreta, and to mark the location of its home, still continuing its work inside of the hive, such as feeding the brood, building comb, evaporating nectar, capping the brood and honey, etc., until it is sixteen days old, when it goes out to labor as a field-bee, after which, if the colony continues in a normal condition, it does very little of the inside work, and dies of old age from 25 to 30 days later. While these bees that are over 16 days old can be forced, through being made queenless, to prepare chyle and rear queens, still queens so reared will work after about the same order as will the workers at field-work, when forced out after honey and pollen when only five or six days old. Therefore, in all of our work for increase outside of natural swarming, it is well so to form a colony that bees of all ages will remain with each part of any division made. This is as we always find it with natural swarms, even to the smallest of after-swarms.

"The drone lives a very precarious life; for at any time, when a scarcity of honey prevails, and the bees are not fed by the apiarist, the drones are unmercifully driven from the hive, sometimes being killed by the workers. Under favorable conditions I find that the life of the drone is nearly the same as that of the worker. This I have proven by keeping them in queenless colonies, for they will keep their drones as long as they would naturally live. To queenless colonies, drones are of greatest importance until they can get a young laying queen. There is another thing about drones that is very rarely spoken about, and that is that they are what is sometimes called 'commoners.' In other words, they have the privilege of entering, unmolested, any hive that allows its own drones to remain, and if they are driven from one hive they are allowed to enter another which is retaining its drones. Hence if some choice drones are being kept in a queenless colony for mating queens after all other drones are killed off, it is well to have such a colony in an isolated position; otherwise, drones which are driven from other colonies, and which have no special value for breeding purposes, are likely to enter with the choice drones, and thus the late-reared queens will not be all that might be desired."

General Correspondence

PURITY TESTS FOR BEESWAX.

II.—Physical Tests.

BY WM. P. MUNGER.

Continued from last issue.

The chemical methods given in the previous article are used more frequently to ascertain the nature of an adulterant than they are merely to test for the presence of an adulterant. The most common commercial method for detecting the presence of the ordinary adulterants in beeswax is the "titer test," first proposed by Dalican in 1868, and which depends on two facts. The first fact is that, as a substance changes from the liquid to solid, heat is given off. This may be easily proven by introducing the bulb of a previously warmed thermometer into the wax when melted to a thin fluid, and allowing the dish and charge to cool slowly. The fall of temperature will be quite regular at first, but abruptly mercury will cease to fall; and if the mass was superfused, that is, cooled below its freezing-point, the mercury will rapidly rise to indicate the true freezing-point of the wax, the temperature will remain at that point for some little time and then begin to fall regularly until room temperature is reached. As the rate of radiation from the dish and charge was continuous and decreasing, heat must have been obtained from the only source possible, the charge itself, to maintain the constant temperature. If the thermometer was read every fifteen seconds, and the readings plotted, a curve such as shown in Fig. 1 would be obtained. In the figure the horizontal lines represent an increase of 5° F., from the bottom up, and the vertical lines an increase of two minutes from the left. The maximum point A in Fig. 1, reached in the short rise after the mercury first ceased to fall, is the solidification temperature, or "titer."

The second fact is that, while the titer is always the same for the same pure wax or fat, the addition of even a small proportion of another fat or wax to the pure fat or wax will cause a depression of the titer, the amount of depression varying with the mixture. Fig. 2 shows the curve for beeswax-paraffin compounds, the horizontal lines indicating differences in temperature as in Fig. 1, and the vertical lines indicating differences of 10 per cent paraffin in the mixtures.

An inspection of Fig. 2 would lead one to suppose that, by using wax of higher titer than beeswax, a mixture could be made which would have the same titer as beeswax. Carnauba wax, Chinese insect wax, and some few others have a higher titer than beeswax, and can be so used; but as these waxes would alter the specific gravity and other properties of the beeswax, a third substance would have to be added as corrector, which third substance would be detected by the chemical tests already given. Furthermore, if a cooling curve is plotted for each sample on which the titer is taken, a little experience will enable one to detect such a mixture by the abnormal form of the curve.

To make a titer test, take a test-tube

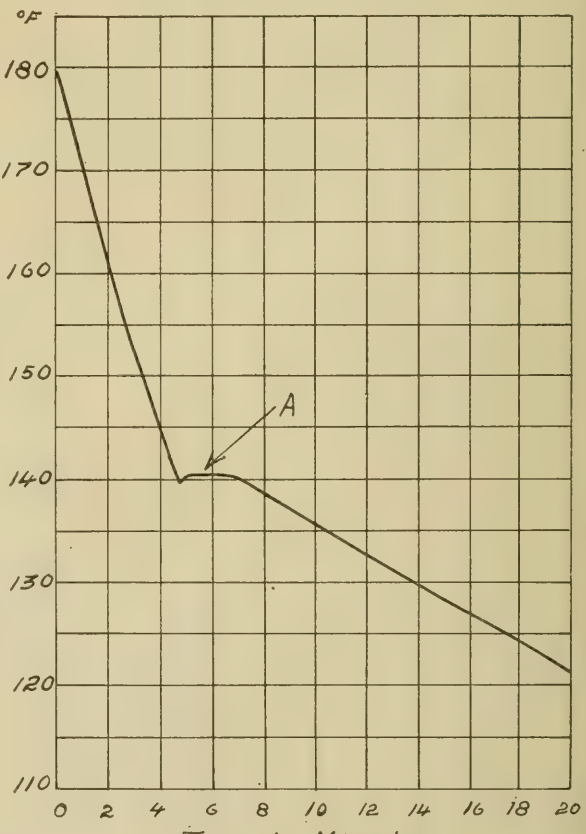


Fig. 1~Cooling Curve of Beeswax

about 5 inches in length and ⅔ of an inch in diameter; fit with a ring or collar of cork or rubber, and fasten in the mouth of an empty bottle, then pour enough of the melted sample into the test tube to fill it ⅓ full. Suspend a previously warmed thermometer so that the bulb will be wholly immersed and swing freely in the liquid. When the wax begins to solidify in the bottom of the tube, stir the contents of the tube by giving the thermometer first a circular movement

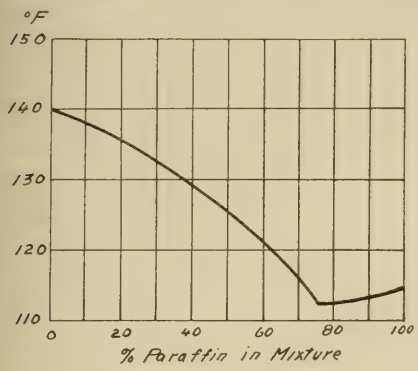


Fig 2. Showing the Depression in Titer Caused by Adding Paraffin to Beeswax

three times to the right and then three times to the left. Suddenly the mercury ceases to fall, rises a little, and remains stationary for about two minutes. This temperature is taken as the titer; and, provided the same apparatus is used and the same method of working followed, the results are very constant.

The titer of a sample of known purity should be taken before the sample is tested, so as to calibrate the apparatus. The writer obtained 140 to 142° F. on eight specimens of beeswax from different sources; and as this figure is about that given by other observers, it may be considered as the titer of pure beeswax. For bleached wax the titer is from 140 to 144° F.

Rochester, N. Y.

RENDERING WAX IN THE HATCH PRESS.

BY HARRY LATHROP.

Inasmuch as there are many more bee-keepers who handle from fifty to two hundred colonies than of those who have more, the wax machine and method suited to the larger number is important. I have recently been using the Hatch-Gemmel press, and think it is just the thing for the larger number of bee-keepers, if one knows how to operate it properly.

This is my simple method: Two copper wash-boilers are placed over a furnace out of doors. Select a warm quiet day; fill each boiler nearly half full of soft water; start the fire and keep it going as needed, with small wood. Pile in old broken comb or whatever you have to melt. Stir well with an old broom-handle. Place the press on a box of the proper height, and fasten on with two hinges so that it can be turned over to one side readily. For a press-cloth, use a piece of heavy burlap 26 inches square. Push the cloth down in the press and make the cavity as large as possible. Use a dipper holding half a gallon. Dip about two and a half dipperfuls of the melted wax and water, and pour into the press. Fold the corners of the cloth over neatly; place the follower, and run down the screw. The spout in the bottom of the press should be tightly stopped. Press gently at first; release, and press several times, applying more force each time. The releasing is to allow the water, which will be in the bottom of the press, to saturate the cheese again and thus wash out any remaining wax.

This is really the important part in using the Hatch press. At the last, put the screw down as hard as the machine will bear, and then tip the press and pour off all the water and wax into a large can or pail. I use a tin pail holding six gallons, and furnished with a stop-cock at the bottom.

Next release the press and remove the cheese. Scrape the burlap, and use as before. I keep pressing and pouring until the pail gets too full, then open the cock and let off some water. In this way a large amount of wax is secured in the pail. When I have finished my run I set the pail of water and wax over an oil burner, and heat until every particle of wax has become liquid. Then I cover and wrap with cloths and old bed-quilts, or any thing to keep in the heat and make a sort of fireless cooker of the pail of wax. Leave it thus for three days, and the result will be a cake of wax that should bring the highest price in the market.

I would suggest that, in putting out the press, the spout be left off entirely. It is a mistake to use it. Make the rim one inch deeper and the screw a little stronger. My modification of this for men having much larger apiaries would be, simply, larger utensils — the method would be the same. Unless one has a good warm shop to work in, it is best to reserve the wax-making job for warm weather. Then one can work out of doors, and it is easier to keep every thing warm. If honey is coming in, the work can be done right in the apiary, and the bees will not bother. Making wax is a very unsatisfactory part of the work unless one has learned the trick. The Hatch-Gemmel press is, I believe, the handiest and best thing for the purpose.

Bridgeport, Wis., June 10.

[The above agrees exactly with our own conclusions after considerable experience with this method of rendering.—ED.]

SOME OBSERVATIONS ON QUEENS.

Their Behavior and that of the Bees toward them; some Reasons for Failure in Introducing; How Clipping the Wings Improperly May Make Trouble.

BY ARTHUR C. MILLER.

[In response to our invitation, page 460, Aug. 1, Mr. Miller prepared the following notes on a few of the traits of queens, and the relations existing between queens and workers, that he has seen during his long experience as an exceptionally close observer. We are sure that our readers will appreciate these findings.—ED.]

It may be broadly stated that all of the so-called love of the bees for their queen, as evidenced by the circle often seen about her, is merely the attraction of functional odor. When a queen is laying rapidly the bees may be noticed pushing closely about her, waving their antennæ toward and over her. Careful scrutiny will show that this attention is mostly toward the posterior part of the abdomen. It is customary for a queen to "rest" or suspend egg-production for varying periods, sometimes for ten minutes or more. At such times she usually leaves the immediate vicinity of the brood, often going on to that part of the comb containing sealed honey. Some bees will follow her, and remain about her for a minute or more. Soon the queen becomes still, scarcely moving even her antennæ. The attentive retinue disperses, working bees push her, scramble over her, and pay no more attention to her than to the comb she is on. The jostling may be troublesome, and the queen may slowly move aside. As she walks along, a bee here and there waves its antennæ questioningly toward her, but nothing more. When the queen is ready to resume her activities she starts up much as if she had just remembered some forgotten duty, walks deliberately toward the brood part of the combs, begins to investigate the cells, and, as she is about to lay in one, the attention of bees in her vicinity again becomes marked.

Such attention is not given to a queen which has long been kept from laying, nor to a virgin queen. When a virgin is about to mate, the bees do seem to notice her presence, behaving toward her somewhat differently than before. When a young queen returns from her wedding-trip she is at once the recipient of much attention from the workers, and she is uneasy and nervous; but in the course of a few hours, more or less, the bees cease to follow her, and she quiets down. As soon as she begins to investigate cells preparatory to egg-laying, the bees renew their attentions to her.

It may be well to say here that it is no unusual thing for young queens to mate twice, and sometimes three times, before they begin to lay. I have never known one to mate after commencing to lay.

When a laying queen wants food she begins to use her antennæ rather more actively than at other times. Worker after worker is "spoken to" until at last one is found to furnish the desired food. The queen's tongue is extended and inserted into the mouth of the worker. Almost at once many workers near by extend their tongues and try to get a sip of the coveted food, and sometimes one of them will succeed. It is no uncommon thing for two workers to get food simultaneously from another worker.

This food-taking act is almost as certain the sealing of a peace-pact as the proverbial smoking of the peace-pipe of the Indians. It is the fundamental cause of the peaceful reception of a queen which has been forced to fast. It and the functional odor are the reasons for the easy introduction to one colony of a queen freshly taken from the combs of another. A queen in the full tide of her laying is almost chronically hungry. The relation between her feeding and her laying is exceedingly close. She must seek her food, however, for the workers never offer it to her. The extended tongues of workers so often observed are always seeking food, never giving it. Food is given from the mouth, not from the tongue.

Smoking, heavy jarring, or shaking from combs, starts all of the bees on a food-quest, most of them turning to the cells, but many to one another. A strange queen put among bees thus agitated develops the same food-seeking desire, and is at once a part of the colony. If the agitation is imperfect or not universal, the results are irregular.

A colony which has been much and recently overhauled does not develop the feeding desire as readily as a colony which is in a more normal condition, and a "directly introduced" queen may meet with trouble unless she has been compelled to fast, or the colony be well smoked with tobacco.

It is on account of its power to disturb the bees thoroughly that tobacco smoke is such a good medium for introducing queens. A dozen other things will serve as well. Bees do not "fear" smoke. It simply suffocates them.

If a queen is "frightened," so that she runs or otherwise behaves abnormally, the workers are quite likely to turn upon her and treat her more or less harshly. A queen that has been attacked by the workers may be safely returned to them after she has fasted for a while. If she has just been laying, a fast of fifteen minutes may suffice; but if egg-laying has been suspended for some days, thirty to forty minutes may be necessary.

"Timid" queens are not at all uncommon, and it is easy to understand that a strain of bees may have that trait characteristic of the queens. It can be bred out; but under common conditions of bee-breeding the process is somewhat slow and uncertain, and the trait may reappear unexpectedly later. The better way is to change to another strain.

It may prove helpful to know that, other things being equal, the strains in which the queens have long slender abdomens (sometimes called "rat-tailed") are better brood-producers than the plump or fat type. The

reasons for this are quite evident when one studies a queen in action, particularly in profile view.

When a queen backs into a cell her wings slip over the surface of the comb and steady her, and they materially assist her to get out of the cell; hence, never clip both pairs of wings; and of the pair clipped, cut only enough of the large wing to take the tip of the smaller. Such clipping never causes supersedure. In the queen lies the solution of many of the troublesome problems of bee culture.

Providence, R. I.

THE BEE-RANGES IN SOUTHERN IDAHO.

The Territory Already Fully Occupied.

By the Secretary of the Southern Idaho and Eastern Oregon Bee-keepers' Association.

The Southern Idaho and Eastern Oregon Bee-keepers' Association, whose members assembled at a midsummer picnic and field-day meet July 21, at Lake Lowell, near Caldwell, passed the following motion in its business session on that occasion: "That through the association the misstatements made in the letter of J. E. Miller, of Caldwell, Idaho, which appeared on page 408, July 1, be corrected."

In justice to Mr. Miller, the association must state that it bears him him no ill will, believing that, as he was evidently uninformed of true conditions in Idaho, he unintentionally misrepresented.

As directed by its members (who consist of the bee-keepers of Southern Idaho and Eastern Oregon) the association hereby makes the following corrections in Mr. Miller's letter:

First, the bee-range of Southern Idaho, in which territory the majority of the members of this association are located, is at present fully occupied—a statement contrary to the impression given by the writer of the above-mentioned letter, that there is an abundance of room for more bees here. There is not. On this point the association desires to make itself clearly understood in order that outside bee-keepers who think of locating in Southern Idaho may gain an uncolored statement of true conditions here at the present time. In Northern Idaho there may be, for all the Association knows, plenty of acreage for bees; but in this portion of the State the territory for bees is fully stocked, supporting as it does now not only some 10,000 colonies owned by native Idaho bee-keepers, but the several carloads shipped in by eastern apiarists within the last year or two. It is true that here and there an obscure location can be found; but they are scarce, and able to support but a few bees.

To be more definite, the bee localities around Boise (which forms the southern border of the bee-range to which the association refers), Nampa, Meridian, Caldwell, Weiser, Payette, and Parma now support as many colonies of bees as can reasonably be expected in this western county.

Every bee-keeper realizes the harmful results, both to himself and the locality in which he lives, of overstocking. This has been shown again and again, and can not be too strongly emphasized. A conscientious bee-keeper also realizes that, while he has a legal right to plant an apiary wherever he has the same right to plant a potato-patch, he by no means has a moral right to do so when he infringes upon the rights of a fellow bee-keeper. This is precisely the conclusion reached by the members of the Idado association at their annual convention held in January, when a committee of three was appointed for the purpose of coming in touch with newly arrived bee-keepers, and pointing out to them the unoccupied territory for bees, which is indeed scarce. It is expected, however, that in the near future, new land, devoted principally to the production of hay, will be opened up in Idaho, in which case the honey-producing capacities of this State will be greatly increased. To any bee-keeper desiring further information concerning Idaho's bee-range, the members of the executive committee of the association will be glad to furnish it.

Second, the real facts concerning foul brood in Idaho conflict decidedly with these statements:

1. "If this bee-range were occupied by competent bee-men it would be only a short time when all foul brood would be wiped out."

Does the writer of the above consider the fifty or sixty apiarists of Southern Idaho, who keep from 100 to 1000 colonies each, small in number or incompetent in management? They were progressive enough when, over a year ago, unable to obtain a foul-brood appropriation, they raised a fund for that purpose from their own pockets.

2. "We have a very good foul-brood law, but no appropriation with it, so the inspectors get no pay, and consequently do but little work."

This statement, appearing as it did in the July 1st issue, is hardly true, since in February, 1911, over five months before, at the last session of the Idaho legislature, the bee-keepers obtained a satisfactory appropriation of $1000. Since that time some fifteen or twenty competent bee-inspectors, who cover the honey districts thoroughly, have been appointed by the State Horticulturist, to whom any one desiring names or further proof is referred.

THE REQUIREMENTS OF A SUCCESSFUL HONEY SALESMAN.

BY M. D. TYLER.

After reading the experience of so many different men in selling honey and comparing their methods, I wonder after all whether the secret of success is not due largely to tact on the part of the one selling it. The way a prospective buyer is approached, and the drift of the conversation, make as great

a difference in the sale of honey as in any thing else. Some men will try to provoke the ill humor of a salesman, thinking that he will go away provoked. It works well to stick to it until such people buy.

For eight years all of my attention has been given to bees and the sale of honey. When I first undertook to dispose of my honey, it was in small towns and to farmers. I soon discovered that they had been swindled so often that some of them could not be persuaded that my honey was pure and that it was not manufactured from sugar. One man even quoted an instance of a gallon of honey he had once bought, in which there were some peppermint lozenges. This was conclusive evidence to him that all honey must be counterfeit.

Later I invested in a covered wagon, similar to the laundry wagons used in the city, and then went with my honey beyond the limits of the county. I carried from two to three hundred quarts put up in glass jars, nicely labeled, selling at fifty cents per quart.

Several times I shipped ten or twelve five-gallons cans of honey to the city forty miles from home. As soon as I reach the city, after stopping at the small towns on the way, I rent a room, buy quart glass jars by the gross, and have them delivered at the room; and when the load I started with is sold out I proceed to put up the honey that I shipped there. People always enjoy watching the process of filling the jars and it soon draws a crowd of interested spectators whom I invite to taste it. Many remark that everything seems so clean; then, after inquiring the price per quart, will buy one jar, saying that if the folks at home like it they will want more. Usually buyers of that kind return and take from three to six quarts.

As soon as the honey is all put up and the cans labeled, I carry with me enough to last one day, usually about two hundred jars. I never go from house to house, but visit bankers, lawyers, merchants, and business places. At one hardware store where I stopped, I asked the proprietor if he wanted some good honey. He replied that he had just bought two quarts of a neighbor who sold honey by going from house to house. "How many quarts does he average each day?" was my inquiry. "Six," he replied. "Why," I said, "that wouldn't pay my expenses. If I can't average one hundred each day, I will quit." He smiled; but that noon, when the whistles blew, I had sold seventy-five quarts.

One time I got into a nest of seven lawyers, one of whom was writing, and the others were engaged in conversation. The former asked me if I had honey, and said he didn't want any, and wouldn't take any as a gift. When I insisted that they should sample it, the one who tasted it first, pronounced it fine honey, then they all tried it; and the scribe, who at first didn't think he would care for it as a gift, began to question me about bees. I took their bantering about "hayseeds" good-naturedly, and when one of them told me that he would buy some honey if I would vote for Governor——at the next election, I told them that I was a Republican, and that I had voted for Governor —— once; and that if they could tell me a single good thing he had ever done for the farmers I would vote for him again. They laughed, and then I told them a good story about the candidate for that year, and each one bought a can of honey. The stenographer in the next room stepped to the door and said she wanted one can. Just then a policeman came up to inquire what was the excitement and said, "Well, if that is the case, I will take two cans."

Perseverance always helps in the sale of honey; for if one can be induced to buy, others will follow. Last fall my sales for two months amounted to over 61 cwt.

Seville, Ohio.

DIFFERENCE IN BEES WHEN INTRODUCING.

Introducing a New Queen Before the Bees Realize the Loss of the Old One.

BY SELVIUS J. MORRISON.

I want to tell how I use the candy plan to introduce queens without loss, into colonies full of open brood. Just at dusk I go to a colony that I wish to requeen, and kill the reigning queen, putting the new one at once in a cage. I take one frame from the middle and put the cage with wire cloth next to the comb on the bottom-bar, being sure that the candy end of the cage touches the brood-comb. The queen thus detects the comb odor of hatching, and she is on the brood-comb at once when released by the bees.

As queen-cells are always nearer the bottom of the combs, I have found this the best way to introduce queens. With this method the bees hardly realize their loss, and very seldom build cells. Italians rarely build cells. Blacks are the worst, for they will do things that one does not like. Carniolans and Banats are the best, as their queens are accepted more quickly than those of any other races I know of. I never find a cell started in colonies where I have put them.

Chico, Cal.

The A. I. Root Co.:—I know but very little about bees, my experience being only such as I received from your A B C of Bee Culture, and from what experience I received from a nucleus which I bought of you last May, from which I took off 56 boxes of very fine honey, which was only about half as much as I should have received had not a drouth occurred in the middle of June, which burned up every thing, and the honey-flow stopped, the fall not being much better. However, my 1910 bees went into winter quarters in a ten-frame hive with every frame full of honey, overflowing with young bees, no swarm having issued from them, as I had given them sufficient room. They came out this spring in fine condition, being wintered on their summer stand with but very little loss. They are now (May 10) doing well.

Crafton, Pa. W. O. H. ELLIOTT.



Fig. 18.—A 200-colony apiary of J. K. Isbell, of Wewahitchka, in the white-tupelo belt, West Florida, Mr. Isbell in foreground. This yard yielded 32,000 lbs. of honey in 1910.

BEE-KEEPING IN FLORIDA.

Some Representative Bee-men.

BY E. G. BALDWIN.

Continued from last issue.

Did space and time permit, it would be well worth while to chronicle the vicissitudes and victories of such men as Mr. Chas. Harris, of Holly Hill; Mr. R. S. Shelton, of New Smyrna; Captain Detwiler, of New Smyrna; Mr. Geo. A. Van de Vorde, of Daytona; Mr. A. E. Brown, of Harwood; Mr. Henry Mitchell, of Hawks Park; Mr. J. M. Hall, of Fort White; Mr. W. J. Drumwright, and many others. It would make interesting reading. But no picture of bee-keeping in Florida would be complete without a more detailed record of the bee-men who form an interesting group in the swamp lands along the Apalachicola and Chipola rivers in Calhoun Co., West Florida—the so-called tupelo belt. This section is only about 75 miles long by 10 or 20 broad, but contains more than 6000 colonies, owned by comparatively few bee-men. The owners are veritable princes among apiculturists. Among this coterie of tupelo-honey producers are Messrs. A. B. Marchant, of Sumatra; J. K. Isbell, Messrs. Higgins & Hollinger, and Mr. S. S. Alderman, of Wewahitchka. Some men there own as many as 1400 colonies. Near Mr. Isbell are over 1800 colonies in nine yards, none more than two miles apart, and many within half a mile of him, nor is there any overcrowding. Mr. Isbell probably produces as much per colony as any man in the number. He secured an average of 140 lbs. per colony in 1910, in an apiary of nearly 250 hives, in one place. The shade is afforded mainly by the live oak that flourishes there. The home apiary of Mr. Isbell (shown in Figs. 18 and 19) contains 297 colonies, but having 231, spring count, from which he secured the past year (1910) about 88 barrels of choice tupelo honey, nearly 32,000 lbs. See the article, "White Tupelo," under "Florida Honey-plants." Mr. Isbell is shown in the foreground, right, in Fig. 18. That he believes in strong colonies is proved by the fronts of the hives shown in Fig. 19. He writes: "You will notice a few bees clustered on the outside of the hives." It is not difficult to imagine what the inside of those hives is like, if the mass of bees on the first hive shown there, for instance, is only a "few" of the bees in the colony. In the height of the season the entrances are kept fully open, an inch or more deep, all around. Mr. Isbell has been a resident of Florida for 17 years; a bee-keeper for 15. He uses full sheets of foundation in brood-frames, and in ten-frame L. hives, painted. From the dragon-fly he suffers some loss of queens, but not from forest fires, which do not trouble in that section. Only one year, that he remembers, did he suffer serious damage from cold. In 1899 much of the brood in the hives was frozen.

Mr. S. S. Alderman, already mentioned, is probably the pioneer bee-man of that sec-

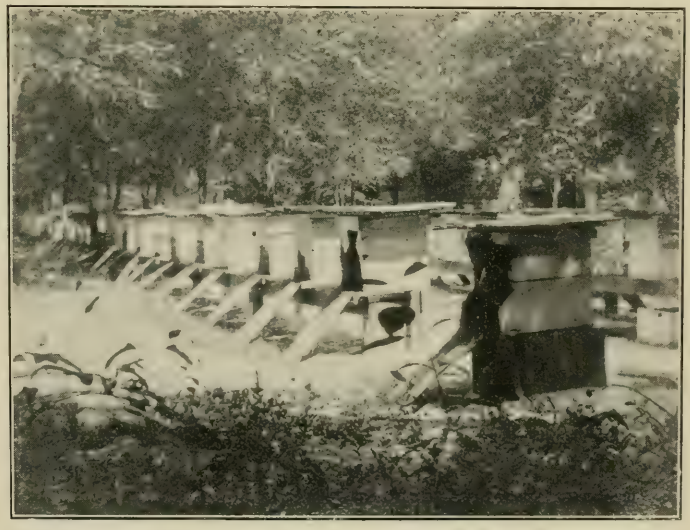


Fig. 19.—Some of Mr. Isbell's giant colonies shown in the spring when they were very strong.



Fig. 1.—A group of button sage in bloom. The taller sprigs are of a hybrid variety.

tion, having kept bees there continuously for 39 years. When he moved into Calhoun Co., no one there had ever seen a movable-frame hive. He now owns seven out-yards, averaging 200 colonies per yard. Notice how much larger the yards run here than in South Florida. The reason has already been given; viz., the prevalence of forest fires in the southern portions. Mr. Alderman produces both comb and extracted honey, but finds more profit in the latter.

One peculiarity of the region is the lack of pollen. As a result it is often necessary to migrate with the bees for that very necessary article. The bees are placed on flat-boats and hauled up the river to the cotton-fields of Alabama for the pollen, and brought back in winter. This is done after the flow from tupelo is over. Mr. Alderman, too, uses full sheets of foundation and the ten-frame L. hive.

Reference has already been made to the recent trouble Mr. Alderman has had with ants and bears. I have likewise alluded above to the very choice sample of white-tupelo honey received from Messrs. Higgins & Hollinger. This group of apiarists, operating in the tupelo-belt, are broad-minded, gladly sharing with their brother bee-keepers any ideas they may have developed in the successful running of large apiaries—a spirit, by the way, that I have found very general over our State. Probably there are some small-minded, narrow bee-men in Florida. No State could expect to be without at least a modicum of them. The writer, however, has never yet run amuck of such in the land of the palm and the pine.

De Land, Fla.

The End.

THE CALIFORNIA SAGE, ILLUSTRATED.

BY P. C. CHADWICK.

The illustrations in connection with this article give a good idea of the button or black sage, and also the white sage, the former being the king of all our honey-plants, as it produces on an average more than all the others combined. The orange-blossom alone exceeds in the quantity of honey yielded; but the orange covers only a small area, and the blooming season is much shorter. The button or black sage begins blooming in April, as a rule, and lasts until about June 10, producing the very finest water-white honey, of a heavy body, for which there is a world-wide demand.

A hybrid sage shown in Fig. 1, and especially in Fig. 3, is a cross between the white and the button or black sage. It does not abound to any great extent. It sometimes favors the black and sometimes the white, according as the individual crosses happen to run. Fig. 3 favors the white decidedly in leaf and stalk, but has the distinct "button" nevertheless.

Fig. 4 shows a range nearly a mile wide and about two miles long of practically unbroken white sage. The roadway shown

leads to my apiary, and runs through it, as the bees are located near the center. There is practically little but white sage as far as one can see. Fig. 5 shows a closer view of the white sage. The time of bloom is usually before the black variety is gone, or about the 20th of May; but this blossoming period varies somewhat more than the black, and it lasts from six to eight weeks. White sage is not a heavy yielder as a rule, but in occasional seasons it yields abundantly.

The wild alfalfa, as shown in Fig. 6, is our greatest enemy of water-white honey. It blossoms during the black-sage season, and often on cool cloudy days attracts a heavy flight of bees from the sage, as the latter does not yield so well in such weather, while the wild alfalfa is then at its best. The honey is amber in color, and therefore darkens the sage honey rapidly.

The tallest sprigs in front in Fig. 6 are the wild buckwheat, one of our greatest (if not the greatest) producers of late amber honey.

Redlands, Cal.

A HOME-MADE WHEELBARROW FOR USE IN THE APIARY.

How to Make One for Seventy-five Cents.

BY E. M. GIBSON.

Those who contemplate starting, or those who are already in the bee business, who *carry* honey to the extracting-rooms, may get some information by reading this article and studying the accompanying photo. I will begin with the wheelbarrow, and try to tell how to make one like it. I will admit that it is not a thing of beauty, but it is surely a joy to work with in comparison with other methods I have seen used, especially in instances where the hives stand on benches.

The wheelbarrow here shown has stood the "racketing" for fifteen years, and is as good as when I made it. It has been housed when not in use, as are all my other tools and unused hives. I find it very convenient to have two at each apiary, as we quite frequently need one when one is in use. In a heavy flow of honey it is sometimes necessary for two persons to take off honey, and these barrows are so cheap and easily made that one can not afford to be without one or more. The one here shown cost me 75 cents, and the others about the same amount. A turner charged 25 cents for turning the handles—the wheel, 25 cents, and the blacksmith charged 25 cents for the wheel-fastenings. The lumber required to make one is so short that enough could be picked up around almost any place; and if one had to buy it, it would cost but a trifle. Two or three hours' labor is all that is needed after the material is at hand.

Nail two three-inch strips to the under side of the handles to hold them the proper distance apart, one near the wheel and the other near the legs. Saw a board 3 feet 6



Fig. 2.—The button sage passing out of bloom. The small blossoms on the outer edges of the buttons show that the season is nearly over. The buttons begin to appear next each stock which they surround, then they expand, finishing near the outer edges.



Fig. 3.—A hybrid sage, a cross between the white and button sage. It sometimes favors the white and sometimes the button. This specimen favors the white in leaf and stalk, but has a distinct button.

boxes from slipping off. Put on the legs and brace them, and you have a handy conveyance, not only for getting honey to the extracting-room, but for moving hives and other material. Always load the honey-box nearest the handles first, and you will not upset your load of honey. It is important to remember this. I was particularly emphatic in telling one of my helpers how to load; but he had to upset twice before he could remember it.

The honey-boxes should be one inch deeper than the frames, to allow for accumulations at the bottom, and should hold one more frame than the hives one is using, for convenience in getting them out, and leaving room for thick combs, brace-combs, etc. The covers open in the center, and are put on with strap hinges. I used only two hinges for each door until last year, when I added another. Two are hardly sufficient to stand the

inches long, and 10 inches wide diagonally across from opposite corners, and you have two wedge-shaped pieces. Fasten the straight edge to the handles with the wide end toward the wheel. Brace each side piece to the handle on the opposite side. Of course the wheel fastenings and wheel should be put on before the handles are fastened together. Nail on the boards for the platform, and nail a ⅜ strip on the front end and sides to keep the



Fig. 4.—A range of white sage nearly a mile wide and two miles long surrounding the apiary of P. C. Chadwick, Redlands, Cal.



Fig. 5.—A close view of white sage.

rough usage they get when business is rushing. The ends of the boxes should be made of 1¼-inch lumber to give a better hand-hold, and a stronger rabbet than one-inch material will make. The covers should fit tight enough so the bees can not smell the honey in the boxes. I have six of these boxes at each apiary; so, when necessary, two persons can take off honey.

Compare this picture with one in which a person is bent half double over a hive standing on the ground with another hive near him also, standing on the ground, with a gunny sack thrown over it in which he is putting honey, and, when filled, *carrying* it to the honey-house. When inside, on taking off the gunny sack thousands of robber bees fly out; and the windows, having no escapes, they hang about them in clusters. This picture is not overdrawn, and I know of two bee-keepers who have 600 to 800 colonies each, who are using these same methods now, or were a year or two ago.

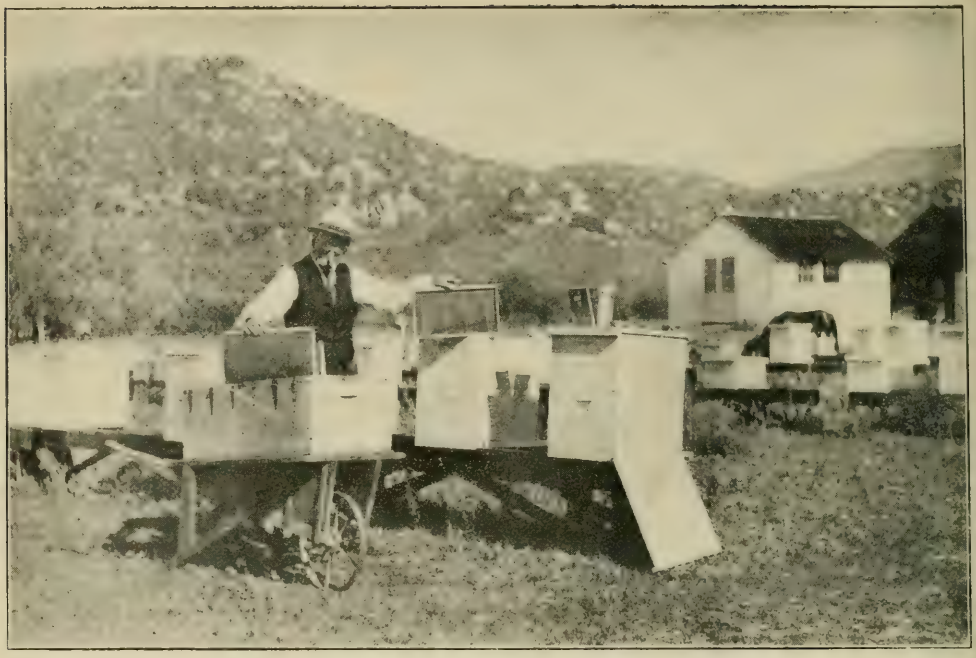
SPLINTS A MUCH BETTER SUPPORT THAN WIRE.

The frame of foundation shown in the engraving is a sample showing the way I put them in with the Miller splints last year. This year I am putting the splints nearer the end-bars, and adding another splint in the center. The ends of the foundation sometimes bend to one side when the splints are too far from the end-bar. The frame of drawn comb here shown was built out on foundation put in in this manner, and is as near perfect as I ever expect to get them. This plan is a great improvement over wiring, in my estimation. Since I followed the doctor's directions I have been relieved of a trouble that always bothered me while I was wiring frames; for, no matter how well the frames were wired or how heavy the foundation (I have used, for experiment, foundation that weighed only four sheets to the pound), it would sag and elongate the cells near the top; and if I cut the sheets wide enough for the bottom-bar to give them support they would buckle at the bottom.

Dr. Miller states, in the *American Bee Journal* for May, that



Fig. 6.—A field of wild alfalfa in California, the plant that yields amber honey, thus discoloring the water-white honey. The taller sprigs in front are buckwheat.



Gibson's 75-cent wheelbarrow that is as good as new, although it has had 15 years of hard service.

some of his frames have whole-piece bottom-bars, and he likes them just as well. I prefer the divided ones for various reasons, one of which is that it saves a lot of fussy work sticking the foundation to them to be pulled loose again by the bees if set aside until cool weather comes. The bees invariably did this for me, and I stuck the sheets on with wax as hot as the foundation would bear without melting. The ⅛ inch taken off the bottom-bar weakens it somewhat; but, even so, it still contains more wood than any other that I have ever seen. After the bees get the divided space filled with wax they seem as solid as whole ones.

A VENTILATED BEE-HAT.

I intended to have my bee-veil on when this picture was taken; but it was taken only for illustration, and not in the honey season; and the bees not being cross I forgot it. I should think it would bother a person to get into some of the veils I have seen in the pictures. Buy a broad-brimmed braided straw hat; cut the crown off 1½ inches from the rim by cutting the stitches. Cut a piece of screen wire ¾ inch wide; bend the selvedge under so the ends of the wire will not catch in the veil. Leave ¼ inch space between the two parts of the hat for ventilation; sew the wire over the space and on the hat, and it will be as strong as before it was cut. Buy the best flat silk elastic (the round is no good), and use a single piece to go around the top over the crown of the hat, and a double piece to go around the neck, and have it fit tight, then no bee will ever get near your face. I have one or more at each apiary, and they are always left there ready for use.

My little niece used to like to stand on a footstool and comb my hair while I sat reading; but one day the footstool was missing, and she drew a chair up and climbed on to it, which raised her high enough to see the top of my head, where there was a thin spot about the size of a silver dollar. Putting her hand around and pulling my face toward hers she looked into my eyes with her large black ones and said very seriously, "Why, uncle, your head is wearing out on top." If any one whose head is badly worn on top should make one of the bee-hats herein described for his own use, do not leave the space in the crown of the hat more than ¼ inch wide or your head will get sunburned. This will give plenty of ventilation, and will be very comfortable to the wearer.

Jamul, Cal.

ECONOMIC VALUE OF THE TEXAS MESQUITE.

BY LOUIS H. SCHOLL.

One of the main sources of nectar for the Texas bee-keeper is the mesquite brush and trees that cover a very large area of the vast Lone Star State. As unimportant in appearance as this bushy tree is, it is of greater importance to the bee-keeper than most people suppose.

The mesquite (pronounced *mes*-keet), *Prosopis juliflora*, has two separate and distinct blooming periods during the year. The first comes during April, and the other during the end of June or the beginning of July. These periods are sometimes a week or so later or earlier, according to the condi-

tions of the season, the lateness or earliness of the spring, cold weather, and the quantity of rain during the preceding fall and winter. In this last respect the mesquite is peculiar in that, if rain has been plentiful in the fall and winter, no matter how dry the following spring or summer may be, there will be a profusion of bloom and a heavy flow of nectar. This is due to the character of the plant, in that it stores up sap, as it were, from which it is enabled to put forth its growth, and also that its roots penetrate the soil to a great depth, spreading out quite a distance in the soil. It is remarkable how a very small shrub of the mesquite is supplied with these large roots in proportion to its size. It shows at once that it is well adapted, therefore, to a dry region.

The quality of the honey is good, and of a light-amber color. It has been said many times that mesquite honey could be used better for an every-day table honey than any other of the Texas honeys, since one never tires of it as he is apt to do with honey that has a particular flavor.

Fig. 1 shows some of the branches in full bloom, the long spikes of feathery blossoms measuring from three to five inches in length. When the second blooming time arrives, the beans from the first blooming, which are from six to eight inches long, will be in all stages of ripening. These are greedily eaten by all kinds of stock and cattle, and are of considerable value in this way. Even human beings find that these beans have a good taste, and children particularly relish them each season as they ripen. They vary considerably, however, in taste, some of them being so bitter that they can not be eaten, while others are very sweet and agreeable. One learns very readily which are the best, even by the looks.

The wood of the mesquite is valuable for furniture and cabinet work, as it takes on a fine polish, and mesquite fence-posts are used very extensively. A rosin exudes from bruised places on the trunks and limbs in considerable quantities. Thus it will be seen that the humble, brushy, unimportant-looking mesquite-trees have quite an economic value.

A serious aspect, however, is that the mesquite prairies are for the most part well adapted for agricultural purposes, and the result is that great areas of this land are put into cultivation as the country is being settled up. Fortunately, however, the greater part of the cultivated area is planted in cotton, and this is as valuable as the mesquite as a honey-yielder; hence the bee-keeper need not fear that his locality will be ruined



Fig. 1.—Some branches of the famous mesquite of Texas.



Fig. 2.—Scholl's apiary-wagon for hauling bees.

by the disappearance of the mesquite, except in places where cotton does not do well.

SIX THOUSAND IDEAL SUPERS.

In answer to the question asked by a number of bee-keepers as to whether I am still as stanch a friend of the shallow supers, both as supers and brood-chambers as well, as advocated by me years ago, I wish to say that the longer we use them the better we like them. And to offer proof of my statements I can do no better than to mention to what extent we use them.

It was in 1897 that we ordered 20 ideal ten-frame supers with shallow 5⅜-inch-deep Hoffman frames, to be tried as divisible-brood-chamber hives side by side with the regular eight and ten frame Langstroth size, already in use. It was our intention to test thoroughly, and, if not satisfactory for divisible brood-chambers, they were to be used as supers over our regular ten-frame hives, and therefore would not be any loss or expense. The results were that they did not have to be changed to supers on account of being unfit for the purposes for which we tried them, and our success with them was so satisfactory, and the advantages of the divisible hives were so great, that we have been procuring nothing else for our constant yearly increase during the last fifteen years. Our last purchase consisted of a carload of 3000 such supers, together with nearly 1000 pounds of foundation made especially for the shallow frames we are using. All these supers are ordered in the flat as usual, and then nailed up here. The above lot, after being put up, was enough to fill nearly three average railroad cars. To ship 1500 of the supers to our apiaries, nearly 200 miles away, it was necessary to procure one of the largest furniture-cars, more than 8 feet wide and 8 in height, and 50 feet long inside. Fig. 2 gives



S. D. House's "moth-torch."

the reader an idea of how these were shipped.

Our ideal bee-wagon is shown, loaded with 160 such supers crated with one of our bottoms below, and a cover on top of each stack of nine supers, held together by a common plaster lath, four feet long, tacked on with some small shingle nails. Thus crated they are easily handled, and our wagon is so handy for the purpose that it is a pleasure to haul them with it. The extra-long bed, being 14 feet long, will accommodate 20 ten-frame hives side by side in two rows without any tying being necessary. This saves lots of time and vexation. For hauling bees, a double-tier load takes just forty colonies, and the wagon rolls so easily that two horses trot away with large loads on any level road.

The frames that we use in these shallow supers here in Texas are somewhat different from the usual one put out at the factories, in that the top-bars are only ⅞ inch wide, but full ½ inch thick. This makes them stronger to prevent sagging, and the narrow top-bars give much more free communication between the several stories, which is of far greater importance than many suppose, especially in the brood-chambers, and equally so in the supers. It does not only allow the queen freer passageway from one shallow story of the brood-chamber to another in her laying, but the bees go above into the supers much more readily, and also from one super to another as they are tiered up during the honey-flow. These frames are often called the "Scholl shallow frame" because we first tried them fourteen years ago, and have been strong advocates of such ever since. To obtain them it has always been necessary to specify these top-bar dimensions in the order or the wider flat top-bars were sent. Until recent years such frames had to be made to order altogether, but now they can almost always be obtained at our large Texas supply-houses. It is necessary, however, to state that the half-inch-top-bar frames are wanted, or others may be substituted if the dealer has them.

So far we have in use 6000 of these shallow supers, and our increase in the bee business will demand another carload of them next winter. Is this sufficient proof as to whether we are satisfied with them?

New Braunfels, Texas.

THE CARE AND GRADING OF COMB HONEY.

How to Grade, Fumigate, and Pack so that the Honey will Reach the Consumer in Perfect Condition.

BY S. D. HOUSE.

The season for the care, grading, and marketing of honey is at hand, and it demands as thorough attention as any part of our vocation. I have seen crops of fine honey produced by practical bee-keepers that, by improper storage and handling, were made third-class goods. Some of the trouble begins with the making of sections, especially with the one-piece section, which many bee-keepers simply fold together, since they will unfold as easily as they are folded. The only additional strength they have is that which the comb gives to them. Such sections show more or less leakage; and what can be worse and less appetizing than a section filled with honey which is leaking out and collecting the dust from the store, to say nothing of the vexation of the clerk in getting his fingers daubed with it. If all one-piece sections are glued at the dovetailed ends at the time they are folded, much leakage will be avoided.

We prepare our sections by spreading out about twelve sections (groove side up) over a board with a back nailed to it, one end of the section being pressed against this back. This brings all the grooves in line. Now with a thin two-inch flat brush we water the grooves, then place another tier of sections on top of the first, and so on until we have twelve to fifteen high. Then we take one of the upright piles and draw it forward; hold the pile with the fore fingers, and with the two thumbs press the pile backward so that the dovetail shows on each section, the pile then resembling a miniature pair of stairs. With a piece of section dipped into prepared glue we draw it down over the dovetail ends, leaving a small drop of glue on each dovetail. After the section is folded in a Hubbard press a ridge of glue is found on the inside corner, which acts as a brace and makes the section strong, and a help to hold the comb, instead of the comb holding the section together.

Again, many sections of honey are racked badly in taking them out of the supers. They may not show it at the time they are taken out, but later there is a leakage. Supers with open-top wide frames can be turned upside down upon the bench, and, with a piece of board laid across the ends of frames, with the aid of the hive-tool, all may be pressed out of the super at once, when they can be pried apart without injury to comb or honey.

Sections should be thoroughly cleaned of all propolis, and cased according to the different grades. The essential qualifications of the operator in grading honey should be honesty of purpose, and a knowledge of the requirements of each grade. He should put each section where it belongs, not allowing the penurious penny to blind him.

I am sure that a large majority of those who make mistakes in grading honey do so through lack of proper knowledge of what is demanded. The first rule to govern one should be to class the honey as white, amber, dark; then divide each class into grades —the white honey in three grades—fancy, No. 1, and No. 2; and the other two classes in two grades each — fancy and No. 1. In buying honey I have found No. 2 sections

in a case marked "fancy," and the only qualification they had was being filled to the wood, the surface of the comb being nut-brown in color. Many bee-keepers make this mistake, thinking that a section of honey sealed to the wood must be fancy, when most of such sections are only No. 1 from the soiled surface of the comb. It is better to remove honey from the bees as soon as it is sealed, all but the outside row of cells next to the wood, which will save the appearance of the capping from travel-stain. In removing comb honey from the bees the escape-board is one of the most convenient inventions given to the fraternity since the movable-frame hive. By its use we can remove the honey without the least annoyance or damage.

When possible, comb honey should be stored in the supers until the time arrives for cleaning, grading, and crating it. Exposure to damp atmosphere has ruined many fine crops of honey. To test this, take a section that has some open cells filled with honey. If, when holding it over on its side, the honey runs from some of those cells, you will know that the honey has taken moisture. If it has been left so long as to break through the cappings, heat should be applied at a temperature of 100 degrees for several days, and thereafter at 80 degrees. If the honey-room has a southern exposure, and the doors and windows are kept closed night and day, the room will warm up during the day; and by not allowing the air to escape it will keep warm through the night, and usually will not need any artificial heat unless kept until cold weather.

While the honey is in the supers, stacked eight to ten high, I fumigate with bisulphide of carbon by placing an empty super on top of the tier, and in it a saucer with one ounce of bisulphide. I then cover it with a heavy cloth, allowing it to stand and evaporate. If this is done at the close of the day's work the building can be closed and locked. There should be no fire or blaze in the room after the bisulphide is exposed to the atmosphere, as it is an explosive.

I also use a torch that has a strong open light, set in the bee-yard for an hour or two in the evening, which catches many millers by scorching their wings as they fly through the blaze. See illustration.

If we are to advance and maintain prices for our product we must have uniform grades, and use packages for shipping that will reduce the breakage to a minimum that we may get better freight rates. I understand that our supply-dealers are going to give us a better shipping-case, lined with corrugated paper, which I am quite sure will reduce the breakage at least one-half. When comb honey is shipped in small consignments the cases should be in carriers of not over eight to a carrier, with a placard stating what it is and how it should be handled. In fact, bee-keepers should do all that is possible to get their product in the hands of the consumer in a perfect condition.

Camillus, N. Y.

THE GRAVITY STRAINERS NOT ADAPTED FOR THICK HONEY.

BY O. B. METCALFE.

On page 327, June 1, the editor asks for reports on the Powell gravity strainer. I I am ready to report now, for I tried that principle two years ago, and found that it was not practical for our thick honey. In place of the iron pipe used by Mr. Powell I soldered a semi-cylindrical piece of galvanized iron up the outside of the tank, and a spout on this. This was cheaper, lighter, and (I should think) much more durable, as it could not be so easily knocked off. The one I made was 24 inches in diameter and 36 inches deep. I used a screen at the top to catch all large particles, and to spread out the honey so it would not pour down with such force.

When I made this strainer the idea was original with me; and as it was the first gravity-strainer scheme I had ever tried I expected to revolutionize soon the bungle-some old methods of straining and settling honey. I expected to draw the honey right from it into five-gallon cans ready to ship. If I had to run it into a big settling-tank I would not be bothered with it, for I can skim a five or seven thousand pound tank, and forget about it, while I could clean up such a contrivance as the Powell gravity strainer. I think, however, that for bee-keepers who have thin honey it will work well enough to can direct from it. Some may wonder how they are to know whether or not their honey is thin enough to strain with such a small gravity strainer. If I understand the physics of this gravity-strainer proposition it is as follows: The can must be of sufficient diameter so that the column of honey will not move downward faster than impurities will rise in the grade of honey to be strained. Could not a bee-keeper who wants to know how large a gravity strainer he needs take some of his thick honey as it comes from the extractor, and, by pouring it into a tall glass vessel, note how fast the impurities rise in it, and, taking into consideration how fast he extracts honey, figure about how large a strainer he will have to have without trying all sizes as we did?

We have finally settled on a 5000-lb. tank which we use as a gravity strainer in a way that involves the same principles as the Powell strainer, the only difference being that we substitute another man on the gang for the up-pipe or outside tube. It is the business of this man to keep the honey always near the top of the tank, and to draw it off as fast as it runs in from the extractor. It works very well when it is standing right out in the boiling hot sun, and for the most part our honey now comes in from the out-yards in shape to ship. At first thought this extra man seems to be expensive; but he is not, for the honey must at some time be drawn off, weighed, and the cases nailed up. The one man can do all of this, and

can do it as fast again as he can if the honey is allowed to cool. Therefore the only advantage of a small gravity strainer would be the handiness of hauling it about for outyard use. How plain it seems now, when I stop and think of all the time and work I have put in on gravity strainers!

In conclusion let me outline our system for the cleaning-up at an outyard, or at the home yard either, for they are all the same as to the way we work them. When we see that there will not be enough honey to run the tank over when it is about half full, the canner draws it off down to the point where the dregs begin to come, and quits. He can then begin hauling home. The next morning, before the bees begin to fly, the tank is skimmed and the rest of the honey is ready to draw off.

Just a word about skimmers. If any beekeeper is using a round vessel to skim honey he should get something square. I use about five inches of the bottom of a 60-lb. honey-can. The skimmer should be wiped practically clean of foam, etc., every time it is taken up or the job will never end.

Mesilla Park, N. M.

HOW A MODEL DISEASE LAW MAY BE INEFFECTIVE.

Legislation in New Zealand Prohibiting Box Hives.

BY STEPHEN ANTHONY.

Mr. Hopkins deserves the highest respect from all New Zealand bee-keepers, and it is not too much to say that the bee-keeping world generally owes him something on account of the most perfect foul-brood law yet framed. In his article, Feb. 15, page 96, please notice that what he says refers to the law, and so he is quite correct. As GLEANINGS has a world-wide circulation, and is read by all sorts and conditions of men, some of those not acquainted with our ways of doing things may easily conclude that New Zealand is nothing short of a bee-man's paradise. To those I would say that there is a great difference between a good law and its being carried out. In the first place, we have only two inspectors for the whole country, where twenty could find enough to do in ridding the country of foul brood, in which it has been soaking, as it were, for many years.

In this (Coromandel) district, of which I speak from personal experience, and in many others, as I hear, no inspection has been attempted, and so boxes and foul brood would show up just as well as in any part of the United States. Many who have transferred their bees to movable frames, using starters only, have the whole thing *en bloc*—so that the arrangement differs little from a box; and most of the hives about here are in that state—just through ignorance, laziness, and want of inspection. Then the bush—and our bush is different from bushes in other places, for we are a semi-tropical country—is full of bees with plenty of foul brood among them—a sort of perennial source.

Then we have a most peculiar aristocracy in this country, exempt from most laws, such as those regarding noxious weeds, foul brood, sanitary conditions, etc. These Maoris, descendants of the old original conquerors of these islands, whom the whites displaced, are endowed with large tracts of land, upon some small parts of which they live in villages, not troubling much about either hygienic or moral observances. Those lands, as a rule, they do not work, because they can not and they need not. They may not sell them, and they pay neither rates nor taxes on them. The idea is, that these lands should be kept intact in order to provide a permanent income for their descendants. I need not describe conditions any further, as some might think I am trying to rival Baron Münchhausen. I myself am a rack-rented tenant of the Maoris as to part of my lands, and also a neighbor of theirs, and, as a consequence, I know by experience; and the point I want to make is that such a state of things can not but be a perennial source of foul brood, both from the neglected bush and from the semi-barbarous man living just as he likes, practically, in the midst of a civilized community. Lastly, we have only one variety of foul brood as yet — the American.

Waitete, Amodeo Bay, Auckland, N. Z.

Pure Italians the Worst Robbers.

Last night, July 27, I took six empty crates from a colony of bees that had been cleaning them out; and as there were lots of bees clinging to the sides I left them on the ground until early this morning. I have 55 colonies in my home apiary, and in four of them are pure queens put in last year. I found these crates full of robbers, and I piled them up and floured the bees, and then watched to see where they went. No floured bees went in the colony that had the crates removed. The black bees, in almost the entire apiary, were very still, and in just one did a floured bee enter; and one pure swarm with an Italian queen was not robbing; but the other Italian colony was piling in, white with flour. One of two other Italians was robbing badly, and a half-hybrid colony had also been robbing. The results are as follows: In 45 black colonies, one bee in one swarm to prove robbing. In 6 hybrid colonies, one colony was robbing. In 4 pure colonies, two were robbing badly. The colonies that were robbing built up in the spring. The yellow bees are hunting every nook and corner, trying to rob, and black bees are noticeable.

Marshall, Mich. G. F. PEASE.

Why the Bees Clustered Out.

I had a large swarm of bees come out five weeks ago. For the last two weeks or so they have clustered on the outside of the hive on a hot or cool day. Is it because they have not enough ventilation? The hive is full, and I have taken out about 10 lbs. of honey. What is the reason they hang on the hive in large numbers?

Dayton, Wash., July 8. W. G. GIETZEN.

[From all the conditions named, it is our opinion that your bees do not have sufficient ventilation. A newly hived swarm needs more ventilation than a colony that is busily at work building comb. When the weather is very warm, in the case of a large swarm it is advisable to lift the hive off the hive-body and place four one-inch blocks or seven-eighths blocks under each corner. Let the hive stand thus during the hot weather or during that time of the year when bees seem disposed to cluster outside.—ED.]

Heads of Grain from Different Fields

Bee-keeping in Colorado; the Number of Colonies that May be Kept in One Locality.

1. In what is considered a good bee country (Colorado), in a good alfalfa district, what would be a conservative estimate, taking one year with another, as to the amount of surplus comb honey a colony of bees should produce?

2. How many more pounds of extracted than of comb honey may be figured on?

3. How many acres of alfalfa should be figured on to pasture one colony when there are from two to four cuttings a year, counting that there was no other forage?

4. Would there necessarily be a limit to the number of colonies in one yard where there is sufficient forage in a radius of 1½ or 2 miles? I have been told that 100 colonies in one yard is the maximum for best results in any country, regardless of the amount of pasturage, and no other bees in the neighborhood. I can not see any reason for this if they get the same attention.

5. In taking a neighbor's bees on shares, when the renter takes the bees from winter quarters in the spring, does all the work, allows but one swarm from a colony, furnishes all the hives and tools, and every thing except the articles that hold the surplus that belongs to the owner, such as sections and foundation, or cans for extracted, the renter taking all the increase of bees (first swarms), all afterswarms to be returned to original stock or united for the owner, and all orignal stock belonging to the owner returned at the end of the season, ready for winter in winter quarters, what part of the honey should the renter get, counting the honey both from the original colony and the swarm, not counting the honey in the brood-chamber of the swarm, supposing the swarm to be put in a new hive with foundation, or not more than one frame of brood from original stock to the swarm at the time the swarm issues? How should the surplus honey from the original colony and swarm be divided to make a square deal?

6. Can you tell me of any especially favorable location for bees in Colorado?

7. Would you think that 200 colonies in two yards about four miles apart would be more than one man could attend to by putting in his whole time, counting on help during swarming time only?

Enid, Okla. C. W. DILLON.

[1. Practically all the bee territory in Colorado is confined to those areas where alfalfa is grown. There are some places where the Rocky Mountain bee-plant and sweet clover grow on the mesas and the mountain-sides. There are also some other places where considerable fruit is grown. In these places fruit-bloom honey is produced early in the season in some quantities. But most of the available locations for bees are taken up by bee-keepers —that is to say, the country is very much overstocked throughout most of the alfalfa district. But we understand that some new territory is soon to be opened up by irrigation, and we would suggest that you write to the Secretary of Agriculture, Washington, D. C., and find out what places there will be in Colorado or any other State if you would consider going to any other locality where alfalfa would be grown in considerable quantity. We would then advise you to make application, and locate your yard as soon as possible, before any one else gets there, because it is getting to be a sort of unwritten law that the first bee-man on the field has a prior right to the territory. But, unfortunately, in many cases we find there are too many bee-keepers and too many bees for the locality, even in spite of the "unwritten law." We don't know what the average is in Colorado—probably not to exceed 50 lbs. Years ago, before there was so much overstocking, it was nearer 100 lbs.

2. This is a hard question to answer. Some bee-keepers figure only 10 per cent more; but the average usually figure anywhere from 33 to 50 per cent more. A good deal depends on the bee-keeper and the locality. Some places are better adapted for producing extracted than comb.

4. Yes, generally speaking there would be need of a limit to the number of colonies in any one locality. Where there are large areas of alfalfa to be grown, you can probably put more than 100 colonies to the radius of a mile and a half. But in that case we would not advise putting all the bees in one place. Put them at least half a mile, or, better still, three-quarters of a mile apart. By being thus divided in the two locations you might be able to put in 200 and possibly 300 colonies. But the average alfalfa district would probably not support much over 150 colonies to the 1½-mile radius, because alfalfa is not grown in all of the territory. No, 100 colonies is not a maximum for all localities. We know of places in the United States where 500 colonies or even a larger number can be supported in one location. The largest number we know of is in the buckwheat district of New York—one locality in particular where there are something like 800 or 900 colonies all in one yard. Another place is in California, where as many as 500 are kept; and we presume there are locations in Colorado where possibly 200 or 300 might be handled very profitably; but as a rule, that number for a 1½-mile radius very greatly overstocks the territory.

5. We do not know that we can answer your question exactly as you have put it; but we may say in a general way that the owner of the bees usually furnishes all the supplies and every thing that is required in the way of building, utensils, machinery, and general equipment at his own expense. The other party furnishes all the labor, and each party shares equally in the crop of honey, and equally in the cost of shipping-cases, sections, honey-bottles, cans, and any other containers that may be used for honey. You will find a contract something along these lines, covering every phase of the matter, given under the head of "Bees on Shares" in our A B C and X Y Z of Bee Culture.

6. We can not answer this question any more than we have indicated in the other replies.

7. You can easily put 200 in a range of four miles as you suggest, and we see no reason why one man could not easily take care of that many. Indeed, he ought to be able to handle a much larger number.—ED.]

A Queen-sieve Made of an Extra Bottom-board.

I notice in Siftings, p. 419, July 15, comments on making a bee-sieve for finding queens. My method may be described in bee-books, and it may have its faults, but it works very well for me. It is quick and sure, and the sieve is easy to make. Place a wood-zinc excluder on the small entrance side of an extra bottom, and exchange with the hive-bottom. Lift the frames out carefully so that the queen may not drop off, and shake lightly in front. Of course, if you see her on one of the first frames, or running in at the front, it is unnecessary to continue. She is ready for you on the lower side of the excluder, with a few workers near her. Proceed by slipping the excluder and bottom forward, replacing the hive-bottom board. A little smoke clears away any bees on the upper side of the excluder, and the queen and drones, if any, are where you want them. In the spring the bees are up on the frames in from five to ten minutes. If they are inclined to be lazy, a little smoke expedites matters.

Galena, Kan. J. P. BRUMFIELD.

Queens Laid More than One Egg in a Cell.

Last year I bought two queens, and was well pleased with them. They went into the cellar in fine condition, but both colonies were troubled with dysentery before spring. They didn't seem to be building up as fast as they should, so I examined them thoroughly, and found a queer state of affairs. One queen was laying from two to six and even eight eggs in a cell. I caught her and placed her on some comb under a glass and watched her. Then I killed her.

The other is not so bad, but she lays two eggs in a good many cells, and occasionally three. The young bees appear to be all right. Do you think it will do to try to raise another queen from her eggs? I have just one colony now, as I united them. Did the dysentery cause the trouble?

Edinburg, N. D., June 1. MRS. M. S. TROUSLIN.

[Queens that begin laying regularly—that is, one egg in a cell—do not ordinarily begin at a later date to lay irregularly unless the conditions of the brood-chamber are such that they have not enough room. Possibly your brood-chambers were clogged with honey. In other words, the bees may have started to store honey in the brood-combs; and as fast as the brood hatched they filled the cells with honey

until the queens were cramped for room. Under these circumstance a queen may lay more than one egg in a cell. We do not believe that the fact that the colonies had dysentery through the winter had much to do with the behavior of the queens, although poor queens might have such weak colonies that they would readily succumb to dysentery.

Perhaps it would be all right to raise queens from these eggs; but at the same time we should dislike to breed from a queen that was not normal in all respects. But if the queen were merely cramped for room, then of course it might be all right to breed from these eggs.—ED.]

Bees and Smoke.

We may never know whether bees inherit a fear of smoke. I doubt it. All adult wild and tame animals fear it because it suggests fire. I think it likely that bees, like quadrupeds and babies, must learn by experience, though to my mind it is sufficient explanation that the smoke causes the air-passages to smart, and even suffocates. I think it wise to blow smoke into the entrance of a hive, because the bees smell it, and, fearing it, begin to gorge themselves. However, it is not for the bees in the hive that I blow smoke in at the *lower* entrance, but for the benefit of the field bees, which, returning partly laden, or, possibly, wholly so, will attack a person ferociously; but if they go into the hive they will generally be as docile as those which were there when the smoke was first blown in. I use smoke to drive the bees back, just as others do.

I have found that an odorless smoke, like the vapors of nascent ammonium muriate, will not affect the bees at all, if free from ammonia or acid fumes; but a perfectly colorless atmosphere charged with the vapors of "liquid smoke," which is used to cure meat, will make them uneasy, and some of them will begin eating. This is conclusive evidence to me that the odor of smoke is all that is necessary to keep the bees quiet unless they are particularly ugly, when sometimes no amount of smoke will subdue them.

Buck Grove, Ia. A. F. BONNEY.

Keeping the Tops of the Hives Warm in Winter.

Perhaps it may be of some interest to the bee-keeping fraternity to state how I care for my bees during the winter. Late in the summer, when the honey-flow is over, I examine each colony carefully and make sure it has ample stores for winter, and also that it has a good vigorous queen. If the queen is of the current season's rearing, all the better. Having satisfied myself that the colony is in good condition I place a half-depth super over the brood-chamber and let the bees seal it down tight. As there is always an abundance of propolis in the fall, this is soon accomplished. I then place directly over the brood-frames several thicknesses of woolen cloths (preferably old blankets), and then fill up the super with old rags, dry leaves, grass, etc., and, last of all, about a half-inch layer of newspapers. I then put on the cover; and if the weather should become cold I wrap several thicknesses of newspapers or carpet around the entire hive. The entrances measure about 5 inches by ½ inch. My hives face the north. While others have lost three out of four colonies, I have never lost one packed in this manner. I aim to have the *tops* of the hives as warm as possible, not paying much attention to the sides; and I think most bee-keepers will agree with me in believing that this is the true principle of successful wintering.

HOW TO SEPARATE SUPERS THAT ARE STUCK FAST WITH BURR-COMBS.

It often happens that bees build brace-combs between the different supers on the hives; and to separate them is naturally a sticky and disagreeable job, to say nothing of the disturbance to the bees by prying them apart and cutting the brace-combs as best one can. I proceed as follows: I drive a small wedge at each corner of one side of the hive, leaving a gap of about a sixteenth of an inch or a trifle more. I then take a piece of fine wire, such as is used to wire brood-frames, and draw it back and forth—in other words, seesaw it to the other side of the hive. Every burr-comb will thus be cut in two, and the bees will hardly show they have been disturbed. By this method there is no jarring of the hive, and no disturbance; and what is often a disagreeable task becomes a trifling one.

Cincinnati, O. ALBIN PLATZ.

Queen-excluders Under Supers.

Would you advise using excluders to keep the queen from laying in the supers? How soon do the young queens hatch after the swarm issues?

Belleville, Pa. YODER BROS.

[In the production of comb honey it is not customary to use queen-excluders to keep the queen in the brood-chamber; but when running for extracted, excluders are very often used. In fact, we may say that most of our best bee-keepers think it economy to put on excluders so that the upper story of the hive will be free from brood, and, to a great extent, of pollen. For further particulars on this subject you are referred to the subject of "Drones and Extracted honey" in our A B C and X Y Z of Bee Culture. The young queens usually hatch from the cells about the day that the swarm is cast. Sometimes they come out a day ahead, and sometimes not for two or three days.—ED.]

Will the Spraying of Cotton with Paris Green Cause Trouble to Bees or Their Owner?

We have the army-worms eating up our cotton-leaves, and a friend about 1½ miles from me is poisoning his cotton with Paris green. I want to know if the bees could get any of this poison without killing them, and store it in the supers so that it would be dangerous for us to eat. There is much cotton nearer than this friend's.

Cliftonville, Miss. B. G. PATTY.

[We do not think the spraying of the cotton-plant itself with Paris green would cause any trouble with the bees or their owners unless the cotton were in bloom at the time. If you find any bees dying, we should be pleased to have you report, as we are interested in knowing about this.—ED.]

The Misuse of Copper Vessels for Making Syrup.

Referring to the Straw on p. 386, in which a case of bee-poisoning is noted after feeding syrup prepared in a copper vessel, I beg to venture the opinion that the trouble was caused by the misuse instead of the use of such a vessel. A clean copper vessel is all right; but one in which verdigris (basic acetate of copper) has been allowed to form is very dangerous, as this substance is highly poisonous.

Wilmington, N. C., July 14. F. L. HUGGINS.

[As Mr. Huggins is superintendent of The Cape Fear Chemical Co. he can speak with some authority. He is undoubtedly right.—ED.]

How Much Stores does a Colony Consume in a Year?

About what amount of honey will an average colony of bees consume during the year? I do not remember seeing this mentioned in any of the bee-books.

Lexington, Ind., July 27. L. E. MACE.

[It was estimated some years ago, that, during the entire year, an average colony would consume about 200 lbs. of stores during the 12 months. This estimate was based on the northern tier of States, where the winters are cold. If the colony would yield a surplus of, say, 50 lbs., it would have to gather 250 lbs.—ED.]

Proof that Bees Can Not Puncture Fruit.

"Do bees puncture fruit?" Well, I say not, so far as my experience goes. I have driven through a half-cleared swamp to-day, and saw great quantities of what we call wild balsam, with a profuse yellow flower, and bees just roaring on it. I stopped to take notes. This plant has the trick of bursting its seed-pod when one puts his finger on it. Well, I failed to see a single bee try to crawl into the blossom; but every one would go to the front of the blossom, and smell; and if it contained honey the bee would fly to the other end and lick it out, provided the blossom had been already punctured. If not, it would leave at once and hunt a blossom that smelled of honey from the front, then wheel to the other end. This flower is very tender, and perhaps three-fifths of the blossoms had already been cut at the base by some other insect; so we see that bees do not hunt honey with their teeth, but with the tongue, which is provided for the purpose.

Hoserworth, Ont. CHARLES MITCHELL.

Notes of Travel

A. I. Root

Dear friends, the story I am going to tell you now will include bee culture, high-pressure gardening, poultry, and God's gifts in general; and very likely some of the friends will complain that I am once more giving quite a little free advertising. But I hope you will not object when I tell you that I expect to do a lot of free advertising for things that are good and honest, wherever I find them sufficiently meritorious. Of course, I may make mistakes, and I may also lack in judgment at times; but I am going to do the best I can for all humanity.

On the afternoon of July 31 I started on my trip, and on the following day I found myself in the great city of Philadelphia, where my good friend W. A. Selser had been waiting for me for *three hours*, as the train was that much late. As we had lost so much time I pressed my good and able friend into service; told him he was to do my bidding, and The A. I. Root Co. would pay all expenses incurred. As I had already missed my train, to meet an appointment we were glad to call to our aid telephones, telegraphs, electric and steam railways, and automobiles.

As we went away down into Southern New Jersey I was greatly surprised to find so near the great city of Philadelphia miles and miles of a sort of barren waste that looked very much like certain portions of Florida. And there is *another* thing besides the *landscape* that made it look like Florida. Every little while we saw a sort of oasis where somebody had built some kind of cottage and tried to make a garden, but had evidently gone back, discouraged, and left the land to go back to primitive wilderness. Friend Selser said speculators sold this poor land to unsuspecting and innocent hard-working men, and that was the result. Of course there were towns occasionally where improvements had been made; and as we approached Cape May we saw better soil and beautiful farms, both for fruit and garden crops.

My first destination was to see the great blackberries I have before mentioned at Fishing Creek, N. J. This blackberry was brought a few years ago from Brazil; but the man who took pains to bring a root of it to this country died soon after, and it was allowed to run wild until friend W. L. Ewing got hold of it. Briefly, this blackberry grows like a grapevine, and covers a trellis; and it was my privilege to reach up overhead and pick the largest and most luscious blackberries I ever tasted. They are later than the ordinary blackberry, and do not begin ripening until about the first of August. After that they keep on ripening until frost. I saw single canes over 20 feet long, and I was told they had grown much longer than that. It was also stated that between one and two *bushels* of berries had grown from a single plant. I had somehow obtained the impression that it was from a single *vine;* but as it stools out like any other blackberry, one hill may in time produce half a dozen or more great strong canes, and, if I am correct, it is the hill that gives more than a bushel of berries. The canes grow the first season, and the next one they bear fruit. The third year they die down, and will have to be cut out. Friend Ewing has them all trained on something like a grapevine-trellis. I think about three wires on posts perhaps five feet high hold the canes up so that the sun and air can get all around the fruit. The vines and foliage very much resemble the Northey berry that we have down in Florida that I have already very fully described; but it bears a *black* berry instead of a red or crimson one, and it is a very much larger berry. They grow in great clusters, the berries all touching each other, making sometimes a great heavy mass of berries. The question arises, of course, "Will this berry give any thing like the same results in other soils that it does on that Jersey ground?" and this is yet to be determined. Friend Ewing says he has not had much success with commercial fertilizers nor even barnyard manures; but constant cultivation with a dust mulch all around the plants seems to be their best treatment. Four of the plants are now growing in our own garden here in Medina. Of course the plant is a rank and rapid grower or it could not make such a length of cane in a single season.

At the time of my visit there was a gathering of prominent men interested in fruit-growing and agriculture. Your humble servant was soon asked to give a little talk. By the way, the only way friend Selser could reach the meeting before its close was to press into service an automobile from the station. So, almost before I knew it, I was whirled along in the auto and then called to the speaker's stand. As I did not know my audience I feared I was getting in almost too much of the name of the great Master whom I love. Well, I soon gathered from the faces of the women present, as well as the rest of the audience, that my exhortations were not ill-timed; and the remarks of the chairman near by intimated that *he*, at least (for he was the pastor of their church), was pleased to have such a talk before his people in regard to God's great and wonderful gifts.

As we had a train to meet, I was obliged to leave before the meeting closed; but before coming away in the auto we sampled the blackberries again. There was about a third of an acre of old plants in heavy bearing. Then there was about half an acre of plants set out two years before. This bears equally fine berries, but not so many of them, as they do not make such an extended growth. Every little shoot is loaded with berries. In fact, some of the berries

were clear down in the dirt. I might be tempted to call it a dewberry were it not for the size of the canes, some of them almost as large as a hoe-handle, and the fact that they bear equally well when carried on a trellis clear over one's head.

The next point of interest was Glassboro, N. J. Here we found an orchard of apple-trees covering something like 400 acres. It belonged to the Repp Brothers — John, Charles, and Albert. We were taken through the orchard in a fine up-to-date automobile; and our host remarked that if we could find a wormy apple on the whole 400 acres he would be glad to see it. We did not find one. If I remember correctly they spray their trees five times every year; but before they got entirely rid of the codling moth this thorough spraying had to be kept up three or four years. I have recently mentioned a single apple-tree in Northern Michigan, from which the fruit was sold in one season for $60.00. Friend Repp pointed to a whole row of apple-trees, and said he had good reason to believe that he would get at least $50.00 a tree for every tree in the row. The early apples were being gathered while we were there. They are gathered, handled, and sorted with as much care as are the oranges in California and Florida. One of the brothers is constantly stationed in Philadelphia during the gathering season to dispose of the fruit to the best advantage; then a fine cold-storage plant for placing winter apples as soon as gathered has been made; and a very complete and up-to-date apparatus, for spraying by means of a gasoline-engine mounted on a heavy truck, is used. The ground is plowed in the spring, and given thorough cultivation until the first of July, when all cultivation ceases, and *weeds* are allowed to grow to their hearts' content. When I suggested sandy vetch or some other legume instead of weeds, friend Repp said that, like the poor, weeds are "always with us," or almost always; and he said that, with their vast extent of orchards, it would be a great deal of trouble to put in a crop of any thing, compared with weeds, which can take care of themselves. Of course, the trees are carefully propped up to prevent the limbs from breaking. I saw only one tree where the limbs were breaking down, and I think this was because the props were not sufficiently strong. They make their props out of old rails, for every fence that was originally on the farm has been taken away. Said I, "Mr. Repp, do you grow only apples and pears? are you devoting your time to no other fruit?"

"Why, yes, Mr. Root; we have a few peaches, but only about forty acres. Perhaps you would like to see our peach-orchard."

Then the auto whirled us over there, turning corners and dodging obstacles at such a rate that I was forced to admire friend Repp's remarkable skill with the auto. With the fifty hands employed, or such a matter, *it* is really his "right-hand man." As we approached the peach-orchard and saw the beautiful red Carmans just ripening all about us, he turned to us and said, "Now, friends, we have in this orchard fifty-seven varieties of peaches."

"Fifty-seven varieties?" I said in astonishment. But just then friend Selser began to laugh, as he had caught on about the pickle-man of Pittsburg. Then I continued:

"Why, you surely did not *plant* fifty-seven varieties in this beautiful orchard?"

"No, Mr. Root. We planted only one variety—at least we *thought* we did; but the fifty-seven got in when we found them bearing."

Of course, there were not *exactly* fifty-seven. He found, as most of us who grow peaches do, that they were not all true to name. Said I:

"Mr. Repp, do you know of any nurseryman on the face of the earth who will furnish you 100 or 1000 trees, and guarantee to have every one true to name?"

He replied, "No, Mr. Root, I do not. Of course, they will *replace* those not true, but what does that amount to?"

Here, friends, is in object-lesson. Instead of trying to do all sorts of farming, as so many of us do, this man, or, rather, these three bright men, confine their attention almost solely to apples. They not only grow *more* apples, but better ones, than the world has ever seen before, especially in the Eastern States; and by confining their attention to apples, and having all appliances and machinery up to date for their especial crop, they outstrip a world of people who try to do a little of every thing. Their principal fertilizer—in fact, almost their only one—is basic slag and potash. The slag is put on and around the tree first, and the potash afterward. They have had experts, soil chemists, to help them choose the best fertilizer for their business.

On our way to the station our good friend pointed out to us a great hotel, an immense structure in which they had recently toward a hundred guests at prices ranging from $2.00 to $4.00 a day. Now listen while I tell you why this great hotel, *right in the height of the season*, is vacant and idle. Where they make these big prices from millionaires, they of course have a bar and sell liquors. Well, the Repp Brothers, with other good business men in the place, formed a civic reform committee, and decided that they would have the law enforced. They got a good honest detective (thank God there are a few such in our land). This one was a minister of the gospel, who evidently decided that the Devil would have to be fought on his own ground and with his own weapons. He succeeded in getting such evidence that the proprietors of the hotel faced not only heavy fines but imprisonment. They got mad; and, thinking to spite the law-and-order-loving people of Glassboro, they declared that, if the law was enforced, they would dismiss their guests and lock up the hotel. "All right," said the civic reform committee. "Shut it up and turn your guests away."

Of course, it took a lot of money out of the town, and stopped a lot of business; but the Christian and temperance-loving people said, "All right; we are going to have our laws enforced, even if we *do not* have quite so much money."

Our good friend said he was not a member of the Anti-saloon League, nor, I think, of the Prohibition party; but he believed in enforcing the laws, and they went at it, and did enforce them in spite of the whisky gang. God speed the day when our common hard-working people—men of influence and men of means—shall rise up in their might and stand up for the principles of the stars and stripes.

With a speed of about a mile a minute, and sometimes a little more, we were back again in that busy humming city of Philadelphia. A bright little girl, Mr. Selser's stenographer, met us when we stepped off the train, hurriedly took down some dictation, ran errands (yes, stenographers in Philadelphia and New York both run errands, and I tell you they are expert at the business too), and friend Selser then said we had 15 minutes to get dinner before taking our next train. He suggested a roast-beef sandwich with some mashed potatoes. Let me say right here that may be I am telling a good many people something they know all about but which I didn't. But I am sure there are many others who are as unacquainted with the great cities as I am; and it was one of my happy surprises to find that that roast-beef sandwich was a great plateful of large slices of nice bread soaked in rich dark gravy with good slices of about the nicest roast beef I ever ate. It was so tender that we made out a good meal in fifteen minutes, caught our train, and hied away to the Corning egg-farm at Bound Brook, N. J. As we stepped from the car I was pleased to see a neat little sign at the entrance gate announcing "No visitors received on Sunday; but we shall be glad to welcome you other days and show you around between 8 and 12 A.M. and 2 and 5 P.M."

As we came up to the door of the office a jolly-looking gentleman rose up and said pleasantly, "Well, gentlemen, how can I serve you?" When I was introduced I was pleased to hear him say he had read some of my talks, and would be very glad to show me around. As most of the chicken folks have read the Corning egg-book I need not go over it here; but I saw there right under my own eyes a demonstration of about all there is in the book. Six thousand chickens, all about one size, were in a long building that separated them into flocks of about fifty each. They could run out into their respective yards or come inside, just as they chose; but during that hot summer day they seemed busy in scratching in the litter inside. The laying hens, 450 in a similar house, also seemed to be busy, and well and happy. This house, however, provides them all they need in the way of grit, green food, animal food, etc. The green food they mostly prefer is sprouted oats. One basement was full of oats sprouted green in different stages. During the severe hot weather, Mr. Corning said, they had better success in sprouting the grain in a damp shady basement instead of having it out in the open sun. He remarked that, although the chickens would eat oats a foot high or more, they had decided from their experiments that there is more nutriment when the sprouts are only about a quarter of an inch long. He said that at this stage we have the full benefit of the grain with the additional value of green food.

A yard of pullets one-half or two-thirds grown were in colony houses out in the lot. These colony houses are about such as I have described; but they are on runners so as to be movable; and he has decided, like myself, that every chicken will have to be shut up in a secure rat-proof house every night, and let out every morning at daybreak. Their foreman is one of the chaps like myself who like to get up early.

When I asked if the handsome White Leghorn chickens scattered over the fields all went back to their respective houses at night instead of piling all into one or more houses he remarked, "Why, Mr. Root, most of them find their homes without any trouble; but there are a few nearsighted ones; and about roosting-time you will see them getting up in front of the house and looking at these large black figures. You see they are over a foot long, and they almost always make out their number. We have thought of getting some spectacles for a few of them that are *badly* nearsighted, but we have not got around to it yet."

When we came to discussing poultry remedies he said they had very few diseases of any kind. He remarked that some of the poultry remedies are doubtless good—for instance, the roup cure that is advertised at 50 cts. or $1.00 a bottle. He held up a bottle marked "permanganate of potash" and said, "This, Mr. Root, is a staple remedy for roup—the principal drug in all their roup remedies, and even for other ailments. But five cents' worth of permanganate will go further than a fifty-cent package of the roup cure. Go to the drugstore when you want it, and mix it yourself."

When I asked about the three or four bloodhounds that were chained near the office he said they were let out to protect the premises at night; and they not only kept away all sorts of vermin but suspicious characters of the human family. When I asked about the laying, he gave the per cent of eggs from certain houses. For instance, a pen of 450, where some of them were just beginning to moult, was then giving about 30 per cent—that is, 30 eggs for every 100 hens, and he said something like this: In December it would run something as it then did. In January they would come up to 40 per cent; February, 50 per cent; March, 60 per cent; and in April, perhaps 70 or 75; and about the same in May.

Their eggs are marketed the day they are

laid, and they get extra prices by having every egg not only strictly fresh but first class in every respect. They have a reputation in the cities of New York and Philadelphia, and they work hard to keep up that reputation. They do not use fireless brooders. He said that a little gentle heat for the first two or three weeks is so much of a help in getting strong and sturdy chicks that they prefer it; but just as soon as the chicks can be persuaded to get up on their little perches, especially in summer, they are encouraged to do so. Of course, all heat is cut off at such a time. They have been using the Prairie State incubator; but every one in a long room full has been sold, and they are installing a "Candee" mammoth incubator, as they became satisfied that the big machines taking over a thousand eggs at a time give more and better chicks with very much less labor to control. He added, however, that if he were in Florida, as we are in the winter time, he probably would use fireless brooders without heat; although he suggested that a little heat would save a lot of trouble in enabling the chicks to find the hover. When I suggested a sitting hen put into a barrel laid on its side for 40, 60, or even 75 chicks, he said most emphatically, "Mr. Root, if you can have a sitting hen at just the time you want her, your barrel arrangement would be just the thing—perhaps the best thing in the world;" and I am going to try hard to have some sitting hens ready whenever my chicks hatch.

One thing more. Mr. Corning said he would never use eggs for hatching chickens until the mother is fully a year old, or at least until she has been laying long enough as a pullet to be fully developed, and laying good-sized fertile eggs strongly fertile. Of course, the small eggs that the pullet lays at first will hatch chickens, but not good strong healthy ones such as we all want.

Our Homes

A. I. Root

If thou turn away thy foot from the sabbath, from doing thy pleasure on my holy day, and call the sabbath a delight, the holy of the Lord, honorable, and shalt honor him, not doing thine own ways, nor finding thine own pleasure, nor speaking thine own words, then thou shalt delight thyself in the Lord; and I will cause thee to ride upon the high places of the earth, and feed thee with the heritage of Jacob thy father; for the mouth of the Lord hath spoken it.—ISAIAH 58:13, 14.

When I started off on my eastern trip I told our people I could make my several points and get home by Saturday night sure. But Saturday morning, when I began to inquire of my friends about my route home, I found I could just about make it without encroaching on the sabbath if I did not make any more stops; and with so much traveling, being rushed from one point to another, I was feeling pretty well tired out, and I do not know but I was a little homesick. In fact, I felt a strong disposition to cut short my visits and rush straight home. I found, too, that my best route would take me through Troy, N. Y., and I recalled that a niece who resided there, with whom I had been most intimately acquainted in her childhood and babyhood, had complained that I had never made her a visit. In thinking the matter over I wondered whether I should follow inclination rather than duty, or, if you choose, do what I *wanted* to do rather than what I *ought* to do. I finally knelt down and resolved to "take it to the Lord in prayer." While asking for divine guidance I recognized that I might have to travel on the trolley cars perhaps on Sunday morning in order to get home. The answer came remarkably sharp and clear, "Spend the sabbath with the niece whom you have neglected so long." In fact, it was a sort of feeling that the great Father had some *work* for me to do on that special sabbath if I were ready and willing to do his bidding.

At exactly 6 o'clock P.M., I was at the Troy station; but as I had not planned to call on my relative I had no idea where to find her. There were several obstacles in the way. The stores and business places were pretty much all closed. Of course, I could consult the directories; but I am too deaf to hear the average talk through the telephone; and I did not know a soul in that whole great city. My niece was a widow. I knew her husband, before his death, was engaged in the shirt and collar business; and after spending what little time I had in going from point to point with a heavy valise, I approached such a place of business. It was shut up like all the rest. A little girl sat on the doorstep. She kindly gave me a little encouragement; and when a gentleman came along who looked as if he might be willing to help a stranger, I appealed to him. We consulted the city directory; but there was a long string of Gardners, and *two* that had recently died; but no street or number (as they were *dead*) was given these. He suggested he knew a man connected with an insurance company, named Gardner, and we went up there. But their place was closed also. At this stage I asked the population of Troy, and was told that it was about seventy-five thousand.

"Seventy-five thousand! why, my dear sir, it is like finding a needle in a haystack. I can not think of bothering you any further. I think I will take the next train, and go on and give it up."

He smiled pleasantly and replied, "Oh, no! Since we have got started we are going to *find* our man, or *woman*."

Now, as soon as I decided in my own mind that I would give up the quest (as I thought I could not find her any way), it brought on a feeling of darkness—that is, my spiritual-

ity seemed darkened; but his cheering words brought life and hope again, and I began (mentally) breathing my little prayer "Lord, help." We went into a florist's, next door. The proprietor called through the phone for the head of the insurance firm, and for a Chas. Gardner whose mother was a widow. But there were *two* men by that name, and their mothers were *both* widows. One of them *happened* to be at the place, and pretty soon we were making headway. Finally this good Samaritan whom I have mentioned said through the phone,

"Do you know a party from Ohio whose name is Root?"

"Yes."

"He wants to see your mother."

The reply came at once, "My mother is right *here*, and will be exceedingly glad to see Mr. Root."*

Then this new-found friend hunted up the right car, told the conductor where to put me off, and in a short time I saw my niece in the distance, coming to meet me. After we had talked over old times, and I was beginning to feel *at home* and happy, she said, "O Mr. Root! there is one of the nicest young men that I know of, a friend of mine, who is just getting interested in bee culture, and he has already expressed a wish to see you if you ever come this way. He lives only a little way off, and I will call him over the phone."

I shall always remember that Saturday evening. The young man mentioned is a bright keen young fellow, perhaps not quite half my age; but he and I became friends at once. We talked until after 10 o'clock, and even then did not get through.

The next morning I found that, to get to a Congregational church, I would have to ride several miles in a trolley car. Now, I have all my life studiously avoided any sort of travel that obliges my fellow-man to work on Sunday, and I asked if there was not some church near by where I could easily go on foot. There was a Methodist church within two or three squares. The minister was of foreign birth, and his language was somewhat broken; but his sermon came home to me with wonderful power, and I was glad in my heart that it was a Methodist church so my "amens" would not be out of place. At the conclusion he asked me where I lived, what church I belonged to, etc. I replied, "My good friend, at my home in Medina I am a Congregationalist. In Florida, where I spend my winters, there is no church of our denomination, so I am a *Presbyterian* in the winter time; and to-day, as there was no other church handy without riding on the cars, I found myself in a Methodist church. In fact, I am happy in being a Methodist for to-day, if you good people will accept me."

In his large Bible-class, after the sermon, he introduced me to a lot of bright devoted men; and I am going to tell you something about *that* Bible-class in another number of these Home papers.

After hearing that good minister preach again Sunday evening, my new-found friend came over and asked permission to have a further chat with me. I found he was not a member of any church; and as it was Sunday evening I gave him a few points in my eventful life, especially telling him how our business had been built up, and how bee culture had prospered in answer to my prayers. He was very much impressed. He said my plain and practical talks had given him a new glimpse of the gospel of Jesus Christ. Next morning he was on hand to welcome me, bright and early, at their place of business; and, by the way, I am pleased to tell you that one reason *why* he was so much interested in bees was that their great seedstore had just become a representative of The A. I. Root Co.'s goods, in connection with their seed and poultry trade. Well, almost his first words were something like this:

"Mr. Root, after thinking over what you told me last night I am impressed with this —there is great danger that people who read your Home talks on this matter will never comprehend that God placed you and singled you out, *because* you did not start out to *make money*. If I understand you, your undertaking was to save souls, and God honored you, and answered your prayers because he saw that he could do so safely."

The above is right and correct. A young man in my Sunday-school class once confessed to me that he had stopped praying because it did not seem to do any good. I asked him *what* he had prayed for, and the reply was, "For an advance in salary!"

In bidding good-by to my new-found friend as he placed me on the proper car to reach my next point, I said to him, "Friend G., can you not give me the same promise that George E. Hilton gave me when I left him after that half-hour's talk?" (see page 475, Aug. 1.)

He replied something like this:

"Mr. Root this is too serious a matter for me to decide on hastily. I want to think it over. I will, however, promise you this: that hereafter I will *try* to make your little prayer, 'Lord, help,' *my* prayer."

Now, friends, had I listened to that selfish feeling—well, you may say homesick feeling—and missed stopping at Troy, that whole bright sabbath day would never have dawned on my life. I spent something like an hour that Monday morning with my young friend in looking over their vast seedstore. They have the largest stock of poultry implements—in fact, "every thing for poultry," that I think I ever saw before. There was no end of our discussion in regard

*At this juncture, to tell the truth, I uttered aloud "May the Lord be praised." I explained to them that I at *first* feared it was impossible to find my relative at that time in such a large city, and that I was greatly rejoiced, and would always remember their kind services. Please notice, I said just above that C. H. Gardner and his mother just *happened* to be at the residence of the insurance man. But, dear friends, I can not begin to tell you of the many kind things that "just happen," at about the time when I become sufficiently discouraged, to *remember* my little prayer, "Lord, help."

to poultry-appliances as well as various kinds of seeds, novelties, etc. I think I might as well tell you that this firm is the Gordinier Seed House, of Troy, N. Y. The head of the firm is a gray-headed deacon in the church. A few weeks ago they had a fire that damaged a portion of their seeds more or less. Samples were tested at once to see how much injury they had received from the heat. A good many of the seeds were injured but little; and some of the clerks suggested selling some of these injured seeds at a lower price. The old deacon replied something as follows:

"Yes, we have got insurance on our loss; but there is one thing that was *not* insured, and which can not *be* insured."

Some of the younger members began to wonder what it was that the various insurance companies would not cover. There was a great big moral to the old gentleman's reply. It was this:

"The *reputation* of the Gordinier Seed business."

Now, if I had rushed straight home, as I felt like doing, I should have missed *another* wonderful sight that met my view Monday afternoon. It was this:

Our good friend and representative, F. A. Salisbury, of Syracuse, N. Y., met me at the train with his electric automobile, and took me over to see Mr. S. D. House, of Camillus, four or five miles out of the city. Friend House was out in his apiary of 270 colonies of bees, clustered all around his home, and every bee of the 270 colonies was, for the time being, a "busy bee" in good earnest, bringing in *alfalfa honey*. Supers and sections were piled away up, and thousands of pounds of honey was ready to come off. Sections were filled and capped over in a week, and empty supers of sections put on the day before had the cells drawn out and half filled with honey in just 24 hours. I do not think I ever saw honey come in, even in basswood time, as it did on that Monday afternoon. The bees were swarming; and his principal help was a bright little boy ten or twelve years old, a nephew. Just a few days before, I was told that J. E. Crane, of Middlebury, Vt., would have to feed many barrels of sugar to his several hundred colonies because the season was a failure.

Before I got into Syracuse I noticed from the car windows acres and acres of alfalfa. When I expressed an earnest wish to see a field of alfalfa in full bloom, so as to give a honey-yield like that, this small boy piloted us to one of the hills where a whole field was a solid mass of blue alfalfa-blossoms. On the way back we saw another apiary owned by Irving Kinyon, Camillus, N. Y., and there I saw on one stand *five* stories all filled with alfalfa honey from top to bottom. They, too, were so rushed in putting on supers and sections that they found it hard work to give the bees room. On many hives great quantities of bees were hanging out, and even down in the grass, because their hives were absolutely "chock full," with no room to store more honey. When I remonstrated they said they were clear out of supers and sections. Pointing to my good friend Salisbury, who was by my side, I said, "Why can't this good brother supply you from his ample storeroom filled with supplies?"

"Yes, that is all true; but this 'good brother,' as you call him, wants 'spot cash' for every article that goes out of that nice storeroom, with its splendid assortment of every thing that a bee-keeper may want."

Of course, that statement was a "huge goak;" and you ought to have heard the big laugh that went up from all around.

Now, this was a revelation to me, and I think also to a great part of the readers of GLEANINGS—that alfalfa will not only succeed splendidly in New York, but that it will, when conditions are all right, give a tremendous flow of honey right in the middle of August, when bee-keepers, as a rule, almost all the world over, are getting little or nothing. Friend House suggested that perhaps a part of the flow was from sweet clover, as we found it all along the roadsides and vacant places, both white and yellow. The yellow, however, seemed smaller, and we did not find as many bees on it. I found some beautiful Red Astrakhan apples at friend House's, so I had my apple supper at about the usual time. When we got over to that hill of alfalfa we found, on coming back, some of the finest Yellow Transparent apples, all ripe and "ready to drop;" so I had another supper of *these* luscious apples.

When we got back to Syracuse, friend Salisbury's housekeeper said "supper was ready." I tried to explain that I did not eat suppers; but when the good woman said she had some nice fresh fish, caught that afternoon, especially for *me*, besides a nice sample of that alfalfa honey I was talking about, I made that evening an exception. You will remember that, when the Savior gave his followers a banquet, it consisted of fish, and "honey in the comb." I thought I ate moderately; but in the middle of the night, in my upper birth in the sleeper, I am afraid I disturbed a lot of passengers by having a terrific nightmare. I had not had an attack of it before then for several months. Having three meals a day, instead of two, was what caused it, without question. Now, friends, just think what I would have missed had I yielded to the temptation to rush home and travel on Sunday more or less.

Just one thing more before this Home paper closes. It was after dark when friend Salisbury took me down to meet my train; and with his beautiful new electric auto we went up and down through the electric-lighted streets of Syracuse. I think I never saw before so many moving electric signs and such myriads of radiating globes. As I began to express wonder, friend Salisbury spoke something like this:

"Mr. Root, can you realize that every blaze of light we see comes from the power of Niagara Falls? Not only that, these rushing cars that dodge so swiftly everywhere through the city, and run away off into the

country for miles and miles, are propelled by the power of that same Niagara. And, to go a little further, this very automobile that has carried you about through the country to-day, and through these beautiful streets to-night, is also impelled by the power of Niagara, for my storage battery is filled from the Niagara current."

Once more may the Lord be praised for what he has done and is doing for his untiring, hard-working children whom he loves.

"SKYROCKET" PERIODICALS, "PROFIT-SHARING," ETC.

We clip the following from a recent issue of the *Ohio Farmer:*

There are two or three "skyrocket" publishers of agricultural papers, with an outrageously inflated capitalization, working farmers to take stock in their enterprises. We deem it our duty to say to our subscribers that they will surely be very sorry if they are misled into any of these investments. No standard reliable publications are resorting to such nefarious methods to maintain their business.

We are glad to see that the *Ohio Farmer* gives place to the above warning. When an agricultural paper or any other periodical publicly invites a subscriber to purchase stock in his enterprise, give him a wide berth. A gold-mining enterprise that invites you to go in with it and "get rich," does not, at the present day, get many suckers to bite—or at least I hope not; but when the editor of a respectable magazine, or one that has been considered respectable, talks about the great fortunes to be made in the publishing business, and wants you to go in with him, and share the profits, it is time that such parties be let severely alone by every man and woman of common sense.

Look out for the "gentry" who are after your money; and I would warn you especially to be on the lookout for the institution that has something to sell, and, if you do not answer after, say, ten days or two weeks, will keep making further offers and coming down in their prices. What brought the matter to mind just now is that I answered an advertisement of a "memory" school. As the amount of money they wanted was more than I felt like paying I dropped the matter; but in a few days I had a very pleasant letter (typewritten, of course) saying they felt anxious because they had not heard from me further, and they offered to come down in their price a little. As I gave this second letter no reply, a third letter came a little later, making a still greater reduction in tuition, and saying at the same time, "This will be your last chance to enroll at the old rate before I raise the tuition again." Now, there are a lot of advertisers who are doing business in just this way. They first want about $25.00, finally they come down to $10.00, or may be $5.00; but it does not seem to occur to them that, by their own admission, they are getting a big lot of "other people's money," if they happen to get any kind of "bite." Suppose some one should be so innocent and unsuspecting as to take up with the first offer of $25.00 when he could have had the same course of lessons for only $5.00 if he had hung back properly and acted indifferent about the matter. What do you think of that way of doing business? Here is a single sentence from the letter which I hold in my hand: "A few minutes' practice daily will enable you to accomplish more in a week than a hard-working man can do in a month." That is a big offer, sure; but I think I shall continue saying, "No, thank you."

THE "BREWERS' INDUSTRY (?)" "OFFICIALLY RECOGNIZED" BY THE DEPARTMENT OF AGRICULTURE AT WASHINGTON.

From the *American Advance*, published at Chicago, we learn that the brewers of the United States are to hold an international brewers' congress in Chicago, October 12 to 22; and inasmuch as the brewers from foreign nations are invited to be present, the *Hon. James Wilson*, Secretary of Agriculture, is not only *invited*, but has *accepted* an invitation to act as honorary president for the Congress. Now, we have been told by the papers that Secretary Wilson was back of the movement to oust Dr. Wiley; and it has leaked out in several directions that the liquor people of the United States are back of this attempt to get our United States Chemist out of the way. In view of the above, *who* is it that should be asked to "step down and out"? Is it possible that Secretary Wilson is so blind or indifferent to what is going on in the way of banishing intoxicants, especially the brewers' product, that he would consent to stand up in the limelight before our great nation as an *advocate* of the brewing industry? The circular that I refer to as being sent out is dated June 16, 1911. Below is a quotation:

The Secretary of Agriculture of the United States, the Hon. James Wilson, has accepted an invitation to act as honorary president of this Congress, and the United States Department of Agriculture will be represented at the international barley and hop exhibition by a suitable exhibit.

I will also quote from the last page of the *Advance:*

In the July 15th issue of the *Brewer and Maltster*, an official organ of the United States Brewers' Association, is a full-page story entitled "Officially Recognized," and illustrated with a portrait of Secretary Wilson.

We have it from pretty good authority, the forthcoming "President's Message" will *once more* fail even to touch on the greatest menace to the health and morals of our great nation.

Just now there is a lot of speculation as to who will be our next President; and I for one feel a good deal inclined to say that I will vote for the man who has the grace and courage and principle to come out boldly and declare himself unalterably opposed to the liquor-traffic, even if it does seem to kill his chance for ever becoming President. And if the people of our land — the good hard-working people—could have a chance to vote fairly, I think there is no question but that they would stand with me and demand some one who would do as Lincoln did, and issue an "emancipation proclamation" from the whisky ring.

FROM PRODUCER TO CONSUMER; NOT ONLY A SHORT CUT BUT ONE AT SMALL EXPENSE.

Just now nothing in the world can help the average laboring man more than some means of transportation at a low cost that will enable the producer to deal direct with the consumer. As an illustration: I can not at present get my supper right from the apple-tree that grows the apples, because it is the wrong season.* Of course I can *buy* some apples in the large cities at 5 to 10 cts. each; but if we could trace the matter back and see how much the man who grew those apples received for them it would probably be a revelation to us. Well, while I write there are beautiful apples grown in the Southern States, ripe and ready for market; but in many cases a peck of them *there* brings only about as much as a single apple does *here*. When the early apples get to be a drug in the market because they will not keep very long, nice ones are often sold at 10 cts. a peck, while up here in the North we pay 10 cts. for *one* apple. Several friends in the South have kindly offered to send me apples by express; but the express charges would be about the same as by mail—that is, for the small quantity that we could take care of in our own neighborhood. I know the apples are nice, because I have had samples by mail at a cost of 16 cts. per lb.† Of course we can not afford to pay 16 cts. per lb. for the transportation of our daily food.

Now, here is a paper that comes from the center of government in regard to the matter; and even if it is small print, and may look like dry reading, I want every one of you to read it again and *again* until you understand it thoroughly, in order that you may be ready to put your shoulders to the wheel and help to push parcels post that is now up before the people. We shall get it as we got postal savings banks; but we want it quick, before more money is wasted by giving express companies the dollars they do not need, and which do not belong to them. They have robbed us and defrauded us long enough. May God help us in this battle.

The sub-committee on Postoffice and Postroads met to-day and took up for consideration the Lewis bill, which provides for condemning and purchasing the express companies and adding them to the postal system, and establishing a complete system for the quick transport of packages and the eatable products of the farm and truck garden, etc. At their last conference in Washington the representatives of the business men of the country and of the farmers' granges asked Congress to establish such a system, and representatives of these interests were present at the hearing before the committee to-day.

"There are two main reasons why the express companies must be added to the postal system," said Mr. Lewis in his argument. "First, the express-company service does not reach beyond the railways to the country or the farmers, which the postoffice does through the rural free delivery, which is waiting with empty wagons to receive the express packages and take them to the country stores and the farmers, and carry back to the towns and the cities the produce of the farms and truck-gardens for the people to eat at living prices. Second, the contracts of the express companies with the railways give them an average transportation rate of three-quarters of a cent a pound; and with this rate the express charges by post would be reduced from two-thirds to one-half on parcels ranging from 5 to 50 pounds, and about 28 per cent on heavier weights, as a consequence of the coördination of the express-company plants with the postoffice and rural delivery, and the elimination of the express-company profits, which are averaging over 50 per cent on the investment.

"The express companies are positive hindrances and obstacles to the business of the country. The average charge for carrying a ton of express in Argentina is $6.51; and for the countries of Europe, $4.12, while the average express-company charge in the United States is $31.20. They charge five times as much to carry a ton of express as a ton of freight in other countries. Here the express companies charge sixteen times as much. Of course these charges simply prohibit, by half or more, the traffic in the United States. Our average is less than one hundred pounds per apita, while that of the other countries is over two hundred pounds per capita, although we have a far greater demand for quick transport on account of our longer distances and more extensive business.

"We can not have an efficient *parcels* post. The Government can not conduct it on mail railway-transportation rates at over four cents a pound, in competition with the express companies paying but three-fourths of a cent a pound, excluding the weight of equipment in both cases, which enables the express corporations to pay over fifty per cent in profits to themselves, although rendering no service whatever to the farmers and to points off the railways."

Mr. Lewis has worked out a system of "zones" based on scientific methods, from which a five-pound package, for instance, can be sent 196 milles for 11 cents, while the express companies now charge 25 cents, and more for like distances: From Calais, Maine, to San Francisco will cost 30 cents for five pounds, and $2.42 for 50 pounds, as against the express company charges of 85 cents and $7.50.

With the rural free delivery a part of the express system, an agricultural parcels post will market the farmers' produce and save them the time and labor of marketing their truck. Rates even lower than those quoted are promised, by having the rural and city carriers assemble the small consignments of the individual shippers and utilize the fast freight service on trunk lines with passenger trains on the branch roads to hurry the stuff to destination at the regular fast freight rates. The postoffice will recoup itself by securing carload rates for the assembled shipments, while the small shippers get their advantage over present conditions by having their collect-and-delivery system for practically nothing.

This system is now in vogue in Germany; and shippers, Mr. Lewis shows, pay only double freight rates, less than a tenth of the express rates here.

The food problem, the "high cost of living," according to Mr. Lewis' figures, is largely the result of the want of a proper articulation of our transportation with the rural sources of supply. While prices are often prohibitive to the consumer, crops may be rotting at the place of production for want of a *real* express service.

The committee's hearings will be printed.

* This article was dictated some time ago.

† By the way, I suppose you all know that I can get apples *cheaper* by mail from Europe, Asia, and Africa, and the isles of the sea; but the trouble is, they would be spoiled before they get here. Now, then, let some big official explain to us the justice of carrying packages cheaper from the uttermost parts of the earth than they do just now from any part of the United States—yes, cheaper than we can get a package from the next postoffice, only two miles away.

"BUCKWHEAT; ALL ABOUT IT; HOW TO GROW IT; DIFFERENT KINDS."

We have so many kind words, and words of commendation, in regard to our methods of doing business, keeping our patrons posted up to date, etc., that we do not have room to print a tenth part of them. If fact, there are so many of them compared with the kicks and criticisms that the latter are sometimes refreshing. And, by the way, we are

very glad indeed to receive criticisms in regard to our methods of doing business, especially when they come with such good nature as the following protest.

Gentlemen:—A few weeks ago I wrote you about buckwheat seed, asking you some questions. You replied with a circular printed some 22 years ago. Instead of a brief, scientific, modern treatise, gotten up in snappy, interesting, concise style, I am treated to a mossback of a circular, that, even in the year of our Lord 1889, was none too creditable a presentation. To-day it is positively funny. Now, even so ancient and honorable and substantial a concern as yours might with profit get within 22 years of this day and age. Times change and the world moves, and there has surely been an increase in knowledge, even with regard to buckwheat. No doubt those farmer-authors did their best. They drew from their storehouse of knowledge, and yielded up their wisdom even for such as I. But, alas! mayhap the mold is growing over the last resting-place of most of those contributors, and the grandsons and granddaughters are treading the old familiar paths that shall know those ancient ones no more. But out of the dead and buried past there arises, through the medium of the A. I. Root Co., the words of wisdom and counsel—aye, the testimony of truth indestructible regarding silverhull and Japanese. Believe me, this pamphlet is a gem.

Canton, O., June 8. THE KEITH MFG. CO.

In answer to the above, permit me to say that every little while our clerks were telling us that we were out of buckwheat pamphlets, and finally I said, "Print a great lot of them," and, as a consequence, we have had enough to give away right and left, as our friend declares, for *22 years*, although it does not seem to me hardly a dozen years. I have one of these old pamphlets now in my hand; and my verdict, after looking it over, is that it is still a very good and valuable pamphlet to be given away. I know there has been great progress made in growing corn, wheat, and perhaps oats also. Many new and valuable varieties have been brought out; but, so far as I know, no improvement worth mentioning has been made in growing buckwheat, for 22 years. May be I say this because I am not posted; but if this is true, I am sure that, among the 50,000 or more of those who read GLEANINGS, there are some who can keep us posted.

Now, friends, we want to get out a new buckwheat pamphlet, up to date; and we are willing to pay for information on the matter that is not already contained in our old pamphlet. We will send any of you one on application; and if any of our various experiment stations have made buckwheat a subject for experimentation and test we shall be glad to hear from them. By the way, why is it that our Department of Agriculture at Washington has never put out any sort of pamphlet or bulletin in regard to growing buckwheat? We will gladly pay for information along this line. That is, as I have said before, for information not contained in our little pamphlet. Of course, there have been many articles on buckwheat-growing in our journal during the past 22 years; but I can recall now only a few points brought out that are strictly new. Buckwheat is much inclined to sport, and specimens have been sent us with colored flowers that made them pretty enough for a flower-garden; but nothing has been done in the way of getting an improved grain of larger size since the Japanese, brought out by Peter Henderson something like thirty years ago.

Since the above was in type I have written to the Department of Agriculture, at Washington, and they inform me that no bulletin has ever been published in regard to buckwheat. I believe a leaflet was published by Cornell University some years ago; but they inform me that they are unable to furnish me at present even a single copy.

THE AEROPLANE, AND HOW MILLIONAIRES ARE MAKING A PLAYTHING OF IT NOW.

Of course every reader of this journal knows W. Atlee Burpee, the seedsman who has given the world good honest seeds for so many years. Well, it seems he has become a millionaire, and I am glad to hear of his prosperity, for I think he has worked hard for it. Well, Bro. Burpee has just started out on an ocean voyage. After he had got down to the outlet of New York harbor, as a joke on his friend John Wanamaker (who is also a millionaire, as you may know) he sent a message by wireless, ordering some stock—a toothbrush, stationery, etc., of course meaning it for a joke. But Wanamaker, in order to carry out the joke, telephoned an aviator, then making flights near Philadelphia, asking him how much he would take to deliver a package on board the steamer Olympic, then just starting from the piers in New York. The terms were soon concluded. A clerk rushed into the store, got the stock required, and an automobile whirled him to the biplane. The package was received, the flying-machine started, and soon found the ship wanted, then over twenty miles from the city. Skimming down within 200 feet of the vessel he dropped the package on deck among a crowd of people. It happened to strike a boy and knock him down; but, notwithstanding, the passengers cheered, and waved their handkerchiefs; and before he was out of sight the said boy got up and waved his handkerchief also. May God be praised for the possibilities that are coming to pass in the way of making these wonderful agencies do the bidding of the creatures he has created in his own image.

HONEY VERSUS CANE SUGAR.

On page 448 you advise the eating of fruit without sugar. That is right; but do you know you can sweeten it all you like with good extracted honey, and no bad effects follow? Cook the fruit; set it off the stove; then stir in honey to suit your taste, and see what a benefit it is. Children will eat it sweetened, but not without. Try it.

Arden, Neb., July 28. W. H. MILLS.

Friend M., I entirely agree with you that honey is very much more wholesome than sugar, and doubtless many people can eat honey in the way you indicate, where sugar would make trouble. I have found it better, however, to eat honey rather sparingly, and not any at all for the closing meal of the day, with my apples or other fruit.

Gleanings in Bee Culture

Published by The A. I. Root Company, Medina, Ohio

H. H. Root, Assistant Editor
A. I. Root, Editor Home Department
E. R. Root, Editor
A. L. Boyden, Advertising Manager
J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX SEPTEMBER 15, 1911 NO. 17

Editorial

We regret to announce the death of Mr. E. C. Porter, of Porter bee-escape fame, at his home in Illinois, on the morning of August 6. Further particulars will be given later.

The article by Mr. George Shiber, page 565, of this issue, is one of the very best we ever received on the subject of "Selling Honey; or, the Bee-keeper his own Salesman." We shall have something further on this subject a little later on.

"HOW TO KEEP BEES."

The above is the title of a bulletin by Arthur C. Miller, published by the State Board of Agriculture of Rhode Island. Residents of that State can doubtless secure copies by applying to the State Board of Agriculture at Providence. It is hardly necessary to say that the work is well done, because the author is one of the closest observers on bees this country has ever known.

A BLAZING TORCH AT NIGHT TO KILL MOTH-MILLERS.

On p. 532 of last issue is shown a picture of a torch that Mr. S. D. House, of Camillus, N. Y., uses at certain seasons of the year to kill the moth-miller. While, of course, this pest does not annoy his bees (for they are pure Italians), yet they are liable to lay eggs in his combs or on his nice comb honey after either has been taken from the hive. The scheme is not a bad one, and when we visited him we took a snap-shot of it.

"BEE-KEEPING IN MARYLAND."

This is the title of Bulletin 154, by T. B. Symons and also Arthur H. McCray, of the Maryland Agricultural Experiment Station, College Park, Maryland. This bulletin is quite a complete text-book on the subject of bees and their management. It contains numerous illustrations and forty pages of matter about the size of these pages. So far as we can see from a casual glance over the pages, it is carefully and well written. We presume that the bulletin will be sent out free to Maryland bee-keepers.

BEE-JOURNALISM IN AMERICA TO-DAY.

There never was a time when there was a better and cleaner lot of bee-papers than are being published now. Every one is worth reading. Even if one has only a few bees he will see something in one of the bee-papers that will save him ten times its cost for one year. In this connection it is a real pleasure to speak of the excellent work now being done by the new editor of the *Bee-keepers' Review*. When Mr. Tyrrell first took up the work we felt very sanguine that he would succeed. The late issues of our valued contemporary go to show that the *Review* is fully equal to, and in some respects ahead of, its former self, and that is saying a good deal, for Mr. Hutchinson knew, if any one did, how to make a readable, attractive, and beautiful magazine on bees.

FEEDING OUTDOORS TO PREVENT BEES FROM BOTHERING NEIGHBORS OR CANDY-STANDS AT NEAR-BY FAIRGROUNDS.

We have before told our readers that there is a county fairground located within an eighth of a mile of one of our largest yards. In the olden days, when the fairs were in session our bees used to visit the candy-stands to such an extent as to drive customers away. This would naturally start the owners of the stands on the war-path against the owners of the bees. In late years, since we discovered the outdoor feeding method, we have heen able to put up a counter-attraction that would keep the bees at home. But we discover that the new scheme of giving sweetened water in place of a strong syrup that we formerly gave outdoors is just as effective, and really causes no disturbance and no bad *after* effects. The bees got barely started at one of the stands on the first day of our county fair this year; but as soon as we started the outdoor feeding of sweetened water, the trouble all disappeared.

Our Mr. Pritchard, as well as our Mr. Marchant, finds that, when they have a lot of work in the way of overhauling colonies when there is a dearth of honey, the outdoor feeding of sweetened water enables them to do this work, because not a robber will show up, when otherwise they would

have to work under cages. Even after the cages are removed, robbers will often pounce upon the hives and sometimes overpower them.

OUTDOOR FEEDING TO CALL OFF ROBBERS DURING LATE EXTRACTING.

During the late extracting periods, outdoor feeding of honey thinned down to the consistency of thin nectar will stop all the robbing nuisance. We say *thin honey* because no one would advocate feeding sugar syrup which possibly might go into the combs and then into the extractor.

It is wonderful how little of sweetened water will keep a whole apiary on its good behavior. Actually, 5 lbs. of sugar with nine times its weight of water will keep a whole apiary in good humor all day; and we venture the statement that as many as a dozen hive-covers can be taken off and left off for an hour or more without a robber in sight. We would not, however, advise anybody to try out a scheme of this kind, and then go away and leave the apiary, for there *might* be trouble.

MOVING BEES SHORT DISTANCES; HOW TO UNITE COLONIES IN THE SAME YARD SO THAT BEES WILL NOT GO BACK TO THEIR OLD STANDS.

At this time of the year there will be more or less uniting, and, heretofore, it has been something of a problem to get the bees of two or three hives located in different parts of the apiary so that they will stay together contentedly without going back after being united. Something over a year ago we told how bees could be moved short distances in the cool of the morning by jouncing or bumping the hives considerably before they are moved, and then carrying them to their new location. The plan has worked admirably, so that very few if any bees go back to the old position. But emphasis should be put upon the point that the moving should be done *in the morning* before the bees get to flying. Hives should be smoked thoroughly, then bumped and roughly handled, to get the bees completely disorganized, and then put upon a springless wheelbarrow and trundled to a point where it is desired to keep them for the rest of the season. It is often a wise precaution to lean a board up in front of the entrance so that, when the bees do come out, they will mark the new location. It is also well to change the appearance of the old spot by leaving the ground on which the hives formerly stood bare of hives or hive-stands. If another hive be put upon the old place it has a tendency to invite returning bees.

ANOTHER SCHEME FOR MOVING BEES SHORT DISTANCES.

Our Mr. Ernest Marchant, who has charge of three of our yards, has been trying out a new scheme that seems to work equally well. The plan is this: On Monday, we will say, he will move a hive facing north a few feet, and point the entrance toward the east. Bees, on returning, will be somewhat confused, but readily find their entrance. On Tuesday he will move the hive again a few feet and give it another quarter-turn, making the entrance face directly opposite its first position. On Wednesday he will give it another move and another twist. On Thursday he gives then another shift. By this time the bees have become accustomed to hunting for and finding their entrance and hive. "Now, then," said Marchant, "you can move these bees the night before, or early in the morning, anywhere you like in the apiary; and wherever you put them the bees will stick."

We don't know which is the better of the two plans. It would seem as if the Marchant way, while a little more work, would be more sure of having all the bees stay in their new location.

Possibly it might be well to work a combination of the two plans, of jouncing and shifting entrances, practicing the jouncing method on the last shift.

BUCKWHEAT A PAYING CROP, BOTH FOR THE SEED AND FOR ITS HONEY; HOW WE HAVE SUCCEEDED IN FILLING THE HIVES OF ONE YARD OF EIGHTY COLONIES FULL OF BUCKWHEAT HONEY.

Our neighbor, Mr. H. B. Harrington, at one time or another wrote several articles on the subject of buckwheat as a paying crop. Two years ago he put in 20 acres of buckwheat and sold the crop for nearly $700. This buckwheat was put on to ground that had already yielded a crop of corn or wheat. This year Mr. Harrington put in 35 acres; but the grasshoppers (this seemed to be a bad year for them) did considerable damage to the fields; but in spite of their depredations, and notwithstanding there were no more than 35 acres in range of 80 colonies, the Harrington yard near these fields filled their hives with buckwheat honey. Some days it seemed as if every bee was going to the fields, for buckwheat at its best is a tremendous yielder of nectar.

Mr. Harrington estimates that he will harvest between 1200 and 1400 bushels; and this, at the present market price, will be worth close on to $1000.

Our hives at the Harrington yard are pretty well filled with honey—so full that the queens have been crowded for room in which to lay. Our bees have done a good job in fertilizing the blossoms, and our neighbor has done a good job in filling our hives with honey. One difficulty in sowing buckwheat is that some years it yields well in our locality, and in others it yields apparently nothing; but we suspect that one trouble is that there has not been *enough acreage*. If the bee-keepers in their localities will furnish buckwheat seed at half price among their farmer friends it will not take them long before they will see that they can afford to pay full price for the seed, because they can take two crops off the same acreage of land. The York State farmers have been on to this trick of the trade for many years.

Is it not up to the bee-keepers in their respective localities to talk buckwheat and alsike? Keep up the campaign, brothers, if you would help fill your pocketbook.

It is our intention to get out a buckwheat pamphlet; for, so far as we can ascertain, no bulletin, either State or national, has been issued on the growing of buckwheat. Mr. Harrington has promised to write the one for us.

The statement has previously been made in these columns that Japanese buckwheat does not yield honey like the old-fashioned silverhull or gray buckwheat; but Mr. Harrington says the Japanese had more bees on it this year than either the gray or the silverhull; but as the Japanese came in bloom at one time, and the silverhull at another, it is possible that weather conditions were more favorable at the one time than at the other. We should be pleased to get reports from our readers on the relative value of Japanese and other buckwheats for honey.

MORE ABOUT THAT SCHEME OF FEEDING SO THAT BROOD-REARING CAN BE KEPT UP LATE IN THE FALL, THUS SECURING A LARGE FORCE OF YOUNG BEES IN GOING TO WINTER.

On page 483, Aug. 15, we refer to a new method of slow feeding in the hives by which it takes a colony 24 to 48 hours to take up a pint of syrup. On page 514, Sept. 1, also, we describe J. E. Hand's method of outdoor feeding of sweetened water to accomplish the same results. At three of our yards we have been practicing both the outdoor and indoor methods of feeding in combination, and our Mr. Marchant, who has charge of three of these yards, says he prefers to use the two methods because he can distribute the feed more equitably, or rather, perhaps we should say, where the feed is most needed. By the outdoor plan the strongest colonies will necessarily get the lion's share of the food, leaving the weaker ones with a disproportionately small amount. To overcome this, Mr. Marchant puts one or two hole Boardman feeders to the entrance of the weaker colonies, or where he desires to stimulate brood-rearing by constant feeding, whether the outdoor feeders are going or not, or when the weather is so inclement the bees can not fly.

In order to stimulate the whole apiary the outdoor feeders are put into service whenever there is no buckwheat or other source of natural nectar supply. When these fail —that is to say, when the bees are not flying at all, showing that "nothing is doing"— we start the outside feeders agoing. This we do by mixing nine parts of water and one part of sugar in a common tin pail, and, after thoroughly stirring, pour the sweetened water into the outdoor feeders. In a space of about five or ten minutes the bees will begin flying, for apparently a few stragglers are constantly in the air to give notice when the food is available, and, presto! the whole apiary is alive and doing. But this sweetened water causes no excitement; and the strangest thing about it, says our Mr. Pritchard, of our north yard, is that, when the supply gives out, the bees go home instead of coming out and prying into every thing where there is a possible chance of robbing.

Right here the reader's attention is directed to the fact that, by the old method of outdoor feeding, i. e., giving a syrup two to one or one to one, there would be more or less excitement after the supply of food gave out, and conditions in the apiary immediately following were such that no one could open up the hives without expecting an onslaught of robbers.

You see the point is here: When the bees get hold of honey or any thick sugar syrup it brings on a *furore* that is practically the same as wholesale robbing. In other words, there is a decided difference in the behavior of bees gathering *nectar* from the fields and gathering a strong sweet from some hive, kitchen, or honey-house. The former is natural, but the latter unnatural. When, therefore, we give the bees outdoors a sweetened water which is no stronger—nay, rather, *weaker* than the nectar they get from the flowers—they are not unduly excited; and when the supply ceases it does not seem to have any more effect on them than when the supply of nectar gives out.

Our Mr. Pritchard, who rears anywhere from 2000 to nearly 3000 queens a season, says he believes this scheme of outdoor feeding of thin syrup is one of the greatest aids to the business he has ever run across. He, like all other queen-breeders, has discovered that a heavy honey-flow paralyzes the queen-rearing operations. A very light honey-flow, just enough to keep up brood-rearing operations, and no more, stimulates brood-rearing and cell-building. Now, then, by bringing about the conditions artificially, we control the supply so that we get a more *uniform* grade of queens and an amount of brood that can not be secured when the supply comes in so fast that the queen is cramped for room.

The one objection to outdoor feeding is that it has a tendency to wear out old bees; but as they would die any way during the early winter, if we can trade old bees for young ones we make a splendid trade, even if the deal does cost a little sugar.

It is our intention, after the hives are well stocked up with hatching brood, to cease the slow method of feeding, and then give all the colonies, after the brood hatches, one quick feed of thick syrup to fill up all available cells except a winter nest which the bees will make if given an opportunity.

A CAUTION ABOUT FEEDING SWEETENED WATER OUTDOORS.

We find in a couple of our nuclei, where there is a comparatively small force of bees, that some of this syrup from the outdoor feeders has begun to sour a little. Cool damp nights we have been having of late is partly responsible for this. There is no trouble of this kind in our stronger colonies.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

ONE-HOLE feeder for slow feeding, p. 483, is all right; but why not also feed three or four parts water to one of sugar, and make the sugar go three or four times as far? [If a syrup is too thin it will sour in the feeder before the bees take it out. We can't use any thing thinner than two of water and one of sugar.—ED.]

H. THEEN thinks it important, when honey begins candying, to stir it daily with a wooden spoon or handle. That gives it a nice even texture.—*Leipz. Bztg.*, 118. [Stirring is just the very thing that will make honey candy more rapidly. This is the reason why extracted will candy quicker than that in comb which has never been agitated.—ED.]

H. PERKINS, p. 495, says the substance in bottom of queen-cells like peach-gum is often nothing but residue. Residue of what? [Our correspondent probably meant residue of cast-off bowel skins; but these look very different from the peach-gumlike substance found in the bottom of queen-cells after its occupant has departed. Certainly the substance that we find in the cells at Medina is evaporated royal jelly.—ED.]

"KEEP BETTER BEES." That's the motto I would urge every young bee-keeper to inscribe on his banner. The slogan of the lamented Hutchinson, "Keep more bees," appeals to many. "Keep better bees" should appeal to all—to the beginner and the veteran, to the man with five colonies and the man with a thousand. [Indeed, you are right. Not every bee-keeper has experience or brains enough to handle "*more* bees;" but every one will profit by getting better stock.—ED.]

I WANTED to take extra pains introducing a queen. I removed the old queen, put an empty hive on the stand, put in it three of the frames of brood and bees, set the old hive on top with the new queen in it in an introducing-cage. Of course the field-bees all went to the lower hive. A week later I put the old hive down, returning to it the three frames of brood. The point of safety was that the queen was introduced to a nearly full colony with no old bees, and it is the old bees that raise a racket with a new queen.

I WONDER if Mr. Perkins can be right, p. 496, about a queenless colony being the last resort for queen-cells. I supposed there could be nothing better than to start cells in a strong colony made queenless when preparing to swarm. [Mr. Perkins' statement is correct if we consider an *ordinary* queenless colony; but a colony that has been made queenless and broodless, such colony having previously been kept up to a high state of prosperity by daily feeding, we consider the very best for starting cells. The cells they start do not need "regrafting." The secret of getting good cells lies largely in the science of feeding. The bees must be charged with material for making pap to make good cells—cells that will hatch vigorous queens.—ED.]

THE STATEMENT has been made that if a colony, A, is twice as strong as B at the beginning of the honey harvest, it will store three or four times as much. Morquin says, *L'Apiculteur*, 255, that often, especially if there be only an early harvest, it will be ten or twenty times as much. A has reached its maximum of strength at the beginning of the harvest; brood-rearing begins to wane, and the chief strength of the colony is devoted to storing. Brood-rearing is constantly on the increase in B, requiring nearly all the strength of the colony, and it reaches the profitable point for storing only at the close of the harvest. Perhaps it may be safe to say that when A has a population twice as much as B, it has a *field-force* ten to twenty times as great.

YOU THINK, Mr. Editor, I go to an extreme, p. 484, when I say that here "The rule is that no cells are started till after work begins in supers." Let me tell you how it is. I had my biggest crop in 1908, and it was bad for swarming. Bees began storing about June 3, and the flood was on June 10. Of the colonies that started cells for swarming, 35 per cent were found before June 15, and 65 per cent on or after June 15. In 1910, not a bad year for swarming, 12½ per cent were found before June 15, and 87½ on or after that. [Apparently you are basing your statement on the year of your biggest crop and on a year when you had a light crop. The late W. Z. Hutchinson once said to the writer that he had observed that the conditions that prevail in our Southern States of diminished or no swarming, when a heavy honey-flow is on, are to a great extent the same in the Northern States. At first we were inclined to believe that this condition was peculiar to Texas and other Southern States; but the more we have gone into this, the more we have come to the conclusion that locality has a great deal less to do with the general proposition than many of us suppose; that is to say, given exactly the *same heavy* honey-flow that checks or stops swarming in the South, there will be little or no swarming in the North. It is, therefore, a condition and not a matter of locality; but in the North we don't have quite as strong heavy honey-flows as are very often experienced in the South. If you will go over your records for a period of years, doctor, is it not possible that you will find confirmation of our original statement that brought out this general discussion?—ED.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

Dr. Miller makes a pretty strong case in favor of a three-inch glass instead of a two-inch glass side of shipping-case, page 386, July 1. But really I wonder if glass is a necessity in a shipping-case in order to sell honey. It is not, when honey is shipped.

One of the most restful pictures I have seen in a long time is friend Greiner looking over his bees in the shade; for of all the hot places in hot weather for the bee-keeper is a yard of bees without shade; and the necessity he feels for it shows very clearly its value for the bees.

Good work, that, taking inspectors around in an automobile. It more than doubles their efficiency. It is exasperating to spend an hour hunting up a small bee-keeper, leaving only fifteen minutes to look over his bees and giving instructions as to how to cure. Page 383, July 1.

On page 384, July 1, the editor tells us how valuable cartons are in keeping groceries from becoming sticky with honey, and getting tidy housewives "mad all over." Another advantage is the uniform appearance of the packages of honey, which adds to the attractiveness of the grocery.

The experience of Mr. B. D. Cook, our helper, would seem to corroborate the fact that as good results can be secured at queen-rearing during a period of dearth of honey as at other times, as he has had most excellent success since the flow ceased in getting almost every cell built to a good size.

Of all the rich treats GLEANINGS has so far given us this year none will, I am sure, be more appreciated than the address by Anna Botsford Comstock. To say that it is uplifting, inspiring, and helpful is but faint praise. Surely every man as well as every woman ought to get something out of bee-keeping besides dollars and bee-stings.

Mr. S. D. House tells, on page 401, July 1, of the advantages of a sectional hive. I can readily see some of them; but when I think of using a single set of shallow frames there always arises in my mind the vision of sections filled above them with too large an amount of pollen in them. It may be because honey comes in more slowly in ordinary years with us than in other places.

That picture on page 397, July 1, of white clover in Texas, beats me. I thought we of the North had a monopoly of that plant; but here comes our friend Scholl and shows us the folly of our conceit, for they not only have mesquite, catclaw, horsemint, orange-bloom, and a host of other bloom we know nothing about, but our best honey-yielding plant thrown in as a sort of side issue — to fill up the gaps in their main flows, I suppose.

Where combs become clogged with honey, the advice is given, p. 383, July 1, to uncap them and give a partly drawn-out section or two. Would it not be better to give a whole super of partly drawn combs, giving the one or two bait sections to the hive from which you have taken the partly filled super? It sometimes works well to remove the old queen and to give a young queen, for I have often found this condition to exist from the sudden exhaustion of the old queen.

On page 419, July 15, I express my disapproval of bulk honey for the North. Since that was written I have run across a very excellent bee-keeper who is putting up more and more bulk honey here in the North, and says he thinks it more profitable to sell bulk honey at 12½ cents than section honey at 18 cents. He just cuts up the combs from the supers to fit two or three sizes of tin pails, without pouring extracted honey over the combs. Let the light shine.

Much has been written of our friend W. Z. Hutchinson, since his death, not too much, however, for he was not only the kindest husband and father, but the friend of every bee-keeper, and I have wondered many times since his death why we were all so much attached to him, so that his death has seemed like a great personal loss. Was it not the sweet Christian spirit that pervaded his whole life, and controlled his relations with all with whom he came in contact?

That article by Dr. Phillips, on American and European foul brood, page 404, July 1, is one of the best things this year so far. It is hard for most persons to *see*. His last sentence, p. 407, "This disease is very variable in its symptoms and other manifestations, and is often a puzzle to the bee-keeper," it will be well to remember; and if any one is in doubt let him send a sample to the Bureau of Apiculture, Department of Agriculture, Washington, D. C., and they will gladly give a correct diagnosis.

BEE-KEEPING IN CALIFORNIA

P. C. CHADWICK, Redlands, Cal.

The average per colony for the season in this locality was less than 50 lbs.

On page 420, July 15, I quoted Mr. E. M. Gibson as saying that the white sage was the sheet anchor of the bee industry there, etc. Mr. Gibson did not say white sage, but Eriogonum (buckwheat), which I some way confounded in my mind with *Audibertia polystachya* (white sage). Mr. Gibson has called my attention to this error, which I gladly correct.

Some bee-men open their honey-houses, tanks, extractors, and wet combs to let the bees clean them out at the end of the season. The best that could be said of this practice would be no compliment; and the worst—well, I can't do it justice, so I won't try. Robbing once started is hard to stop; is largely a habit, and, like all habits, easier to form than break.

FOREST FIRES DESTRUCTIVE TO BEE PASTURAGE.

The forest fires on the San Bernardino range just to the north of us made one of the most beautiful and awe-inspiring sights ever witnessed. The flames are said to have leaped at times to the height of 200 feet, and traveled part of the time eight miles per hour. There has just been extinguished another very destructive blaze on the San Jacinto range, while scarcely a day for a month has passed without smoke being visible in some direction from brush fires, all of which destroy our bee ranges, and doubtless apiaries, for the reported loss annually of one or more is expected. Bee-keepers can not prevent all of the fires; but they can make themselves safe by cleaning their yards so fire can not run through them. Carelessness is largely the cause of these fires getting started.

A NEW DISEASE LAW NEEDED IN CALIFORNIA.

We have hoped all along that European foul brood would not get across the Tehachapi range; but if Mr. L. J. Ray's article, p. 491, Aug. 15, is correct, we have hoped in vain. I expect to make a personal investigation. Mr. Ray intimates this was the cause of the poor condition of bees this season; but as the poor condition was universal, and this disease has not been reported elsewhere, I can not agree with him on that point. There are no cases in this district, to my knowledge; and even the American is well under control at this time. It all brings the fact before us, however, that we should never let another session of the legislature pass without the enactment of an efficient foul-brood law. One thing is sure—our present law is a farce, and should be remodeled entirely. We also need a national law that will prohibit the interstate shipment of bees or honey from apiaries that have not been carefully inspected. Our next State convention could not use time to better advantage than to consider this one subject to the exclusion of all others. There should be a State law making inspection compulsory, with a fine imposed on any person found harboring, selling, or offering for sale diseased bees, or honey from diseased colonies.

Our law now provides that, when a case is reported, the inspector shall act. Well, that looks pretty good; but with no one having access to his neighbor's bees they might rot down all around him and he would still have no case to his knowledge to report to the inspector. The law is so loosely drawn that the inspector, if he so desires, can sit around and draw $4.00 per day. As our county grand jury called our county bee-inspector to task for reporting such an excessive amount of office time, one might infer from his report that the bees were being hauled to the county-seat for inspection!

My idea would be to abolish the county inspector and have a State inspector appointed by the governor, upon recommendation of the State association, and subject to dismisal upon recommendation of the association if proven inefficient—the owners of bees to report the number of colonies and location to said State inspector. The latter could license competent bee-keepers throughout the State as deputies to inspect such apiaries as he might designate or that might be called to their attention by the owner. After inspection is made, a report, on official blank form, could be sent to the State inspector, and recorded in proper shape, an inspection fee of 10 cts. per colony being collected from the owner. Where owners fail or refuse to report their bees annually, a fine of not less than $25.00 should be assessed. If no foul brood is found in a locality, the time of future inspections could rest with the State inspector. I might go on giving details of how I think the law should read; but as there will doubtless be sufficient in this to bring out a discussion I will not give more details at this time. It can be seen, however, that a State inspector, within 12 months, could have the location of diseased areas well mapped out, and thus know where to center his efforts.

Alfalfa Now Yielding Honey in Missouri.

This is the first year I have ever noticed bees working on alfalfa in Missouri. I suppose that the drouth put it in about the same condition as where they irrigate. This is the first bad drouth we have had since farmers began sowing alfalfa here, and it will be a good thing for bee-keepers, as more is being sown each year. Alfalfa produced seed here this year for the first time, showing beyond a doubt that it produced honey.

Liberty, Mo. J. F. DIEMER.

Conversations with Doolittle

At Borodino, New York

KEEP MORE BEES.

"I have twenty colonies of bees, and a farm of nearly 100 acres; but I have read that, if the best results are to be secured, one should keep more bees. What is your opinion of this?"

"It is a question uppermost in the mind of many a bee-keeper, leading him to ask how many colonies he can handle with profit. However, there is little doubt that many bee-keepers increase their colonies more than their ability to care for them warrants, for they labor under the impression that it is hives of bees rather than bees in a hive that will bring the most profit. I do not say this of the experienced bee-keeper, of our most practical apiarists, nor of the specialists who count their colonies by the hundreds and thousands, but, rather, of the vast majority of those who have been persuaded through reading, or because of the success of a neighbor in an unusually good year, to undertake bee-keeping on a larger scale.

"You say you are a farmer. As I look about me I often think that there is scarcely a farmer who is large enough for his farm. The majority have so much land that they are land poor. If every farmer would put the labor, energy, and manure on fifty acres that he now puts on 100, he would produce as much with a great reduction in interest and taxes. If I am correctly informed, there are few farmers in parts of England and Holland with more than forty or fifty acres of land; and yet from these, which with us would be considered too small to dabble with, the very best of farm products are produced, to an amount greater than many of our occupiers of from 100 to 200 acres can put upon the market. So it is not so much from numbers as it is in making each number turn out the highest possible percentage of profit."

"But if ten colonies would give me a profit of $100, should not 100 colonies give me $1000?"

"I am afraid that, with such a line of reasoning, you, like too many bee-keepers, would be trying to overreach in the increase of colonies, instead of working to obtain the maximum results from the minimum number. Why not say if ten colonies will give me $100, should not 1000 colonies give me $10,000, or 5000 give me $50,000? It is not so much the number of colonies as it is making each colony do its utmost in storing surplus. Any colony that does not store a high percentage, after careful attention, should be broken up, or a change of queen made. The item of improving the stock is one well worth paying particular attention to; for with better stock and a smaller number of colonies the same results can be obtained as those secured by the small farmers of the old country. Just fancy yourself, an overworked farmer, keeping 1000 colonies of bees, selecting the colony, or three or four from that number, which scored the highest number of perfection points, and from these building up a race of bees which shall be a joy to the world. It surely does not pay to furnish hives, fixtures, and possibly labor, at the present high prices, to run an apiary of 100 colonies when 50 can be made to secure the same profit, saying nothing about any improvement of stock. The 'not how much, but how well' principle will apply as well to bee-keeping as to any other line of business. And this 'how well' is what the world is looking after in all of the pursuits which elevate a community or a nation."

"But could I not purchase a queen from some improved strain of bees? and then, by allowing natural swarming, would they not duplicate themselves to my advantage, without this continual fussing over an improvement of stock?"

"Just try that with your best Jersey cows. Turn them out in a 10,000-acre pasture with hundreds of scrub males of all descriptions, and see how the duplicating will come out. The queen may be from the most prolific strain in the world, and the hive you are using perfect, and yet, without considerable attention on the part of the bee-keeper, the best results will not follow. Do you expect to produce such results from that herd of Jerseys without constant attention? You know that you can not leave home for 24 hours unless you hire some one to care for those cows. And yet you think of keeping hundreds of colonies of bees without seeing them for weeks if not months at a time. It must be the harmonious working of both bees and bee-keeper all along the line that will bring about the best results, the same as it is with the dairyman and his cows."

"But you know every one is saying, 'Keep more bees if you would be successful,' do you not?"

"I know we read and hear a great deal about keeping more bees. If this referred to more bees in a hive at the right time for the honey harvest, together with a greatly improved race, it would all right; but if it means more colonies of bees, with a go-as-you-please idea along with it, then I consider it contrary to obtaining the best possible results from a minimum investment of capital. Bee-keepers, above all others, have no time to sit around on drygoods-boxes at the country store. If a few moments of leisure time manifest themselves, there are many perplexing questions which come up during the busy season that can now be studied and solved by sitting down with a good book on bee-keeping, or by looking through one's files of bee-papers.

"No business will run itself; and if you yourself do not get behind it and move it along it will not successfully go. The more effort you put into any business the greater will be the success."

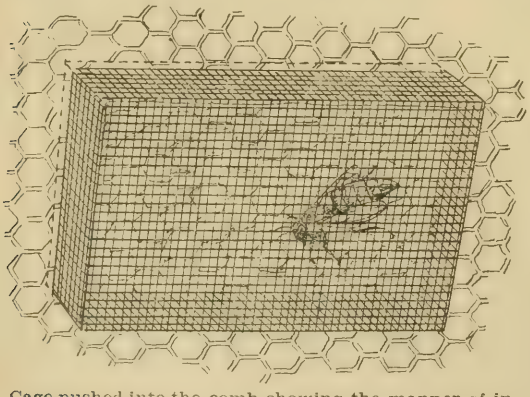
General Correspondence

THE NEW QUEEN-MAILING CAGE FOR THE PREVENTION OF DISEASE.

The Importance of Boiling All Honey Used in Making Queen-mailing-cage Candy.

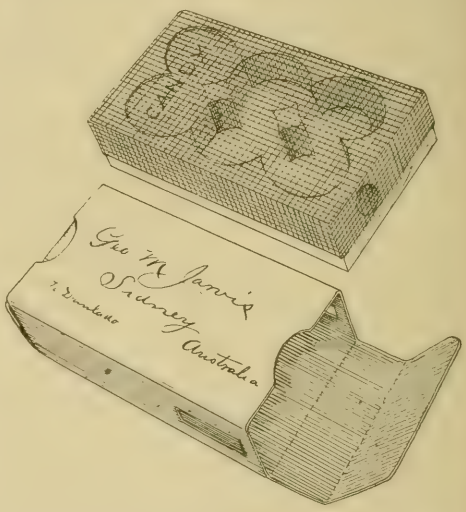
BY E. R. ROOT.

On page 481 of our issue for August 15 we called attention to the fact that foul brood had been carried in the candy used in queen-mailing cages into yards where the disease had never before existed. Most queen-breeders take the precaution to boil the honey that they use for making queen-cage candy; but we learn that some have not done so. There are several prominent foul-brood inspectors who believe that foul brood has been carried in some particular cases through the mailing-cages. While no one contends now that the queen or her attendants may carry the disease, we do know that infected honey, if used for making queen-cage honey, *could* carry infection where the candy method of introducing is used. Notwithstanding that some queen-breeders are inclined to doubt the transmission of the disease in this way, yet in view of the awful and alarming spread of foul brood over the country in the last ten years, it would behoove all queen-breeders to err on the safe side by boiling all honey that they use in making queen-cage candy. This is best accomplished by adding about ten per cent water to the honey, and boiling the combination for about half an hour; otherwise the flavor of the honey will be impaired, and the body will be too heavy to mingle readily with the pulverized sugar. It is so easy to do this that we do not see why any queen-breeder should object to taking this precaution; and the probabilities are, if he fails to do so, the bee-keepers of the country will let him severely alone.



Cage pushed into the comb showing the manner of introducing the confined queen.

GLEANINGS will be glad to publish a list of all queen-breeders who will agree to boil all the honey from this time on, no matter what method of introducing may be employed. Even if the present mailing-cages using the eat-out-candy plan of introducing are discarded, and the push-in-comb-cage plan here shown is adopted, the danger is that robbers may get at the old cage and thus carry the infection to their hives. The average bee-keeper, not suspecting danger, might transfer his queen into the introducing part of the cage, and leave the mailing portion, with the wire cloth removed, exposed to robbers.



The new mailing and introducing cage with carton.

THE NEW CAGES FOR MAILING AND INTRODUCING.

In our issue for Aug. 15, page 481, we described the form of cage that we were thinking of adopting—a cage that eliminates the old-fashioned method of introducing, and that, while admitted to be the simplest to apply, is probably the poorest of any method that has ever been recommended. Its general adoption by queen-breeders probably arose from its simplicity and convenience.

The push-in-comb-cage plan described in our standard text-books for many years has been acknowledged to be one of the very best. But it did not seem practicable to combine this form of introducing with a mailing-cage. Two separate and distinct cages would increase the bulk of the mailing package as well as the postage. We solved the problem, as we believe, very nicely by making a wire-cloth introducing-cage just the right size to telescope over the regular Benton cage. We made up a few samples as per engravings here shown, together with

cartons, and sent them out to our leading queen-breeders and some others who have made a special study of this method of introducing. We append here a few letters containing suggestions that are worth considering.

Dear Ernest:—You've struck it. The new combination of two old things makes, as you say, less danger as to conveying foul brood; but I doubt if that is its greatest value. The Benton is a good shipping-cage, but not at all convenient as an introducing-cage. There is not room for it between combs without leaving out a comb, and in most hives there is not room for it over top-bars, and danger that the queen may not be released in the latter case. With the present combination the shipping-cage is just as good as ever, and the introducing-cage of the best. With reasonable instructions the merest tyro can hardly fail at introducing. There is plenty of room for the cage when the frames are shoved close together in regular place.

Marengo, Ill. C. C. MILLER.

The new type of mailing-cage is a distinct advance. In construction it may be subject to some modifications, as, for instance, on the back a hole for putting in the queen and attendants. It will prove hazardous to try to pass them under the points of wire of the edge of the cover. The cover should be deeper (say ⅝ in.), and it may be helpful to have it a little smaller, and have saw-slots in the block to take the edge of the wire cover. This will lessen the possibility of the cover being accidentally slipped off when out of the carton; also of wire points being turned out and puncturing the carton. It is a marvel that the present type of cages has been allowed by the postal authorities. The sharp wire edges and often leaky, sticky candy-holes, are an outrage, and the sooner we remedy them the better.

As to instructions for introducing, trouble is to be looked for from many a novice, as picking up a queen, even from a window-pane, is a fearsome act to most of them. The escaping workers, I think, will many times be allowed to fly away rather than be killed. The possibility of infection from them when so liberated is very slight, however.

The caging is quite as good if done over honey, pollen, and empty cells as over emerging brood; and this is rather better in some ways, as the queen may lay if cells are polished, and a lot of youngsters crowded under the cage occasionally exhaust the food supply. Feeding through the wire is uncertain. I have sometimes thought I gained by including cells containing unsealed larvæ, as the queen will use their food in an emergency; but this may cut very little figure either way.

Two factors should be emphasized. The colony should not be dequeened more than 24 hours before the queen is introduced, or the queen should be put on a comb containing *eggs*—taken from some other colony—and that put into the colony to be requeened. Queen-cells should be destroyed as a matter of policy, although the comb of eggs often causes the bees to tear them down. Their reaction to the presence of eggs, however, varies, perhaps, according to the age of cells. I have not followed this far enough to state positively.

A full quarter-inch is little enough to push the cage into the comb, particularly if it cuts any unsealed cells. The queen will be free in from eight to twenty-four hours.

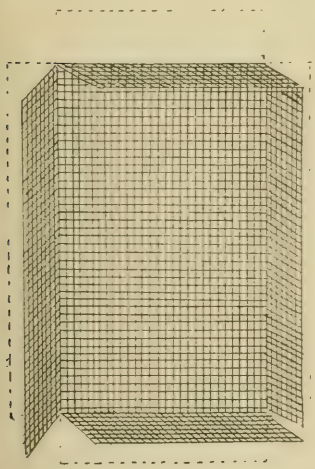
Providence, R. I. ARTHUR C. MILLER.

Well do I remember the Peet cage of a quarter of a century ago. It was a grand cage for introducing queens, but a poor one for shipping. Your idea of combining this methed with the Benton cage is a good one. I suggest that you provide for plenty of ventilation in your new model, for I am now fully satisfied that the cages as now made do not allow sufficient air. For about two months I have been tacking a piece of pasteboard, about ⅛ inch thick, near each end of each cage before bunching them together.

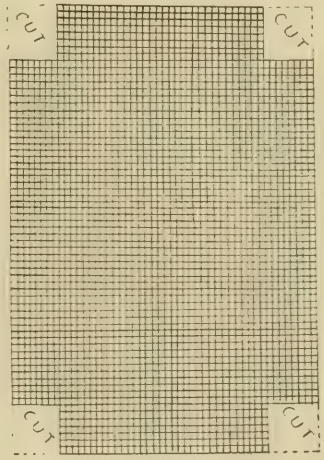
If a customer wants a dozen queens I make two bunches of six cages each, and these little pieces of cardboard holding the cages apart allow the air to pass all over the wire cloth as it should, especially during hot weather. Before adopting this method of packing I lost several queens; but since I have been mailing queens packed as above described I have had remarkable success.

This one little knack of providing extra ventilation has saved me many dollars; therefore I suggest that, if you inclose the cage in a carton, you so arrange it that the bees may have plenty of air. When the wire cloth is telescoped over the cage I see no way in which to put the queen and attendants into the cage, as the wire cloth telescopes over the cage so as to cover the hole in the end of the cage; therefore I suggest that you provide a door somewhere. J. P. MOORE.

Morgan, Ky.



The manner of folding the cage.



Wire-cloth corners cut out before folding to make the introducing-cage that telescopes over the wooden part.

One or two of our queen-breeders have called attention to the difficulty of getting the bees and queen in the new form of cage. Experience shows us that the hole will have to be located on the *bottom* of the cage, and not on the sides or ends, as shown in the cuts. The hole in the bottom should be covered with perforated tin as before.

Mr. A. C. Miller calls attention most forcibly to some of the glaring defects of the old mailing-cage. Some of these defects, as will be seen, are removed entirely in the new form of cage. For example, in the new style the feed can be sealed in much better. If there is no hole where the bees eat out the candy, there will be no leakage except where the bees can get at it and lick it up. It is strange that Uncle Sam has not made trouble for us before, on account of leaking candy in mailing-cages, especially

cages sent out by beginners who make the candy too soft.

A number have objected to the new style of cage, saying it requires three cents postage in place of two as formerly. The samples sent out where we used the old cage as a matter of convenience were merely to illustrate the idea. It will be very easy to reduce the size of the cage, and make it deeper than the regular standard two-cent-postage Benton mailing-cage. From our correspondence thus far received, the majority would make the wire-cloth introducing part deeper, and to that end we have made up some new cages that are ¾ inch deep—that is, the wood part—and the wire cloth ⅝, as Mr. A. C. Miller suggests. This would make a cage weighing 1½ oz., including the carton. The one we have in mind now is 2½ by 2¾ by ⅞, outside measure, including the carton with ample means for ventilation. Such a cage will easily go at two cents postage.

But some object, saying the penny-postage size of cage is large enough for sending queens ordinary distances; that when one sends out hundreds of queens the item of extra postage would be considerable. Let us see. Very few queen-breeders sell as many as a thousand queens. Suppose the average of these sell a thousand. Their extra postage would be $10.00 for the season. If their customers and friends introduce a much larger percentage of queens, the queen-breeder would be that much the gainer for next year's business. In other words, the $10.00 extra investment should be charged up to some mighty good advertising for next season.

But there is one more objection to the push-in-comb-cage plan of introducing—namely, it requires some work; that the beginner may lose the queen during the transfer from the mailing part of the cage to the introducing part on the comb. That depends on the kind of directions that are sent out. How would these directions do?

On receipt of the queen go to the hive where you propose introducing her, and remove the old queen, and before the bees discover that the old mother has gone, cage the new queen among them. To do this, select a comb containing hatching brood, eggs, and cells of honey. Find a spot on the comb where there is hatching brood, eggs, and cells of honey contiguous in a spot about the size of the cage. If there is no hatching brood, cells of pollen and honey will do very well. Shake the bees off the comb and carry comb and queen received from the mails into the house before a window.

Gently raise the wire-cloth top that telescopes over the wood part until it is *almost* off. Wait a few moments until the queen works her way upward on to the wire cloth; then quickly lift the wire-cloth cage off the wood part and shove it on to the selected spot on the comb. But suppose that, during the operation, she flies. Don't get excited. She will quickly go to the window, where it will be easy to cage her by gently slipping the wire-cloth introducing part over her. The next operation is to slide a postal card between the wire-cloth cage and the window, being careful not to pinch the queen in the operation. Lift cage and all with the postal card away from the window, and lay both on the comb. Gently draw out the postal card until the queen crawls on the comb, then shove the wire-cloth cage down into the comb until it is almost to the midrib. In doing this, care should be exercised so there may be no gaps at the corners where the wire-cloth sides and ends are folded down.

In from 24 to 48 hours the bees may tunnel under and release the queen. If at the end of 48 hours the queen is not out, she may be released by pushing a pencil through the comb *from the side opposite* where the queen is caged. In an hour or so the queen will find her way out easily. We believe it important that she should have her liberty when conditions in the colony are entirely normal. A disturbed colony, or one that is opened up and pulled to pieces, is much more apt to ball a queen than one that is going on with its regular routine.

The generous responses we have received from queen-breeders generally indicate a spirit of coöperation. As soon as we get the details of the cage finally worked out we shall have some illustrations showing the perfected cage. In the mean time we seek advice from bee-keepers and queen-breeders generally; for in the multitude of counselors there is safety.

BLACKS GATHER MORE HONEY-DEW THAN ITALIANS.

BY G. W. BULLAMORE.

A wish was expressed by Dr. Miller, page 32, Jan. 1, for proof that Italians bees are less likely to gather substitutes for floral nectar than the blacks. I have not kept notes, but can recall some recent evidence. The rule seems to be that in time of scarcity the blacks make a keen search locally for *any* thing, and the Italians go further afield in quest of the genuine nectar.

I got the first hint from the 1905 A B C of Bee Culture, where it is stated that the Italians will store honey while the blacks do nothing but work the sugar-barrels.

In the *Bee-keepers' Record* for March, 1910, a writer states that his blacks stored honey-dew heavily the previous season when a stock of Italians gave supers nearly free of it.

W. G. Hutchinson, page 668, Oct. 5, 1910, finds that Italians store beautiful honey when blacks and hybrids store cane syrup. He also states that, years ago, when he fed raw sugar, the blacks and hybrids came to it but not the Italians. Only under pressure of famine would these latter store such a substitute.

The late Rev. G. Raynor recorded in *British Bee Journal*, Vol. VII., that his Italians stored honey from sea-lavender three miles distant (five miles by road), when the blacks were killing off the drones and were storing nothing.

In Hawaii half the crop is aphis honey-dew. I can not trace the item, but I believe that the blacks are the better bees there, and that some Italian stocks that were introduced stored less than the blacks.

T. B. Mowry says, page 701, Nov. 1, 1910, "the bee-hunters never find an Italian colony with any honey worth mentioning." If the Italians fall back on their stores when the blacks resort to honey substitutes it would help to account for what the bee-hunters notice. But these latter items are applications of the rule rather than proofs of it.

My own experience is that Italians do not

gather honey-dew, and that the mongrel bee that we call black varies in this respect. To know any thing of the actual black bee I am some fifty years too late. It has ceased to exist over here.

I think the evidence adduced is sufficient to justify enquiry. If any facts are known which tell heavily against my statement I shall be glad to alter my views.

BEES AND BLACK CLOTHING.

Many of the instances given to illustrate the tolerance or the dislike that bees show for black clothing merely illustrate the fact that bees do not molest a familiar object, and do resent the intrusion of an unfamiliar one. An old farm laborer from whom I purchased a stock of bees told me that he was quite safe in his working clothes; but when he donned a black coat on Sunday the bees invariably attacked him when he passed the hives. I think the bees would have tolerated the black coat if he had worn it all the week.

There are facts which, however, will not admit of this explanation. My white cats go fearlessly among the hives, and are not molested. Colored cats are not tolerated, and get scared away for good while they are kittens. The editor mentioned the case of the two dogs coming into an apiary. The white dog was not interfered with, but the black one was attacked. Then, again, a correspondent gives the case of a dog that was stung on the black spots while the white parts escaped. I have a theory on the subject which might prove of interest.

On the north side of my extracting-room I have about thirty square feet of ground glass. On the south side, and shaded by a veranda, is about fifty square feet of clear glass. If I bring any bees into this room, the chances are that they try to fly out through the ground glass, and until these windows are darkened they will not fly to the clear glass doors (which can be opened) on the other side. I have also observed bees trying to fly through a brightly illuminated white surface, such as a painted door. I conclude, therefore, that the vision of the bee does not sharply distinguish between white and transparent objects. It follows that a white object moving in the apiary would be inconspicuous. A black object or black spots on a dog, although at a distance which rendered them "fuzzy," would yet remain noticeable, especially when moving.

I have noticed that a white hive on a high stand is a difficult matter for the bees to locate, and a dash of color near the entrance materially assists them. Travel-stains answer the same purpose in time if no help is given.

It might be argued that bees can see white flowers. The majority of white flowers are night flowers, and are fertilized by moths. Although white flowers are visited by the bee, there is still a possibility that the odor directs the bee to a great extent, and that the dark background of the flower is what is actually visible. If bees can associate honey with a freight-car (article on "Robbing" in A B C and X Y Z of Bee Culture) they can probably associate its presence with a floral odor and holes in a green carpet.

Albury, England.

PROOF THAT THE ODOR OF BEE-STING POISON EXCITES BEES.

BY O. B. METCALFE.

In GLEANINGS, p. 418, July 15, Dr. Miller and the editor both discuss the tradition that mashing a bee will make other bees angry. Dr. Miller has yet to see any proof of it, and the editor agrees with him provided the bee is so quickly crushed or paralyzed that it has no time to squeal.

Well, doctor, get a little stick, go out into the bee-yard, and very carefully shove the end of it among the bees at the entrance of some hive. Do this so gently that you can push the bees about without their showing any sign of resentment; then slip away just as carefully and take the stick to another hive. At this hive catch several bees and make them sting your felt hat where they will leave their stings. Remove these stings instantly, while the poison-sacs are still full, and press the poison out on the end of the stick. Now go back to the entrance of the first hive, and, as gently as before, slip the end of the stick among the bees, and you will have proof that bees will resent the crushing of a bee provided the poison gives out the smell. A tremor of excitement will spread among the whole guard, and a number of them will jump on the stick which they had slightly avoided before. I knew this before; but I took a witness and went out and tried it for fear the doctor might in some way get me down as he did in the matter of how a queen makes a chirping sound. That was, however, a point of little practical value so far as I know; while the one now under discussion is one of no small importance, and one that every bee-keeper should know.

The following are some of the ways my understanding of this point has been of value to me in the past. When I go to a yard, if there is any work to be done with queens there as well as with the honey, I always do the queen work first, to avoid the use of a veil. This is a point I once cared little about; but I observed that the long use of a veil was injuring my eyes, so now I do not wear one except when I must; and after I have worked fast with the honey for a few minutes, and gotten hat, clothes, and hands fairly stinking with the odor of bee-sting poison, I could never work any thing stronger than a weak nucleus without a veil.

Again, if I expect the bees to fight badly some cloudy day when I must work them, I take more time at some things, and even skip a hive of well-known reputation to avoid getting into a fight that will last until I finish the work. Another point that

sh ould be kept in mind is that, after a horse or a child, for instance, has had several stings, and the bees are on a stinging rampage, considerable care should be taken until the odor of the poison has left it.

A year or two ago Mr. B. B. Fouch, who keeps bees down the river below us, came near losing a fine mare because the bees simply followed her and stung her. They first stung her a few times while loose In the bee-yard, and then, although he took her to shelter, they hunted her out and he was forced to take her down in the field, although they paid no attention to the other horses about. The mare had not been working, and was not sweaty, nor did the bees show any unusual spite toward her.

Last week a neighbor of mine came over to play tennis with me. I had been working with the bees just after dinner, and had not taken a bath, nor had I changed all my clothes. The tennis court is within a few steps of the bee-yard, and no sooner had I come on the ground than the bees began bothering me. I killed them with my racket, and went on playing, although I got stung every minnte or so. Finally I called my brother-in-law to come and fight bees for me while I played. He too had been working with the bees, and they made it hot for us both until we finally had to light a torch. As soon as the smoke from the torch filled the air with an odor sufficient to obscure the odor from the bee-sting poison from our clothes, and from the dozens of bees we had killed, the bees ceased to come, and I went on with the game in comparative peace until the smoke died down, and then I had to renew it. The smoke did not drift toward the bee-yard, so it must have been that bees that were out looking for trouble smelled me and attacked me. All this time my opponent across the net had only one bee come near him, and even then it quickly sought me. I cite this simply as an example of bees being antagonistic to any thing having the odor of their poison about it. Do not understand me as being radical enough to think that the odor of a single bee is sufficient to infuriate a whole colony and start it on the war-path. The point is, that every sting means more odor, and that for ihis reason the trouble may multiply.

So much for proof and value of knowing that bees do resent, in an indirect way, having their comrades crushed. The way I happened to study into this matter came about in this way: Two or three years ago, while I was experimenting with a smelling-tube which I had conceived as an instrument for hunting out foul brood by the sense of smell, the bees bothered me a great deal by stinging it furiously as soon as one bee for any reason had stung it. It was a small rubber tube with a hood attached to one end of it. The small hood fitted closely over my nose, and the other end was run in at the entrance. It took only a short time to learn that, as soon as I had gotten the odor of a bee-sting on the end of this tube, I must stop and wash it before I could go on.

I have abandoned the smelling-tube now, but I have worked out a system for hunting foul brood by the sense the smell, which is of great value to me; and now that I have given it two or three years' test, and have done practical work with it, I mean to write up the method soon. It has two points of advantage which carry such weight that every bee-keeper who is bothered with foul brood should try it. It can be quickly done, and will, for that very reason, be often used. It also has the advantage that it may be done in bad robbing time, and done well enough to catch any colonies which would be dangerous to extract from or to leave standing in the yard.

Mesilla Park, N. M.

How Far will an Absconding Swarm go?

How far will an absconding swarm go to a home in the woods? I trailed one about a mile and a half, and gave up the hunt at the head of a lake. They flew in a straight line. This swarm issued from a colony that came off the 27th of April. They were placed in a hive with full sheets of foundation and one super. I found that they had filled both, therefore had a good excuse for getting out. This was on the 26th of this month. I would not have lost them, but they issued while I was asleep, and hung on a bush very faithfully for quite a while. They hiked out one minute after discovery. It was one of the largest I have had this season. This made me look around a little, and I found a younger colony had done the same amount of work and was ready to cast a swarm, whereupon I took off the full super and put on an empty one. They do not now show an inclination to swarm. This may appear "greeny" to an old timer, but there is a sequel. I tried the "Alexander plan" last year for keeping down swarming. I had it down pretty fine, and "tiered up" accordingly. I "*teared* down" when the season was over. I prevented swarming all right, but was caught with a drouth on one hand and a long wet season on the other.

Suffolk, Va. W. T. BAILEY.

[We are not able to tell you just how far an absconding swarm would go before settling in its new quarters. If this swarm had previously sent out scouts, it is presumable that those scouts would not go much more than a mile or a mile and a half from their old home. Having found their location they would probably lead the swarm when it came out to this very spot, which would probably be within a mile or a mile and a half from the old home. If, however, the swarm should leave without any preliminary scouting of any sort, it might go anywhere from one to ten miles, or even further, depending upon their ability to sustain themselves in the air in flight.—ED.]

Poultry-netting over the Fronts of the Hives to Keep Chickens from Eating Bees.

I have had an experience similar to that mentioned in the article entitled "When Chickens are a Nuisance," on page 486, Aug 15. As I had a few nuclei formed this summer, and found them gathering no honey whatever, and the bees disappearing, I began to seek the cause. There was an opening in each just large enough to let the bees pass one by one, and here my young chicks (three months old) were on the lookout, and caught almost every bee immediately after it came forth. This was easily remedied by putting in front of the hive a piece of 4½ x 3-mesh poultry-fence just high enough to prevent the chicks from reaching over. As there are never many bees flying from the nuclei, this, in my judgment, does not hinder them in the least, and the chicks would not tackle a large colony. I would not move the hives.

There are many robber bees that are killed, and others that crawl away and die. All of these are good for chicks to eat, and they like the taste, judging by the way they go after them. They will just as readily eat dead bees as those they have killed. It is true they have to work harder to find bees than capture the ones coming from the hive; but work is what makes a chick hardy.

A. F. DROSTE.



Fig. 1.—D. C. Gilham, Schuylkill Haven, Pa., showing the various steps in wrapping sections of comb honey in transparent paper. Mr. Gilham has followed this plan for some time, and believes that the results justify the labor.

WRAPPING COMB HONEY IN TRANSPARENT PAPER FOR MARKET.

BY D. C. GILHAM.

Last season I erected a building 20×40 ft. for a work-shop and storehouse. At each end I partitioned off a space 10×12 ft. for a room, one of which is my office and the other the honey-room, in which I put up my honey for market. The woodwork in both these rooms is finished with a mixture of beeswax and turpentine, and all who have seen the result think it is very nice.

Wrapping each section of honey in transparent paper may seem like a lot of work to some bee-keepers; but after following the plan for some time I have come to the conclusion that the results justify the labor; furthermore, I can do the work in very much less time than when I began. The papers that I use are of good paraffined stock, and on one side, properly located from the edges for folding, my name and address are printed in green letters under a picture of an old straw skep.

When ready to wrap my honey, the first thing I do is to lay the cartons or wrappers on the table, face side down, and fold over one edge of the paper at the proper place. One must know just where the bend must come; for instance, I turn over the edge of the paper until it meets the first letter in the word "Apiary." This first fold, I believe, is necessary in order to make a tight wrapper.

I then take a section of honey, place it on the carton, and bring the paper up over it, the first fold preventing the carton from slipping around the section, thus making it possible to draw the paper tight. I use a little paste to hold the wrapper in position until I can put on the binder tape. A very small quantity of this paste, made from dextrin, is all that is necessary, as it sticks very tight. Finally I fold the ends down, using a little dextrin to hold them, and the section is ready for the binder, which prevents all leakage in case the comb should be broken so that the honey runs out. I prefer to put up several dozen sections and then put the binder on all of them at once. I believe that two persons could work more than twice as fast, although I have never had any help.

There are several different styles of binding-machines, but I think all of them are on the same principle. The roller-moistener is filled with water, and dampens the felt cover in revolving. Thus as the adhesive paper passes over it, it is moistened ready for the package. To get the required length of tape necessary, I lay my rule in front of the machine and draw the end out the proper distance, then raise my left hand while holding the tape, and tear it off at the knife.

Schuylkill Haven, Pa.

[The plan of enclosing comb honey with a transparent wrapper has been suggested before. On page 1500 of the December 1st issue for 1907, Mr. H. A. Sackett described and illustrated a similar wrapper. Among the advantages mentioned was the protection afforded the honey from the dust, flies, etc., while the honey itself showed through the paper very distinctly. An objection to these wrappers was made some time ago by a large dealer who claimed that, while they might be all right for retailing comb honey, they would not stand shipment very well, as a little leakage causes the papers to stick together to such an extent that they are torn to pieces as sections are removed from the shipping-cases. If we understand our correspondent, he does not ship his honey, but



Fig. 2.—Binding the wrapped section with adhesive paper, thus holding the transparent paper in position, and preventing leakage should the comb get cracked.

delivers it himself to grocers and dealers. It is certainly a fact that comb honey sells itself; and if a wrapper can be used to keep the honey perfectly clean, and still show the comb underneath, we believe it is a step in the right direction, although, after all, the amount of labor required may render the plan objectionable to many.—ED.]

SWARMING AND ITS CAUSE.

BY ARTHUR C. MILLER.

[Mr. Miller has made this subject a special study for years. What he has to offer should be given careful consideration by the student. When we know all the causes we are in a fair way to remove the annoyances of swarming.—ED.]

In GLEANINGS for August 1 Mr. William Beucus attempted to formulate the laws of swarming. From the writer's point of view Mr. Beucus erred in trying to put the various forms of absconding in the phenomenon of swarming. The confusion is easily made, because all of the various forms of exodus from the hive are commonly though erroneously called "swarming." All such, except the normal seasonable "budding off" of a part of a vigorous colony, should be considered as an absconding, the result of some form of distress. There are many ways of causing the abrupt leaving of home by a colony, and it is not hard to substantiate by experiment the soundness of this view. Normal swarming is always accompanied by the production of queens; hence if we can prevent the desire to produce queens we should (and do) prevent swarming. But the production of new queens is not by any means accompanied by swarming, as exampled in cases of supersedure. When the latter coincides with the honey-flow, heat, crowding, etc., swarming occurs, but not otherwise. From these we can deduce the following: That combined honey-flow, heat, crowding, etc., or any one of them alone, is not the prime cause of true swarming; hence the phenomenon must be intimately connected with queen-production. This reduces the problem to one point; namely, What is the cause of queen production? Can it be answered?

The cause is present at swarming time. There is no doubt about that. It is right before us; but what is it? It is right there when supersedure occurs. Now, what conditions are to be found in both cases? Find those, and the prime cause of swarming is found.

When found, the battle is half won; and it only remains to find a feasible and simple way to control that impulse. Heat and crowding are easily controlled; but the other factor or factors may be more troublesome.

For many years the writer has been studying swarming. After reaching the foregoing point, effort was made to find those elusive factors. Many theories were formed, but were not tenable. A clue was finally discovered, and it seems to be a good one. For four years over 100 colonies have been under observation. About three-quarters of them

have been operated to avoid the queen-producing impulse; the others were allowed to go their own way untrammeled. Of the 75 odd colonies, not one has swarmed in the four years; and of the other 25, about half swarmed each year, and that is the normal average. Now, four years is not long enough to prove so fundamental a thing as this, nor are 75 colonies in one part of the country a full test. It may prove to be but another "will o' the wisp."

It has been found possible to induce swarming at will, and to induce supersedure at will. That supports the belief that the fundamental cause of the phenomenon of queen-production has been found.

It is the desire of the writer that other persons should take up the search for a cause of queen-production; and that they be not misled by any theories he may hold, it is deemed best not to explain those theories at this time. A few persons in other sections are now following the writer's method, and at the end of another season it may be safe to form definite conclusions and lay them before the public.

COMB FOUNDATION.

Are the manufacturers of comb foundation following the best course in super-refining the wax which they use for foundation? Old foundation used to be of quite different texture and color from that of to-day. Examination showed that much propolis was left in it. That of to-day is virtually free of propolis.

As the foundation has improved in color, and as the propolis content has decreased, the troubles with sagging, stretching, warping, etc., have increased. When the bees build comb they add propolis to it from the start, and this seems to harden and stiffen it. Shut bees in a box or enclosure where they can not get propolis, and see what a frail thing the comb they build is. A little less refining, a little less effort to get bright yellow sheets will, perhaps, bring better results when the foundation is put in use. Incidentally it should help keep the cost from rising. It is just possible that the demand for bright yellow foundation is not to the bee keeper's advantage. Will the foundation-makers please make a test?

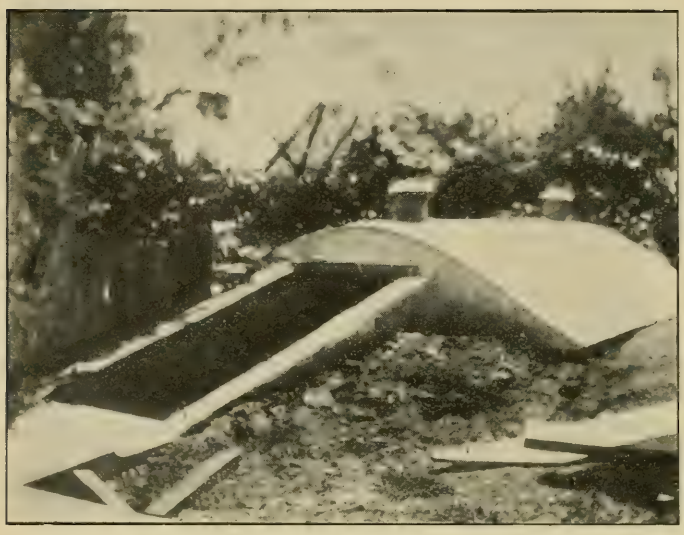
Providence, R. I.

[Notice that Mr. Miller makes a distinction between "budding off" and "absconding." In a discussion of this kind it is important to keep this in mind.

The manufacturers of foundation would doubtless be willing to furnish any kind of foundation that the bee-keeper wants. If one maker turns out clean bright yellow wax while his competitor sells a darker article that has been refined less, the chances are that the latter would not get any repeat orders. If the darker is stronger, it will need a campaign of education, for it is the bee-keeper who decides the kind of foundation to be used. GLEANINGS' columns are open for a discussion of this subject.—ED.]



Fig. 3.—Gilham's show-case, which he furnishes to grocers for displaying his honey.



Cellar built entirely of concrete, including floor, walls, and roof.

CONCRETE AN IDEAL MATERIAL FOR BEE-CELLARS.

BY W. W. SMITH.

[Concrete is rapidly coming into practical use by owners of permanently located apiaries. As a hive foundation and stand it has no equal, and it is not expensive when the saving of good lumber is considered. However, its greatest value lies in the construction of cellars. A gravel bank furnishes an ideal place for such a cellar; for the material excavated, when mixed in proper proportions with good cement, makes a permanent wall that is water-proof, sound-proof, and almost cold-proof, and at a cost of but a trifle more than wood. The following article by an expert on cement will be helpful, as it gives the proportions necessary when using different kinds of material.—ED.]

Concrete is fire-proof, and, consequently, an ideal material for keeping out either heat or cold. Since well-proportioned thoroughly mixed concrete is water-proof, concrete bee-cellars may be built entirely or partly in the ground as the severity of the winter or the requirements of the location may necessitate. Thus the regulation of the temperature in winter or in summer is merely a matter of openingand closing the ventilators.

The cellar shown in the photograph is 5 feet below and 2 feet above ground level. The walls, roof, and floor are all 5 inches thick, and of a concrete proportioned one part Portland cement to 2½ parts sand and five parts crushed rock. A concrete of one part cement to 5 parts clean bank-run gravel would have done as well.

With team and scraper the pit was excavated to allow working room for building the cellar 8 by 10 feet in the clear. The dirt was dragged up the incline upon which, later, were built the cellar steps and hatchway. The floor was laid first. Box forms for the side walls were then erected. These forms consisted of inch siding on 2×4-inch studding spaced 30 inches. The walls were reinforced, within 1½ inches of the inside, with heavy woven-wire fencing, with no mesh larger than 6 inches.

The wire fencing was held in position at the bottom by imbedding it in the concrete floor, and at the top by two long staples driven tightly into the form, one over and one under the wire. By use of a thin plank for spading between the wire and the inside form while placing the concrete, the reinforcement was kept in its proper position, and likewise a smoother surface finish was given the face of the walls. A foot extra length of wire was allowed to project above the side and end walls at the top, and was used later to tie these walls to the roof.

The roof forms were shaped so as to give the roof an arch rise of two feet in the center. These forms were securely fastened to the 2×4-inch studding of the wall forms, and were also braced in the center to the solid floor beneath. (If preferred, a peak roof would do just as well.) After the side walls were 7 days old, the roof was begun. It was reinforced with the same kind of wire placed crosswise and within 1½ inches of the under side. In building the roof, 1½ inches of concrete was first placed on the roof form. This layer of concrete was slightly wider than the width of fencing used. The wire reinforcing was then laid on the concrete, and the remainder of the concrete in the roof put directly on the reinforcement. This work was done rapidly, and the entire roof was finished without stopping, so as to avoid the possibilities of leaks through faulty seams in the concrete.

Sections of ten-inch sewer pipe, bell end up, were placed in position while the arch roof was being constructed. Galvanized sheet-iron hoods were afterward added to these ventilators. The wooden supports of the roof were not removed for 20 days. In the meantime the earth has been tamped back into place against the outside walls.

The side walls of the hatchway were built first, and, after the forms were removed, the steps proper were made with a rise of 7 inches and a tread of 10 inches. Five-eighths-inch bolts 8 inches long, partially imbedded in the concrete, hold the framing for the hatchway door. The frame for the cellar-door proper was set in between the forms before the latter were filled with concrete.

MATERIALS REQUIRED.

Eleven cubic yards of crushed stone, 5½

cubic yards of sand, or 12 cubic yards of bank-run gravel, and 15 bbls. Portland cement.

One striking advantage of these cellars is that rats and mice can not gain entrance to them. Not only do they afford ideal storage conditions for bees in winter, but also serve as a cool place for many other purposes in the summer.

Philadelphia, Pa.

[We should judge that a cellar of the size mentioned, 8×10 feet in the clear, would be about right for wintering from 30 to 40 colonies in ten-frame hives, since it is usually conceded that 100 ten-frame colonies require a room at least 12×15 or 16 feet.

The only suggestion that we have to make is that a side hill be selected if possible. A colony of bees, especially in the fall, when it is heavy with honey, is no light affair by any means, and steps or stairs greatly increase the amount of time and labor required for moving the bees in or out.—ED.]

OUTDOOR WINTERING IN NEW YORK.

BY PERCY ORTON.

For cellar wintering here, we make sure that the combs contain plenty of boney, then put over the top-bar a Hill device and two thicknesses of *clean* burlap. The chaff-tray, 12 inches deep, is filled either with chaff or planer shavings; over the top of the tray there is ventilation, which is one of the most essential features in connection with outdoor wintering in this locality. The wooden covers are protected by tin, well painted.

Fig. 1 shows the cover and chaff tray removed from a hive and set to one side. Fig. 2 shows Caucasian bees flying from the tops of the brood-combs after the covers and packing were taken off. The Caucasians will fly in this way and return without loss, even when snow is on the ground. The Italians do not seem to be able to stand the cold. We have plenty of snow every year that lasts until late in the winter.

We have found that the deep chaff-trays, over burlap, with ventilation above, give better results here than sealed covers under the tray. My experience covers fourteen years of outdoor wintering with blacks, Italians, and Caucasians; the latter are more active, fly when it is colder, gather more honey (also propolis), sting more after the honey-flows are over, and are the poorest comb-honey builders.

Northampton, N. Y.



Fig. 1.—Orton's deep chaff-tray removed from the hive. Over the top-bars of the frames a Hill device is placed; and on this, two thicknesses of burlap.

TWO QUEENS TO INSURE PLENTY OF BEES FOR THE HONEY-FLOW.

A Double Colony Separated by only a Screen.

BY GEO. W. RICH.

The plan of keeping two queens in a hive with two entrances is a success with me; but it has no advantage except in early brood-rearing. All apiarists know that, in a heavy honey-flow, one queen furnishes all the brood, and sometimes more than needed to keep a full supply of bees; but just before the honey-flow, one can hardly have too many bees; hence the advantage of the two queens. In this locality the honey-flow begins from the 1st to the 15th of May. So, in order to work my plan one would have to order his queens from some one in the South, so as to have them by March 15th. By that time here, almost all colonies will have from three to four frames of brood or more.

In each hive to be worked, shake all the bees off three or more frames of brood, and put them in an empty hive-body, with enough frames of combs containing some honey to fill the body. In place of the three frames of brood, insert three empty combs. Over this first hive put a wire screen and



Fig. 2.—Covers, chaff-trays, and burlap removed to allow the bees a flight. These entrances are covered with snow.

then set the hive with the brood on top, and place one of the queens previously purchased in with the brood. A small entrance at the back should be provided for this upper colony. In this way the brood will surely have plenty of heat to hatch, and the two queens, though separated, will be in one hive.

In 15 to 20 days both queens should have their combs about filled with brood. At this stage raise the upper colony and place a body containing empty combs below it, and put the screen and upper body on top as before. Reverse this top colony so that the entrance will be in front; also put over it a body with empty combs. This gives two sets of combs for each queen, with a screen between to keep the queens apart. In 20 days more, or by the time the honey-flow begins, the four bodies are filled mostly with brood and young bees. Now remove the queen from the top bodies, and take out the wire screen. In eight days remove all queen-cells and give a large entrance at the top, and then all the bees from above will work from the top entrance, so the honey will come in at two entrances. After the first extracting, there is no danger of swarms. This is the only advantage two queens or more can possibly have in one hive.

A PLAN FOR REQUEENING AND SECURING PLENTY OF FEED FOR AN OFF YEAR.

I have another plan which I certainly think will be an advantage to the bee-keepers of California, in some respects similar to the above. As a general thing, every two or three years we have to feed, and this is quite an expense, and takes off much of the profit of a good crop, especially if one has an apiary of 800 or 1000 colonies. The plan I refer to will give, after one good year, a supply of feed a year ahead, and it will be in the combs all ready to feed.

Suppose we have 400 colonies for next year. This winter, if we find we have enough rain to insure us a crop of honey next year, we will prepare that many empty hives with a wire screen for each, and frames of foundation or empty combs. Make arrangements with a queen-breeder in the South to furnish 400 queens by the 1st of April. These can be bought for 50 cts. apiece or less.

The queens being at hand, begin at No. 1. Remove the old hive to one side; place the new hive containing the foundation or empty comb in its place. Take from the new hives three or four of the empty frames, and set to one side. Now open the old hive; find the queen, and, with the frame she is on, place in the new hive. In the center take a frame with larvæ and eggs and place it by this, and one or two with honey on each side. Place the screen on and shake most of the bees from the old hive in front of the entrance. Now put the old hive-body on the screen; place the sealed brood in the center, and the combs containing honey next to them, and the empty frames taken from the new hive. Put one of your queens in with the brood, and close up. A small entrance should be given this upper hive by boring a ½-inch hole, which can be plugged up afterward. In eight or ten days, enough of the brood above will be hatched to keep the rest; so, remove it to the place in the apiary where you want it to remain. In

this way you have two hives as good as the one. Work every colony this way that has at least three frames of brood.

By the time the honey-flow begins there are 800 hives almost as good as the 400 would have been; hence the advantage of introducing laying queens. In ten or fifteen days before the honey-flow is over, remove the queens from 400 colonies and dispose of them as you please. In eight days cut out all queen-cells, so by the time the honey-flow is over these 400 colonies will be without bees. This gives you 400 hives with combs in the lower bodies, filled with honey and pollen for another year, and probably a good number in the upper story with honey. If the next season is a failure you have your supply of feed all ready; and if a good year, they are ready for new swarms made on the same plan as before. During a year with no honey-flow it would cost four or five times as much to feed 800 colonies as it would to buy the 400 queens, besides the work of feeding. When a good honey year here in California we want all the colonies possible, especially where located in the mountains among the sage, but when there is no honey we can get along with a few.

From all records of the past, one can rely on a honey crop here only about every other year. I am trying 50 on this plan this year, and I am sure it is a success. In order to keep the combs of honey and pollen from the moths, build a shed with a good roof, but open on all four sides. Place 2×4 scantling, set up edgewise, in rows wide enough to set the hive-bodies. Put a wire screen on the bottom of the first hive-body; put five or not more than six combs in a body, and stack them up as high as you can, and on top of each stack put another wire screen. See that the screens are tight on the top and bottom of each stack of hives, so no bees or moths can get in. The draft of air through each stack will keep them in good condition.

Simi, Cal.

DOES IT PAY A BEE-KEEPER TO SELL BOTTLED HONEY?

A Bee-keeper, if He is his Own Salesman, should Sell in Larger Packages.

BY GEORGE SHIBER.

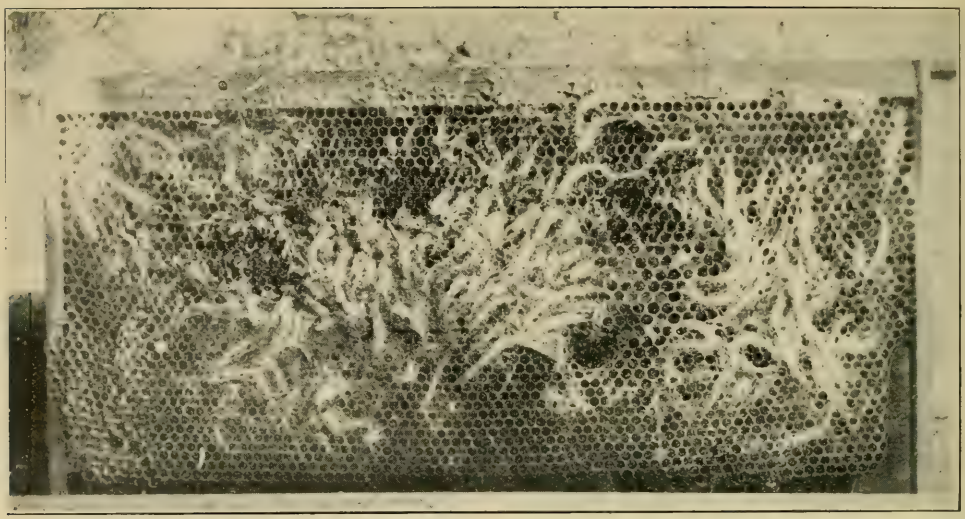
After reading the article by Mr. Foster, page 17, Jan. 1, regarding the different shapes of small glass packages for the retail trade, I wondered if it really were a wise thing for bee-keepers generally to cater to this small-package trade—not but that it is a good enough business to cultivate, but because it can be better covered by a regular honey-jobber. Of course, there is no doubt that *some* producers are so situated that they can cater to the bottle trade profitably.

One of the first and most vital points that arise is the question of selling. It takes a good salesman to sell honey to the retail trade successfully and profitably, for one really becomes a specialty salesman when he takes out his samples; and, by the way, it is just a question whether an experienced salesman could make fair wages with no other line than honey. A salesman from a wholesale grocery firm can, as a rule, get a better price for the same goods, because he knows his trade and his trade knows his firm. For illustration, suppose the bee-keeper works Northern Pennsylvania. In spite of all precaution he is almost sure to have some slow payers and very likely a few actual losses, which, of course, must be figured in the grand balance.

Another point is the expense, and it is a vital one too. Traveling, say, five days a week, costs, at a very low estimate, at least fifteen or eighteen dollars—say $3.50 a day. It is seldom that a dealer will want to buy very much at a time—one to two dozen 25-cent packages, perhaps, or two to four dozen 10-cent packages—in other words, somewhere in the neighborhood of 25 lbs. When this dealer is sold out he will wait for the salesman to come again, at which time he will settle for the "other bill," and perhaps want a deduction for one bottle that was broken—another item that must be added to the expense. But suppose one is able to sell to twelve dealers a day an average of perhaps 25 lbs. to each one, making 1500 lbs. for the week's business. After paying for cases, bottles, etc., is there more than about thirteen cents a pound left, especially when one-pound bottles are sold at $2.25 a dozen? It is my opinion it would be a little less. Again, $2.00 a dozen would be a better price—that is, the honey would move faster; and suppose 3 cts. per lb. more than the market price offered by the jobber would be secured. The salesman would have about $45.00 extra; but the expense would have to be deducted, leaving, say, $25.00 net, provided there were no loss. Now, I want to say that this salesman would have earned $25.00, and he would have to be a good salesman, too, to do all this.

Now, I have never tried selling honey in this way, for it has never appealed to me, although I have had abundant opportunity to try it, for I have been calling on the butcher and grocer trade for years. During this time I have picked up a lot of sixty-pound-package customers at a price of 10 cts. per lb. In brief, I prefer larger packages of tin—10, 20, 60 lb. packages—and none smaller than 5 lbs. In this way customers can have the second mouthful when they buy. If people will pay 25 cts. per lb. for honey in a glass bottle that is of no value to them after it is empty, why is it not a good argument to get them to buy a larger package at a cost of 15 cts. per lb., more or less? I am not arguing against the bottle goods for fancy trade; but, as a rule, I believe more honey will be sold if a greater effort is made toward the larger packages.

As a rule, the cheap syrups are in tin packages—one, two, and four quart size. So far as I have observed, maple syrup is generally offered in two and four quart cans.



Work of the Mediterranean flour-moth.

I have mentioned before how I have advertised in the local paper here this fall. The results were very satisfactory. I sold 50 lbs. to a man in North Dakota. He used to live here, and still took the paper. I also sold 40 lbs. to a man in Massachusetts in the same way. All of this was put up in one-gallon cans. From my one year's experience I think very highly of the local-paper advertising. The expense for several months was not much over $5.00—a mere bagatelle compared with the results; and I recommend this way of advertising to any one who wants to work up his home trade, for such business is all cash and no waiting, and producers can thus reach the customers direct. It would not mean a very great expense to take quite a number of village and city papers within, say, fifty or one hundred miles, and I am satisfied that advertising in them would mean a big surprise.

The honey-dealer is all right. He will pay more if the price goes up, or if he has to—he is human. As a rule, honey-dealers are reliable people—at least according to my experience.

Randolph, N. Y.

THE MEDITERRANEAN FLOUR MOTH INFESTING COMBS.

BY WESLEY FOSTER.

Every fall and winter many combs stored in our shop or outyard bee-houses become infested with the larvæ of a moth, gray in color but smaller than the wax-moth. The larvæ seem to be very fond of the pollen, and the pollen-filled combs are just covered with the webs, and larvæ crawling through them. The larvæ do not cut through the wax-cells, but extend their webs along the surface of the comb, and are often found down in the cells, to all appearances eating the pollen. They are about half an inch long, and slightly pinkish in color. The moth is gray, and about the same length. I have found hundreds of the larvæ in their web-constructed channels or long narrow passageways between the division-board and the side of the hive. In fact, they will rarely be found between combs unless they are very close together. I have gotten rid of them by spreading the combs an inch or two apart, though the best way is to put the combs over a good strong colony of bees.

Prof. Gillette informs me that the moth is probably the Mediterranean flour-moth, *Eupestia kuhniella*. I have found worms very similar to these larvæ in packages of old, spoiled, rolled oats, and they are probably the same. When we first came to Colorado we thought we had the regular Eastern wax-moth (and they do show up here once in a while), but they can not gain much headway on account of the dry atmosphere.

Boulder, Col.

REPORT OF THE PENNSYLVANIA STATE CONVENTION.

BY H. C. KLINGER.

The summer meeting of the Pennsylvania State Bee-keepers' Association was held in Reynoldsville, July 11 and 12. This town is located at the foothills of the Allegheny Mountains, and has in its vicinity a number of enthusiastic bee-keepers.

The presiding officer was Dr. H. A. Surface, Economic Zoologist, Harrisburg, Pa. Hon. S. B. Elliot, of the town, welcomed the bee-keepers in well-chosen words. Several of the sessions were public demonstrations, and were held in a little grove on the lawn of A. M. Applegate.

The chairman of the legislative commit-

tee, Wm. A. Selser, reported the bill given below. Four years and two years ago similar bills were ridiculed and laughed down by the legislators. This time there was a more concerted action among the bee-keepers, and the bill became a law without a struggle. Every member of the association was notified to write his representative, and the committee personally went among the members and interviewed them.

AN ACT

To supplement an act passed by the General Assembly, and approved March 31st, 1905, entitled, "An act to provide for the protection of trees, shrubs, vines, and plants against destructive insects and diseases; providing for the enforcement of this act and the expenses connected therewith, and fixing penalties for its violation;" to provide for the inspection of apiaries, and for the suppression of contagious or infectious diseases among bees, and making appropriation therefor.

SEC. 1. Be it enacted, etc., that on and after the passage of this act it shall be unlawful for any person or firm or corporation to have or keep in its possession or in any apiary any colony of bees infected by the disease known as American or European foul brood, or by any other disease which is contagious or infectious in its nature, and injurious to honey-bees in their egg, larval, pupal, or adult stage; and any person or firm or corporation so having in his or their keeping, or in his or their possession, any colony of bees infected, after notice of the existence of such disease has been given as hereinafter provided, shall be liable to a fine of twenty-five dollars, to be imposed and recovered as hereinafter provided.

SEC. 2. It shall be the duty of any person, firm, or corporation, in the State of Pennsylvania, engaged in the rearing of queen-bees for sale, to have his or their apiary inspected at least twice during each summer; and it shall be unlawful to ship from such queen-bee-rearing apiaries any package or parcel containing queen-bees without having attached to it a certificate from the Secretary of Agriculture, giving the date of the last inspection, and containing the statement that the apiary in which such queen-bees were reared was, at the time of such inspection, free from American or European foul brood, or other discoverable contagious or infectious disease. Any person violating the provisions of this section shall be liable to a fine of fifty dollars, to be imposed and recovered as hereinafter provided.

SEC. 3. It shall be the duty of the Secretary of Agriculture, through the Economic Zoologist, or such other agent or agents as he may select, to investigate or cause to be investigated all apiaries or other places where bees are kept or raised in Pennsylvania; and to study and investigate, or cause to be studied and investigated, all apiaries or other places where bees are kept or raised in Pennsylvania; and to study and investigate, or cause to be studied and investigated, outbreaks of bee diseases and other conditions unfavorable to development of bees within the State. It shall also be the duty of the Secretary of Agriculture to investigate all complaints of the existence of diseases of any kind in apiaries or other places where bees are kept, and to cause inspection to be made at least twice in each season, when requested by the owner, of apiaries where queen-bees are kept for sale. It shall further be the duty of said Secretary of Agriculture, wherever he finds any apiary, where queen-bees are raised, free from foul brood or other discoverable infectious or contagious diseases, to furnish the owner of such apiary with a certificate stating that fact, and such certificate shall state the date beyond which it will not be effective.

SEC. 4. Whenever, in the course of the inspections or investigations made or carried on, as provided in this act, by the Secretary of Agriculture or under his direction, said Secretary of Agriculture shall become aware of the existence of American or European foul brood or other contagious diseases in any apiary or colony of bees, it shall be his duty to notify forthwith the owner or owners, or manager, of such infected or diseased apiary or colony of the character of the infection, and give directions for the treatment, both with respect to the manner of such treatment and the time within which it shall be employed or applied, which time shall not be more than eight days after the service of the notice; and in case of doubt, where the presence of disease is suspected, but can not be definitely determined because of the character of the hives used, said Secretary of Agriculture may, at his discretion, order any owner of bees in box hives without movable frames to transfer such bees to movable-frame hives, to facilitate inspection and supervision. It shall thereupon be the duty of the owner, owners, or managers, upon whom such notice and order is served, to comply with said notices in all respects, within the time limited in said notices; and any person receiving such directions and notice, who neglects or refuses to comply with the same, shall be liable to a fine of fifty dollars, to be imposed and recovered as hereinafter provided; and it shall be lawful for the Secretary of Agriculture to condemn and cause the destruction of such diseased apiary or colony of bees, and all hives or other appliances used in connection with the same; and in case the Secretary of Agriculture, or his agent, is unable to agree with the owner of such apiary, colony, or appliances as to the amount to be paid for the same, three disinterested appraisers shall be appointed—one by the Secretary of Agriculture or his agent; one by the owner, and the third by the two so appointed, who shall, under oath or affirmation, appraise such property so condemned, taking into consideration its actual value and condition at the time of appraisement; and such appraised value shall be paid to the owner of such apiary, colony, or appliances by the State Treasurer, upon warrant of the Auditor General, which shall be issued upon the presentation of properly executed vouchers after the same have been approved by the Secretary of Agriculture.

SEC. 5. It shall be unlawful for any owner or other person having diseased bees or their larvæ, or infected hives or combs, or other appliances or utensils for keeping bees, to expose, sell, barter, or give away, or allow the same to be moved, until after treatment is prescribed by the Secretary of Agriculture or his agent, and the same has been applied; and it shall be unlawful to expose, sell, barter, or give away such infected bees, larvæ, hives, or combs, or other appliances, after treatment, until such materials are declared safe, and permission is given by the Secretary of Agriculture for such removal. Any person violating any of the provisions of this section shall be liable to a fine of fifty dollars, to be imposed and recovered as hereinafter provided.

SEC. 6. For the purpose of the investigations and inspections specified in this act, and to enforce the provisions of the same, the Secretary of Agriculture or his agents shall have free entry upon or into any apiary or premises where bees are kept, or where infected hives or combs are liable to be stored; and any interference with, or obstruction made to prevent, such entry, shall subject the offender to liability of a fine of one hundred dollars, to be imposed and recovered as hereinafter provided.

SEC. 7. Any person violating any of the provisions of this act, upon conviction thereof before any justice of the peace or alderman, shall be sentenced to pay the costs of prosecution and to forfeit and pay the fine provided for in the section violated; and, in default of the payment thereof, shall be committed to and imprisoned in the county jail of the proper county for a period not exceeding one day for each dollar of the amount of the fine imposed. All fines imposed and recovered under the provisions of this act shall be paid by the justice of the peace or alderman, before whom the conviction is had, to the Secretary of Agriculture or his agent, and by him immediately conveyed into the State Treasury.

SEC. 8. Appropriations of the amount necessary for carrying out the provisions of this bill shall be made by the General Assembly of the State, at the time of making appropriations for the general expenses of the Department of Agriculture.

Approved the 5th day of May, 1911.

JOHN K. TENER.

The foregoing is a true and correct copy of the Act of the General Assembly, No. 140.

ROBERT MCAFEE.
Secretary of the Commonwealth.

Geo. H. Rea gave several demonstrations on handling bees in practical work, and in apiary inspection.

Wm. A. Selser showed how to handle bees for exhibition. This was amusing for the audience. In order to be successful it is

necessary to get rid of the field bees first, then put them in a demoralized condition, after which they can be picked up by the handful, and thrown on the bare head or body without fear of stinging.

Dr. Surface spoke on the equipment for an amateur. A beginner should start with only three or five colonies, and the increase of his apiary should be in comparison with his knowledge of bee-keeping. There is no better strain than the Italian. He prefers the eight-frame hive for a quick flow, and the ten-frame for a continued flow.

Mr. Selser gave an illustrated lecture on late developments in apiculture which was a treat.

The subject of foul brood was taken up by Messrs. Rea and Selzer. It was shown how to detect it, how to distinguish between American and European foul brood, and how to cure it. This subject caused quite a discussion. A number of those present had had experience with it. One member said his yard was infected with European foul brood, and it cured itself by the introduction of vigorous Italian queens. The different methods of eradicating the disease were fully discussed.

S. P. Christian spoke on improving stock, following a paper on the same subject by Penn G. Snyder.

A demonstration of transferring was given by Dr. Surface and the secretary. A colony in a store-box was brought in, and the bees (combs and all) were transferred to a movable-frame hive. With one exception there were no stings received in all the demonstrations, although they were made without gloves or veil.

In one of the resolutions of the convention the members refer to the former editor of *The Bee-keepers' Review*, Mr. W. Z. Hutchinson, as an indefatigable worker, and speak of his services to mankind, and especially to the bee-keeping world. They sincerely regret his loss, and extend their sympathy to Mrs. Hutchinson. Mr. Hutchinson had been invited to this meeting, and the letter from the secretary reached his home a few hours after his death. He had answered the call to a greater meeting.

Liverpool, Pa.

PROPOLIS; ITS ORIGIN AND USE.

An Extract and Translation of Dr. M. Kuestenmacher's Work on Propolis.

BY F. GREINER.

The ancient writers of Greece and Rome knew about as much about propolis in their times as we do to-day, and it must, therefore, be hailed with satisfaction that, in an attempt to bring order and light out of chaos, Dr. M. Kuestenmacher has made of late some scientific investigations, and his conclusions seem to upset all old-time theories.

Before entering upon the subject proper, let us stop a moment at the word "propolis" and see what the word implies and where it originates. *Pro* means *before*, and *polis* means city—both Greek words—a city before a city, a bulwark, or something to fortify the treasure within. The ancients thought that the whole bee-organization was surrounded by a coating of propolis. They even distinguished between three distinct and different layers. Their mistaken idea was that a new swarm would first coat the inner surface of their hive or habitation with propolis before building any comb.

Without dwelling upon what Dr. Kuestenmacher has to say about wax and honey I will try to give in plain language, omitting all scientific terms, etc., which would not convey much if any meaning to many of us who are neither chemists nor naturalists, what this distinguished gentleman says about propolis.

Ever since the ages of antiquity, both naturalists and professional bee-keepers have held that propolis is gathered direct from certain buds by the bees, and carried to the hive in their pollen-baskets like the pollen. Modern bee-journals give us lists containing the names of different plants furnishing pollen, honey, and propolis in their respective amounts. Dr. K. has come to conclusions altogether different. He says propolis is the oil or balsam covering all pollen-grains, but intermingled with other substances such as wax, old worthless pollen, and refuse generally on hand in the hive. This balsam is of a yellow to red color, seldom colorless or of an odd color The pollen grains are thinly covered with this balsam, and thereby slightly protected against moisture. The sticky nature of the covering favors the pollen-grains adhering to insects for the purpose of distribution as well as their taking a lodging upon the stigma of some other blossom. Large quantities of pollen are gathered by the bees, and used for preparing food for larvæ. They collect them as follows: The bee uses alternately first one fore leg and then the other, brushing the ripe pollen from the anthers against the under side of her body where they lodge in the covering of hair. This process can easily be observed on blossoms with prominent stamens. When it is not possible to dislodge the pollen in this manner, the bee resorts to harsher treatment, using her mandibles first, to tear the pollen masses apart. The bee then moistens the brushes of her anterior legs with saliva, passes them over head and thorax, and brushes what pollen adhered here downward. The combs and brushes of the middle legs mass the brushed-together pollen into flakes, and finally pack them into the pollen-baskets of the posterior legs. The abdomen is cleaned by the brushes of the tarsus of the posterior legs; and what is collected by one is always pressed into the basket of the other. When a load has been collected the bee returns to the hive, backs into a pollen-storing cell, and pushes the pollen into it, using her middle legs for that purpose. In the combs the pollen of different colors are mixed indiscriminately, al-

though in gathering the bee is very particular to gather pollen of only one color.

The bees that prepare food for the larvæ are styled nurse-bees, and are recognized by their plump appearance, their nimbleness, and gentleness. They are about ten days old when best adapted for this work. They take much pollen into their stomachs, and with it they require even more water to soak it up, which must be brought by the field-bees. A pollen-grain is more eager to gobble up water than a sponge, and bees may often suffer greatly of thirst. It requires five times as much water as pollen, and for no other purpose do the bees use water. In the same degree as the pollen-grain under the soaking process in the stomach bursts open and liberates an emulsion of albumen, sugar, and oil, small drops of the balsam rise to the upper part of the stomach and are forced out through the mouth, and spit out by the bee. These drops are from two to three millimeters in size. The emulsion is also passed out to younger and older bees, which process of passing it about purifies what we might term the milk, and strains it, removing the pollen-husks.

Under the microscope a fresh pollen grain is perfectly solid, but it soon becomes hollow, and the hollow keeps on increasing. If a drop of water is brought into contact with it, the pollen-grain absorbs it quickly, proving the hollow to be a vacuum. Any pollen-grains which do not absorb water in this manner any more must be considered dead, and are of no special value to the bees. Their specific gravity is less than that of good pollen. They rise to the upper surface in the stomach with the small drops of balsam, and attach themselves to these. The separation of the balsam and the poor pollen seems hastened by the shaking process of the nurse-bees, so often seen; but not all the balsam is separated. Traces remain, and may be found in the intestines and the excrements or voidings, for balsam, like pollen-husks, is indigestible.

When a bee spits out a drop of balsam she never besmears a comb with it, but deposits it on the hive-wall somewhere, in some corner or crevice of the hive. There may be special places where the nurses relieve themselves of the disagreeable matter. The newly deposited balsam might represent the "pissoceros" of Plinius, if, indeed, we are to distinguish between different kinds of the substance at all in one hive, and is the purest found, containing but 5 per cent of pollen. It is fluid in ordinary temperature, and runs down the sides of the hive-walls if the bees should deposit it there in larger quantities. Old hives we find glazed with it.

The color of the fresh propolis is yellow to red; and because the bees in the hurry of their work frequently step into the sticky substance we need not wonder that much of it becomes scattered all over the combs—a fact particularly noticeable with new combs.

The balsam penetrates the wax and gives it the color. While the combs of a young swarm remain white till brood food is produced, the whitest comb inserted during the breeding season into the center of the brood-nest of an old colony becomes discolored at once.

Fresh propolis must be very objectionable to the bees, as it sticks them up and robs them of their hair. They do not leave it long where the nurses first put it. They cover it over with all sorts of refuse, and work wax into it in order that they may handle it. It is then shifted about to stop or fill holes and crevices.

Many bee-keepers may have believed, or may still do so, that bees use flour if fed to them to prepare brood food. When we take into consideration that bees have carried sawdust, coal dust, and even road dust and other dust into their hives like ordinary pollen, would it be reasonable to say, the bees made those things up into brood food? The fact is, all these substitutes eventually find their way into the propolis. Although spoiled pollen is the principal material mixed with the balsam, we also find ceresin and paraffin by the side of the wax when these substitutes or adulterants had been used in the comb foundation.

Propolis must be considered a by-product when brood food is being prepared. Every thing in the hive, not the direct work of the bee, is covered up with it. We find dead bodies of small animals, or even insects too large to be removed, entombed in it. The ancients were not entirely wrong when they thought the whole bee structure was encircled with the propolis.

The bees are so accustomed to the fragrance of the propolis or pollen balsam, and they have so long associated the gathering of pollen with it, that the odor of the propolis, if some is exposed somewhere in old hives, or the like, and is discovered by the bees, it at once suggests to them the idea that they must fill their pollen-baskets with the material giving off the odor; and, indeed, they proceed at once to do so, although they are not fitted for it. With great efforts they bite off little pieces of propolis and attempt to secure them to their pollen-baskets with their middle legs, in which effort, however, they fail more often than not. The most of the detached pieces are lost. Some bees succeed in filling only one of their two baskets. Bees loaded with propolis may be watched in a hive for days, for they can not again free themselves from it.

This gathering of propolis by way of the pollen-baskets seems to have led some early investigators to the supposition that honey-bees gather all propolis in this manner, some going so far as to assert that the wax also is so gathered.

The balsam of the pollen or propolis is responsible for the color of the comb structure. The bees, as already mentioned, scatter or drag the fresh pollen balsam over the combs, like boys tracking in mud over the carpets in the house. According as the balsam shows yellow, orange, or red, so the edges of the cells and the sealings become thus colored. The coloring-matter penetrates the wax

more and more. By a process of oxydation the color changes to dark brown, or nearly black, in time. Melting up the combs, this coloring-matter remains in the wax and decides its color. In time the color is modified if exposed to air and light. During renewed meltings the oxydized coloring-matter separates in flakes, and settles. Newly made waxes often vary in color; but old wax is usually more uniform. Even though generally the color of the pollen balsam is of a yellow, we find such of greenish yellow and the different shades of red, even to bluish red; and wax produced during times when pollen of such colors is carried into the hives plentifully may at first show these colors blended with the yellow; but in time by oxydation these colors revert to dark brown, and the wax will be again of the usual yellow.

The acidity (tannic acid) of the coloring-matter is apt to attack metals, and thus the color of the wax may be affected if metal receptacles are used in making wax. It is, therefore, advisable to use granite ware exclusively.

In melting large quantities of propolis (fresh) and wax together, the latter becomes darker in color, although in old propolis the oxydation has advanced far enough to make but little difference. Much of the propolis remains in the wax, and lowers its melting-point.

Propolis in its fresh state is very soft, adhesive, has a strong aromatic odor, and is bitter in taste. In very small quantities we find it in transparent yellowish-brown drops. Old propolis is hard, almost black, and the odor is not prominent till warmed up.

Propolis has its use in plasters, with softening effect. It is good for closing wounds and applying to boils. Taken internally it is of no value. It has been successfully used to give soaps a pleasant odor.

Among the plants or trees said to furnish propolis we hear the poplar and horse-chestnut named as the principal ones. The substance, however, found on the buds of these when gathered artificially does not resemble the propolis of the hive. It is colorless and almost without odor. The buds, too, furnish balsam at a season of the year when bees do not fly freely. There can be no question along this line. The melting-point of balsam from poplar (*Populus nigra*) was found to be 158° F.; that of the horse-chestnut, 165°, while propolis melts at 150°.

If the bees gathered balsam of our pines and fir-trees or spruce, we could detect it easily by taste and odor. The balsam of the hive is much more fluid than any of the balsams found as mentioned. The bees could not carry it in their pollen-baskets. It would run out.

To test whether or not bees would attempt to carry balsam to their hives, I offered them numerous different balsams of the consistency of propolis, but with only negative results, although the bees were at first attracted by the odor. Hives which were really in need of the propolis used wax and refuse instead.

From frost-cracks of tree-trunks sometimes oozes a sweet substance and also a balsam. All sorts of insects collect around such places, bees included, but they do not touch the balsam.

The evidence that bees collect their supply of propolis as a finished product is entirely lacking.

The explanation of Mr. Kuestenmacher as to the origin of propolis looks quite plausible to me. I would offer the following as a supplement: Dr. K. speaks about melting propolis and wax together. Of course, we can heat up these two substances in one receptacle, but they do not form a union. If we melt a kettleful of scrapings after cleaning hives, frames, sections, etc. (and many of us might save a lot of such in the course of a year), the wax will separate; and, being of less specific gravity, it will rise to the surface. The larger portion may then be poured off and dipped off. Even if melted up in an old iron kettle the color of the wax will be better (nice bright yellow) than any wax resulting from any machine that I have ever operated, including the Boardman solar, which goes to show that the coloring-matter of the propolis does not unduly influence the wax, as Dr. Kuestenmacher asserts; but, of course, my propolis-scrapings from cleaning wide frames and sections of comb honey may be considered old.

The specific gravity of propolis is greater than that of water, and it therefore drops down to the bottom of the dish if put into the water-bath. Wax is lighter, and rises to the top of the water. If we melt the scrapings in sufficient water a separation of wax and propolis takes place which is rather convenient; but the work is not done thoroughly—at least not so far as I have tested. Particles of wax may be seen sticking to the propolis.

Dr. Kuestenmacher says the drops of balsam, as they separate from the pollen, rise to the surface in the stomach of the bee. If the specific gravity of the propolis as I find it on my bench and on the floor is the same as that of the fresh product, the contents of the stomach being largely water, it would seem that the propolis would drop to the bottom of the stomach rather than rise to the top. I have no doubt that the perhaps oily substance will separate from the watery substance, when the bee might get hold of it and spit it out.

Naples, N. Y.

Short Crop in St. Lawrence Co., N. Y.

The honey harvest of St. Lawrence Co., N. Y., this year, is one of the poorest crops. Last year there were about seven carloads of comb honey of 30,000 to 40,000 lbs. each that were sent out of the county. This year I do not know of enough to make one carload. A few have one-third of a crop, but the average is about the same as our own, which is as follows: 1910, 260 colonies, very nearly 24,000 lbs. of comb honey; 1911, 300 colonies, not quite 2000 lbs. of comb honey. We think the cause was the intense heat in May, followed by drouth to quite an extent, and cool weather. Then the heat of the first days of July "burned" the basswood. Then, too, the honey is not what it should be in appearance, probably because of the time required in making it.

Depeyster, N. Y., Aug. 14. R. THOMPSON.

Heads of Grain from Different Fields

Sweet Clover in Iowa.

I am writing you my experience with sweet clover; and if it is a common trouble it may be well to make mention.

When I have sown sweet clover in the spring on old cultivated ground there has been less than one per cent that grew that spring; but let it lie over summer and winter until the following spring, and then it grows. I am planning to sow this fall, and see if it will grow next spring. It seems as though seed has to freeze and thaw to germinate well. The kind of soil here, too, has much to do with growth. The soil is acid by litmus test, and is very deficient in calcium carbonate (lime) by test with hydrochloric acid. Common clovers do not make a large growth, although sweet clover makes a fair growth along the roads. Around yards where wood ashes have been thrown, and soil shows lime, sweet clover grows readily.

Stockport, Ia., Aug. 14. C. R. DEWEY.

[In answer to the above, our friends will recall that our sweet-clover book says there is frequently much trouble in getting sweet clover to germinate, especially on *cultivated* ground. Dr. Miller has said repeatedly that, when he takes pains to get a good stand, there is often here and there only a plant; but where the seed drops off itself by the road, or on hard ground, it grows luxuriantly. Most of you have noticed this peculiarity of this particular clover; and I am well aware that the freezing and thawing of winter has much to do with it, especially with the unhulled seed. There have been quite a number of reports that the seed with the hulls off germinates quicker than the unhulled. In this connection I might mention the fact that we have had quite a few reports of the yellow sweet clover, both kinds—that is, if there are really two kinds—that make only a small growth, blossom the first year, and then die. Now, this must be largely a question of climate and locality, for in some cases plants from the same seed grow as high as one's head, and blossom the second year as well as the first. We shall be glad to get reports and experiences, especially with the yellow sweet clover. It is quite generally agreed that the white is more likely to blosom only after the second year, and I believe it grows taller and more luxuriantly.—A. I. R.]

Italians vs. Blacks for Immunity from Foul Brood; the Duties of an Inspector.

Dr. C. C. Miller:—I should like to know how you effected a cure of foul brood, American or European. Has your method proved a safe one to try? In what number of GLEANINGS were your first experiments reported? Everybody advises getting Italianized to free ourselves of foul brood; but those who have pure Italians are troubled with it just the same as those with black bees.

What are the duties of a bee-inspector? How much are they paid for their work? When are they supposed to do it? W. P. F.

[Dr. Miller replies:]

My experience has all been with European foul brood. I have had no experience with American as yet. You will find what I reported in GLEANINGS for 1909, pages 728 and 760, and for 1910, pages 8, 649, and 753. You will there see that I used the plan of brushing upon foundation, and also the plan of leaving the colony queenless for a time. There were some cases of a return of the disease by both plans, although I could not be sure whether the returns might not have been from outside. From my present knowledge I greatly prefer the queenless plan.

I think it is true that Italians will clean up the disease better than blacks. Of course there may be exceptions, just as there are exceptions in the matter of gathering honey. As a general rule, Italians are better honey-gatherers than blacks; yet there might be an unusually poor colony of Italians side by side of an unusually good colony of blacks, in which case the blacks might gather more than the Italians. So a good colony of blacks might do better with European foul brood than a poor colony of Italians. It is just possible that there is something in the mere fact of being Italian that gives the Italian the advantage over a colony of blacks of equal vigor, but I have my doubts.

The duty of foul-brood inspectors is to give information in suspected cases, and to give advice and assistance in curing the disease; also to enforce the curing or to destroy the diseased colonies if necessary. The inspector is supposed to do the best he can to get around as soon as he can wherever he is needed; but, of course, he can not be in two places at one time, and I don't suppose there is much done except when bees are flying. Compensation depends on the special law of each State—so much per day, and in most cases the amount is limited to so much for the year. Often an inspector appoints one or more deputies to assist. C. C. M.

Chickens that Have Well-balanced Rations do Not Eat Bees.

Before reading Mr. Scholl's statement with reference to his chickens developing an appetite for worker bees, if I had been asked whether or not chickens ever eat worker bees I would undoubtedly have committed a grave error by answering in the negative—all of which proves the folly of using the word "never" in referring to the acts of bees.

I have kept poultry in connection with bees for more than thirty years, and in all that time I have never known a fowl to become an habitual eater of worker bees, although I have had occasionally one that would develop an abnormal appetite for drones. Such fowls will instinctively station themselves close to the side of the hive at the front end, and seldom directly in front, and watch the entrance exactly as a cat watches a mouse-hole. Whenever a drone makes his appearance, either from the outside or inside of the hive, his lordship is speedily gobbled up. An educated chicken is an expert drone-trap, and will often catch them on the wing when returning to the hive. A chicken that has developed an appetite for drones will listen with the greatest attention for the noisy hum of the drone, and is ever on the alert to devour him as soon as he strikes the alighting-board. Chicks may be taught to catch drones by decapitating drone brood that is about ready to hatch, and letting them pull the kicking drones out of the cells.

At present we have 400 hens that have the run of the apiary, and I am quite positive that none of them eat worker bees, nor have we any at present that make a practice of eating drones. The fact that I have never known a chicken to eat worker bees amounts to nothing in the face of the fact that Mr. Scholl's chickens do eat them; but it is my opinion that, if he would practice high-pressure feeding for egg-production, and keep hoppers full of feed before his chicks, including beef scraps, he would not be troubled with bee-eating fowls.

Birmingham, Ohio. J. E. HAND.

Old Bees Killing Off Young Ones.

My bees seem to work finely; but about every 18 or 21 days they kill off about a pint of young bees that are full grown and ready to work. I don't understand why they do this. This is the second time they have done so. This colony threw off a swarm about 20 days ago, and they went back in. On the 4th they threw off the second swarm, and they settled all right. I put them in a hive, and they are doing well. To-day the bees of the old colony are killing off the young bees again.

Glen Easton, W. Va., July 8. J. J. LUTES.

[The extremely hot weather that we have been having during the past summer may account for the old bees killing off the young ones. That is to say, the trouble originates in this way: The weather is so warm that the young brood is overheated in some stage, and, as a result, the young bees are defective, either in their wings or in their legs, or in some minor respect, so that the older bees kill them off, because nothing but a perfect bee is tolerated in the hive. We can't understand why this should happen periodically unless it is because you have been having extremely warm weather off and on. It is possible that the entrance of your hive is not large enough. During hot weather we would advise raising the hive up on four blocks so as to allow plenty of ventilation under the hive, and putting a shade-board, if the hive is not already in the shade, on top of the hive. We have had reports something like this in times gone by, of how young bees were killed during very warm weather.

There is another thing that might account for it, and that would be the presence of the moth-miller. But inasmuch as your bees are Italians we hardly think that pest would be tolerated by them.

The fact that the bees swarmed out so often is another indication that there is a lack of ventilation. One of our best authorities believes that overheated brood is the *principal* cause of swarming.—ED.]

How to Keep Bees Away from Cider-mills.

I should like to have you tell me how I can keep my bees away from a cider-mill which stands out in the open, only a quarter of a mile away. One man who worked there said they had killed seven bushels. The bees get on to the ground apples as they shovel them into the press.

Juda, Wis., Aug. 21. F. E. MATZKE.

[There are three possible ways to keep bees out of cider-mills. One is, to screen the mill in with mosquito-netting—a procedure that will involve considerable expense. Another way is, to feed the bees in the vicinity of the apiary outdoors. To do this, shallow pans containing numerous corncobs or strips of wood, or, better still, trough feeders, of the Simplicity or Alexander type, should be used. These feeders should be placed close together on level ground, or boards that have been properly leveled up. There should be anywhere from ten to fifteen square feet of feeding surface, the amount depending on the number of bees in the apiary. In the feeders so placed, pour a mixture of sugar and water—nine parts of water to one of sugar by measure. The sugar, of course, should be thoroughly stirred until all is dissolved. It may be necessary to keep up this outside feeding while the cider-mill is in operation, covering a part of a month or even more.

The third method, perhaps the most practical, is to move the whole apiary to an outside location, say two miles away. If the bees do not need feeding for winter, the last plan would be the most feasible.—ED.]

Pollen from Milkweed Killing Bees.

I have noticed for some time that some of my bees seem to have yellowish appendages to their feet. Then I noticed that good healthy bees were carrying off those afflicted. I supposed that the affliction must be obnoxious to the colony. However, in the limited literature that I now have I can find nothing about the trouble.

Granville, O., July 14. A. M. BRUMBACK.

[From the general facts presented, it would appear that the bees were gathering pollen from the milkweed. These pollen masses that the bees gather stick to their feet and soon harden, and are the means of killing some of the older bees. It is probably true that the younger bees free themselves from these peculiar appendages. There is no remedy that you can find—in fact, none is needed, as you will find there are but comparatively few of the bees thus handicapped in their flight. See under the head "Milkweed," in the A B C and X Y Z of Bee Culture.—ED.]

Renewing Bees and Queen in an Observatory Hive Located in a Show Window.

Please give me a little more information on Heads of Grain as contained on page 472. I want to place one or two colonies in the rear of my store, and get a frame of bees out for an observatory hive; but as I am very green about bees I should like to know how to do it. If I take a frame out of a full colony with the queen in it to be put in the observatory hive, what will become of the colony without a queen? I will change combs every week, as you say; but when I put the frame and queen back to stay, what will the bees do to the queen? Would it be best to take a frame of bees and queen alternately each week out of the second hive? Should I clip the queen? Should I put full sections of honey in the super of the observatory hive, or one or two empties with starters? Should I take one of the middle frames out of the colony? Please tell how to go about it. We have three large school buildings in town, and I wish to make a display in them.

Monongahela, Pa., Aug. 9. BEN FORSYTH.

[In relation to the item that appeared on page 472, we may say that, if the queen belonging to a colony has been away from it long enough for said colony to start cells, the cells would have to be destroyed, and the queen would probably have to be introduced on her return to the hive. The probabilities are that confined bees in the observatory hive would accept a queen without introducing.

Very often you can arrange an entrance to a nucleus exposed for public inspection so that exit to entrance is three or four feet above the heads of passers-by. This may be accomplished through a piece of hose or through a wooden tube. In that case it is not necessary to renew the bees.

Perhaps the simplest plan for you would be to have four or five nuclei in the rear of your business place, and change the bees in your observatory hive about once a week. In this case take queen, bees, brood, combs, and all. After bees have been confined a week, put them with the queen back in the nucleus hive from which they were taken, and then take the bees, queen, and brood of another nucleus hive. This will eliminate all possible trouble that might arise over the queen. We would not clip the queen, as that would spoil her appearance for exhibition purposes.—ED.]

Steam Knife Tried and Abandoned.

Reports have been requested from those using the steam-heated uncapping-knife. We have used it, but find our help soon get back to the old-style Bingham. I am inclined to think they did not get steam enough; but if one *must* use one gallon of water per hour, as Mr. Metcalfe speaks of doing, it would seem as if some of this steam would condense and get into the honey; besides, there must be some heat where so much water is turned into steam.

I have noted the editor's remarks, page 414, July 15, about goods corresponding with their advertisements. I buy 100 to 200 queens a year, but always let the fellow who advertises the long-tongued red-clover queens sell to those who will swallow the bait. When such men as Prof. Gillette have shown that tongue-length of bees varies but a few hundredths of an inch, what sense is there in advertising a long-tongued strain when the breeder has been, perhaps, but a very few years breeding up the strain? People who buy such advertised bees remind me of country boys on our excursion steamers playing the slot machine, where 95 per cent goes to the machine and 5 per cent to the player.

Birmingham, Mich., July 22. A. W. SMITH.

Carbolic Acid to Stop Robbing.

I notice your request for a report from those who have used carbolic acid to stop bees from robbing. I first dilute the acid with water, then dampen with it a piece of muslin 4 x 5 inches. After contracting the entrance to 1 x 3 inches I fasten the muslin to the alighting-board with four carpet-tacks, one at each corner, to prevent the wind blowing it off, as we have strong winds in Kansas. In addition to this I use a force-pump sprayer that throws a strong stream 30 feet. My hives stand in rows 3 feet apart, facing the southeast. During a bad case of robbing I have effectually stopped it in 15 minutes. I am confident that the application of water with a force-pump is the most effectual part of the treatment to stop robbing. During the past four years I have lost heavily by neighbors' bees robbing mine, but none since I have used the above treatment.

Asherville, Kan., July 24. B. F. HARFORD.

The Danger of Using Too Much Sulphur in Fumigating Honey.

After removing my surplus honey I fumigate with sulphur to prevent trouble from the capping pin-worm. For the last few seasons I have had trouble with the capping turning a greenish hue. Is it due to the quality of the sulphur, the amount, or what? Is there a better method of fumigating?

Deposit, N. Y., July 3. CHAS. H. STILES.

[Your honey takes on a greenish color after fumigating with sulphur because you keep it in the room too long, or else use too large an amount of sulphur in too small a room. A very little fumigating will be sufficient to destroy all insect life that may be on the honey. A far better plan, and one that is now generally recommended, is to use bisulphide of carbon, which can be obtained at any drugstore. Place this in a small vessel above the pile of honey, because the fumes of it are much heavier than air, and settle at the bottom. You will find directions for its use given in our A B C and X Y Z of Bee Culture.—ED.]

Notes of Travel

A. I. Root

After leaving my good friend Selser, the manager of our Philadelphia house, he wired Mr. Thorndyke, manager of our New York business, who met me as I got off the ferry, and it is well that he did so, for New York is a pretty large place for a man of nearly 72 to find his way in. I am not going to tell you much about the great city of New York, but I will give you just a glimpse here and there. Right close to our business office, on Vesey St., an immense building is going up. Now hold your breath. It is to be 100 stories, and the ground it will stand on cost *five millions* of dollars. I asked Walter how deep they were going to secure a foundation for that immense structure. He said he did not know; and as hundreds of workmen were just then starting the foundation I ventured to walk through the inside fence just to get a glimpse of how deep it was, and of what was going on down there. I got my glimpse; but a hand was put on my shoulder, and somebody said, "Look here, old friend, this is not allowed. You might get hit by the derrick and other ponderous machinery."

I afterward learned that they went down *170 feet*. Then I asked the question how much steel and cement could be piled on a single spot of old mother Earth without breaking through the crust or indenting the solid ground so as to throw the structure "out of true." I can not give you the dimensions—that is, how much ground this structure is to occupy, but it takes one whole city block. I asked Walter if such a building would probably be all occupied. He thought it would, because it is right in the heart of the business portion of the great city. Can you imagine what such a structure, if all occupied, would rent for? I can give you something to figure on a little. In that locality it costs $50.00 a month for two rooms, each perhaps 12 × 15, on the third story of a building. When I protested that no one could afford to pay so much, I was told that, to do business, one *must be* on such busy streets. It is the headquarters of poultry supplies—in fact, close by the Cyphers people and others, and where people are coming in almost constantly every day, and are wanting to know all about poultry, etc. Besides $50.00 a month for that little office "upstairs," it would cost $1000 a year rent for the second story of a dilapidated old warehouse away over in Hoboken, almost two miles away, and reached by a tunnel under the river, a mile long. When I protested again against such an enormous rent for such poor accommodations, I was told to look around a little and see what is going on in a great city. Business called me to a locality but two or three blocks away, where there was some vacant ground. Now, this ground was a sort of frog-pond, I should call it. There was green scum on the water, with mosquitoes thrown in, and no outlet had been provided for draining off the water. Out of curiosity we inquired what that vacant ground was supposed to be worth. A place for building, 25 feet front, running back 100 feet, was $2000. Instead of getting an outlet for the water they filled in with dirt, then drove down piles on which to place the buildings. Of course I was disgusted with that whole neighborhood; but one of the friends suggested I should see what was going on close by. Within about a stone's throw of that same "frog-pond" locality a good lady (God bless her and all her kind) of great wealth felt somewhat as I did about the situation, and her heart was filled with compassion for the poor children that literally "swarmed" in that district; so she bought a great tract of land right there (where land cost so much a foot), and had already filled it in with good soil, planted trees and flowers, put up swings, a beautiful bathing apparatus, *pure* drinking water, and every thing that heart could imagine for the droves of children who, perhaps, had never had a good wholesome bath in their lives, and had never before had a glimpse of green grass and flowers. When I actually witnessed what great wealth could do in *transforming* a locality like that I became more hopeful.

After leaving New York my next point was Waterbury, Ct., where my father was born, and where he lived till he was about twelve years old. I will tell you what called me there. One of our clerks here in Medina (it was not a *girl* clerk) made a mistake in addressing an A B C book. He sent it to Middlebury, *Ct.*, instead of Middlebury, *Vt.* After it had lain in the office for quite a while the postmaster gave it to his mother-in-law because her father had been interested in bees before he died. She became taken up with the book, particularly as her *mother's* name was Root, and she finally wrote to our company, asking if she could have the book if she would pay the proper price,* and she also made mention of her ancestry. Such letters usually come to me, and finally I scraped up an acquaintance, and then we found we were relatives, and the good woman gave me a very urgent invitation to call on her when business or any thing else called me that way. I not only had a nice visit with her, but I found at Waterbury a cousin of hers, Samuel Root; and as my father and grandfather were *both* named Samuel, we soon formed a friendship as well as traced a relationship. Waterbury is now a manufacturing city with something like 100,000 inhabitants. Middlebury is a beautiful little suburb out on the trolley line. Two things impressed me in regard to the town. When I first got up in the morning a group of magnificent buildings, or a pile

* When I cautioned the clerk, and spoke of more care in addressing, etc., he said the "Vt." was obscure, and ventured, also, that he sold "*two* books" instead of one.

of them, of beautiful architecture, surrounded by lawns of nice flowers and trees attracted my attention. I walked around it and through the grounds before other people were stirring; and soon after I learned from my relatives that some good woman of wealth had planned and arranged this place as a school for women. By the way, let me mention that, while in Troy, N. Y., I saw a similar structure built almost entirely of expensive granite, which I was told was built by *Mrs. Russell Sage*. This great school or seminary was also planned and put up solely as a school or seminary for girls and women who have not the means to educate themselves. Once more may the Lord be praised for the *women* millionaires who are moved to do such a work for the benefit of the less fortunate ones of their sex.

Just one thing more in regard to Middlebury. When I spoke about huckleberries Mrs. Bronson said, "Oh! there is any quantity of them up on the hill back of the house." And then the mother and daughter volunteered to show me the berries. There were great quantities of them then going to waste; and I found three distinct varieties growing up there on that dry sandy hill where the rocks were so plentiful that it made me think of a story that father used to tell about the "Connecticut hills." He said they had to grind the sheep's noses down sharp, so they could pick the grass out from between the rocks and stones. While you are reading about huckleberries, turn over to the description and picture on pages 215 and 223, April 1.

Let us now digress a little. When I first got a copy of "Langstroth on the Honeybee" he had in it considerable to say about his good friend W. W. Cary, of Colerain, Mass.; and while Langstroth was inventing the movable-comb hive his experiments were made in a dooryard belonging to his friend Cary; and, in fact, he used to preach in a meeting-house a short distance from the Cary home. The old house is there still. The name of the town, Colerain, has been changed to Lyonsville, because of a trolley line that runs up the valley. And, by the way, these electric cars are run by the power of a little stream that comes down through the hills. If I were in California I would call it "down through a canyon." And Massachusetts reminds me quite a little of California, only there are hills instead of mountains. On my way from Waterbury to Lyonsville I caught a glimpse of Mt. Hood and of Mt. Holyoke. I also went through the Hoosac tunnel, five miles long, through the Berkshire hills. Well, W. W. Cary has gone to his long home with father Langstroth, Quinby, and many others. But his son, W. W., nearly my age, is still very *much* alive. His hobby just now is not bees. His son and son-in-law look after that department of the A. I. Root Co.'s business, and raise queens, etc. W. W. Cary has one of the most extensive establishments for manufacturing pure cider vinegar that there is, perhaps, in existence. If I have not made any mistake they make something like 15,000 barrels of vinegar a year. Do you ask where he gets the apples? Now, here is where *my* recent hobby comes in. I never knew, until this visit, that there is a locality in the world where apples grow wild "out in the woods." The truth is, the beautiful hills dotted with forest-trees in that region are also filled more or less with apple-trees. These apple-trees come up and grow spontaneously. I can understand how one apple-tree on the top of a great hill should let apples drop and roll all the way down in the valley in different directions; but I can not quite make out how any apples originally "rolled uphill;" nor can we very well conclude that the birds carried the seeds—that is, I am not quite sure they could do so. Well, you suggest, if this be true, the apples would all be natural fruit. So they would; but during the years this vinegar-plant has been running, the farmers have "caught on," and have not only been clearing off the forest-trees and underbrush, but they are *grafting* these wild apple-trees. Of course, this is a natural apple region or the trees would not grow. Now, this man Cary is a genius. He has an acetylene-light plant, all his own, that lights up his premises most beautifully. Then he has a cement reservoir on top of one of his hills; and a water-wheel that runs his cider-mills also pumps water up to fill his reservoir. When there is not water enough to run the factory a gasoline-engine comes in and takes the place of the turbine wheel. Just then I found friend Cary full of animation and enthusiasm in clearing the rocks from that Massachusetts hill around the reservoir in order to plant an apple-orchard. Some of the rocks were so large they had to be blasted with dynamite so a big team could haul away the fragments on a stoneboat. While leveling up the low places they put in tiles for drainage so as to make it an ideal spot for growing trees. Some pomological professor said a while ago that the best location for an apple-orchard is where the trees seem to grow spontaneously. The process of making vinegar out of apple cider is so complicated that I can not undertake to describe it here. I will only say that the apple juice is converted into alcohol, then into acetic acid, by trickling it slowly over beech shavings; and this process is going on winter and summer the year round in that great vinegar-factory. Let me add that great precaution is exercised to prevent any employee from getting hold of the "hard" cider. In fact, no one is kept on the premises who would be likely to be harmed by such a temptation. Furthermore, the Agricultural Department at Washington is so much interested in pure vinegar that a government employee is located in the factory during the busy season, not only to put on the government brand, but to assist in giving to the world the best vinegar to be had for the consumption of the people. Of course this institution could make vinegar from honey just as well as from apples; but there is not honey enough

in that region to cut any figure in such an immense establishment.

In the afternoon we called on Mr. Davidson, who is a chicken enthusiast. We were shown some Kellerstrass pullets and cockerels that were about as handsome as any thing I ever saw in the shape of a fowl. Some of the chickens we particularly wanted to inspect had found shade under the house; and a very pretty flaxen-haired little girl volunteered to crawl under the porch and drive out the "chooks;" and while admiring said "chooks" I could not help admiring the little girl who drove them out. It made me think of the words of the Master, "Ye are of more value than many sparrows."

It was difficult to get a view of Mr. Davidson's handsome chickens, however, because in every yard he had good-sized patches of the most luxuriant Dwarf Essex rape. This not only supplied green food, but gave them shade; and the poultry droppings furnished fertility to the soil. Of course I was interested in a tree of Yellow Transparent apples, all ripe and "ready to drop," corroborating once more the fact that the soil of those Massachusetts hills is just the thing for growing apples; and letting a good flock of chickens run through an orchard is, perhaps, the ideal way of furnishing one of the best fertilizers in the world for apple-trees. And, by the way, our own orchard here in Medina is now giving a great crop of the finest and largest fall pippins, Gravensteins, and winter ramboes, that I ever saw anywhere. Our chickens have had the run of the orchard for the past three summers. They pick up insects, furnish fertility to the ground, and the apple-trees give them plenty of shade and *fruit*. Unfortunately, however, there is such a crop of fall apples that I fear we can not dispose of them, even at 10 cts. a peck.

To get back to Mr. Davidson and his chickens, we found our friends busy with a new rat-trap. It is simply a box containing grain, with a hole just large enough to let in a rat, but yet not admit chickens—that is, those of any size. After the rats have been allowed to hold "high carnival" in that box for some time a trap is introduced. This small opening that admits the rats, of course would not admit a cat; so the rats, when pursued, would be pretty apt to seek the box as a refuge. If I remember correctly this box also contains cotton batting or other soft material to encourage the rats to make a nesting-place. A hinged lid permits opening it to put in grain, etc.

We were shown several hens that had already made a high record in number of eggs in a year.* And this brings me to the point where I took the train as mentioned in our previous issue.

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*By the way, at our recent county fair our Ohio Experiment Station made an exhibit; and among other things were some fine photos, life size, of two Barred Rock hens looking very much alike. Another photo, near which each of the hens was displayed, showed the number of eggs each one had laid in a year. Although the two hens were of the same age, and had exactly the same care, one showed a heap of *198* eggs, and the other only 31. Then a card on the exhibit read something like this: "How many of you farmers are keeping hens that lay only 31 eggs in a year (or less), and you do not know it?"

Our Homes

A. I. ROOT

He is a man of sorrows, and acquainted with grief. —ISAIAH 53:3.

Think not that I am come to send peace on earth: I came not to send peace, but a sword.—MATT. 10:34.

On page 442 of our last issue I promised to tell you something more about that Bible class. The lesson for that day was about Jeremiah, as you may remember; and the good pastor asked our class of men if we had any such men as Jeremiah nowadays. There were several answers. D. L. Moody was mentioned; also Billy Sunday and others I can not recall. But I finally suggested Carrie Nation. The pastor assented, and said he was glad her name was mentioned. There was quite a little discussion in regard to her character. Different ones present pointed out different things in her life; and as I had recently heard her speak, and had had a talk with her afterward, I gave them some particulars. Since her death a good many facts have come to light that people generally did not know of nor understand. First and foremost, before she commenced her remarkable crusade of smashing property she plead with the chief of police, the mayors, and finally with the *governor* of Kansas, to have the temperance laws enforced; and she met with the same kind of rebuff that Christian and temperance people have met and *are* meeting all over our land.

Let me digress a little to give you an illustration right here near my own home. Ohio has recently enacted some stringent laws in regard to race-track gambling. Rev. A. S. Gregg (Caxton Building, Cleveland, O.), of the Civic Reform League, found gambling going on in broad daylight recently at a race-track near Cleveland. He knew how difficult it was to get conviction, and so he *joined the gamblers* and gambled with them, and then went to the police and asked to be arrested with others of the gang. The police would do nothing. He appealed to the chief of police, the mayor, and different officers, and finally to the governor of this State. So far as I know, no arrests have been made, and the gamblers simply laughed at him for the pains he had taken, and for the trifling amount of money he had lost in "betting at a horse-race."

Mrs. Nation, after praying daily for months over the matter, resolved on doing something in the same line. She said, and

I believe she said truly, that in answer to her prayers the Lord directed her as to what she should do. When she found that those whose business it was to enforce the law against selling intoxicants in broad daylight in Kansas would do nothing whatever she started out, after a night of prayer, with her humble horse and buggy, with a load of brickbats and stones, and then with her apron full of these missiles she marched boldly into a saloon and smashed the bottles, mirrors, and other expensive furniture. Then she asked to be arrested, but called the attention of the officers of the law to the awful inconsistency of arresting *her*, while they let the saloon-keepers go scot free. She said in substance, "I have damaged *property*, and, of course, should be treated accordingly; but these men have damaged and ruined the lives of people having immortal souls. For God's sake, arrest and punish *them* if you would undertake to arrest and punish *me*."

They were dumbfounded. Her argument was unanswerable. I do not remember whether she was arrested that first time or not, but she finally went to prison many times, although they soon let her out again. As in the case of Paul and Silas, the prison doors were soon opened, and she was set at liberty to *go on* smashing the property of saloon-keepers. Now, note right here that, *since* her death, it has been ascertained that she never damaged a saloon that was doing business in accordance with the laws of the State or locality. Many (if not all) saloon-keepers had no license, or in some other way were plainly violating the law. They were carrying on their business without any *show* of authority. Her work made a sensation, not only throughout our own nation, but her name became familiar, and a by-word over almost all the face of the earth.* People called her crazy; but now it begins to dawn on our understanding that there was not only a "method" in her madness, but a *wonderful* method. In every town she visited she hunted up the mayor, the chief of police, and often the governor of the State. She plead with them, and begged them in the name of God and the suffering women and children to enforce the laws and protect the helpless suffering ones.

While in Florida my good neighbor Rood informed me that Carrie Nation was to speak on the Park. I said, "Why, friend Rood, there was nothing said about it in our town paper. It is too bad that a more extended notice was not given of her coming."

He replied, "Mr. Root, every man, woman, and child, almost, on the face of the earth has heard of Carrie Nation; and you may be sure there will be a crowd there to see and hear her."

Before she began her talk, stories were going around to the effect that she had grabbed cigars and cigarettes from the mouths of smokers while they were in the street, and, of course, this was against her. In her talk she also made some scathing remarks about secret societies, and, of course, this did not suit everybody. While I felt almost as she did about these things, I was sorry she did not stop when she had ended her talk in regard to intoxicants. By the way, I might say here, for I have said it before, that when I am asked about secret lodges, etc., I have always replied, "I belong to the Lord Jesus Christ, and to him only; and he has said, 'In secret have I done nothing.'"

Some one suggested in that audience of several hundred that she would have received a much larger donation had she omitted that part about Free Masonry, Odd Fellows, etc. After her lecture I had quite a little talk with her. In regard to the charge made that she was in the habit of grabbing cigars or knocking the pipes out of the mouths of men in the streets, so far as I can learn her offense was something like this:

She would go to a boy, and in a kind and motherly (or, perhaps, *grandmotherly*) way would talk with him about the danger of the habit he was forming. Then she would say to the little fellow, while she placed her hand on his shoulder, "Won't you let grandmother take that dangerous thing out of your mouth and throw it away?"

The boy usually yielded to her kind and reasonable remonstrances; and she did, with his permission, take it out of his mouth and throw it away. Some papers told how much money she made or received by selling her hatchet or book, etc. It is true that our good people handed over to her several thousand dollars; but she told in her lectures what she wanted the money for, and what would be done with it, and what *had* been done with it, and her book tells in *detail* of the founding of a home for inebriates or their families. She met with many unkind words, many threats, arrests, imprisonment, and other indignities. She was put on short rations many times in the vain endeavor to make her give up her fanatical crusade, as many were pleased to term it; but, like Paul of old, she kept up her courage and trust in the guiding hand of her Savior, and "fought the good fight and finished her course." Her ending was sad. She was twice married, and each time discovered, after her marriage, that her husband was intemperate, and also a member of some secret society. She has one child. This girl married a man who *also* was intemperate; and his only son (inheriting the love for drink and evil companions from both father and grandfather) drifted into a saloon and stood behind a bar. In one of her last crusades, near the time of her death, the young man behind the bar said, "Why, how do you do, grandma?"

*She not only roused up and wakened from their stupor the officers of the law of the State of Kansas, but of the whole Unites States; and we may well believe she was the instrument, in God's hand, in starting a wave for temperance and law enforcement that will sweep and is now sweeping the whole face of the globe. God grant that this wave may sweep the State of Maine so far up on dry land that the brewers will never again think of trying to get high license (or "local option" either) to take the place of prohibition.

As she was so often addressed in that way almost everywhere, she thought nothing of it until the young man spoke to her again and said, "Why, grandma, don't you know me?"

It was indeed *her own* grandson, who, without her knowledge, had drifted into the position of a bar-tender. The shock was so great, to think that her only grandson—the grandson of *Carrie Nation*, who was then the greatest apostle of temperance (or one of the greatest the world ever knew), should be behind a bar that it overcame the poor old lady, already well advanced in years. I think she had already been feeling that her mission was drawing to a close. Isaiah tells us that our Lord and Master would be, when he came to earth, "a man of sorrows, and acquainted with grief." Let me digress.

I told you some time back of the mother hen that flew almost into the open jaws of that great alligator in her insane effort to protect her ducklings. The chances against her were a thousand to one. What could the poor feeble hen do to hinder those great horrid open jaws from swallowing her up as though she were but a fly? But yet she braved danger, and showed fight without any fear or regard for the great strength and power of her enemy. In a like manner, Carrie Nation braved the wrath of drunken men and millionaire brewers. With her hatchet she demolished the instruments of their cursed traffic, without any fear of the consequences, like the poor hen in protecting her charges. In her talk she used the very figure that I have often used—that of "fighting mothers." It has been said more than once that Carrie Nation was a modern John Brown, and lived and died a martyr to her convictions. The Lord Jesus Christ said, in the second of our texts, that he came not on earth to bring peace, but a sword. Carrie Nation came, not with a sword, but with her *hatchet*, and that hatchet opened the way and turned the first furrow that started the temperance reform that is now so rapidly making the States of our nation white instead of black by starting a wave of reform that bids fair to spread over the whole wide world wherever the intoxicating cup has got a foothold. May God bless the memory of that devoted soul who feared not the wrath of man but feared only the wrath of God; and she has gone to her reward—"a crown of righteousness which the Lord, the righteous Judge, shall give "—a "crown of glory that fadeth not away."

POULTRY DEPARTMENT

HOUSING POULTRY IN FLORIDA AND OTHER SOUTHERN LOCALITIES.

In our July 15th issue of last year I discussed this matter at some length, and I gave a picture of my Florida poultry-house. A little later, as you may recall, friend Keck described a successful poultry-house with no roof overhead, in Southern Florida. It was inclosed with poultry-netting to protect the fowls from nocturnal prowlers. Our old friend H. H. Stoddard, the man who gave us "The New Egg-farm" over forty years ago, is now in Rivera, Texas, and he has written quite a lengthy article for the *American Poultry World*, describing something for poultry in warm climates, that I think may result in a revolution in chicken-houses.

We find also in the *American Poultry Journal* for August an article from friend Stoddard on poultry-keeping in the great Southwest. It covers several pages, and is an article of great value to every one who is thinking of trying poultry in Florida, Texas, or other Southern localities.

By the way, Mr. Stoddard, in writing about the stick-tight flea, calls it "stick-*fast* flea." I presume he means the same thing; but it is very unfortunate that there is such a confusion of names of these Florida pests. Very few people, especially those from the North, have a correct idea of these insects. For instance, quite a few insist that the "redbug" is the same thing as the stick-tight flea, whereas they are not alike in any particular. The redbug is almost microscopic, while the stick-tight flea is a veritable flea, and can be readily pulled from the flesh or off from the comb of a chicken with a suitable pair of tweezers. The redbug produces a swelling and sore that lasts some time. The *flea* just bites and hangs on. When you pull it off, that is the end of the trouble.

Last fall I visited a poultry-ranch near Jacksonville, Fla., where the houses—at least one of them—was *600 feet long*, made of expensive lumber, and tight enough and warm enough for a poultry-house here in the North. They were planning to have 10,000 laying hens all at one time. I have not seen any report in the papers from it since. I said at the time that it was a great waste of money, and that no such expensive structure was needed. Well, Mr. Stoddard declares that in his locality in Texas nothing more is needed than a frame of *wire netting* to protect the fowls. For a hen and chickens he has a wire cage 18 inches square and a yard long. There is a door at one end, of course, to put the hen in, and I suppose there is a smaller door to let the chickens out and to retain the hen if need be. When the chickens are old enough to be weaned, a similar structure is made, say twice as wide; that would be a yard square on top, and 18 inches high. Some roosts are put in for the chicks to roost on, and that is all. They can not smother, for they have all outdoors with the "bars down." After they are feathered out, rains will do them no harm, so Stoddard says; and I know from experience that, when the mother-hen flies up into a tree and coaxes her children to follow, they do splendidly, no matter how hard it rains at night.

For full-grown fowls, friend Stoddard uses netting with a two-inch mesh, and makes it about four feet high, and, say, six feet square, according to the number of fowls. No mites or other vermin can find a lodging-place in this all-metal chicken-coop. Of course you will have to go around to all the cages, big and little, and shut them up after the fowls get in. Then you will need to get up by daylight (as I do when in Florida), and let them all out, big and little, as soon as they want to get out. This is something of a task, it is true; but it is the only method that I know of to prevent absolutely all losses from night prowlers. If you think there is no danger in your locality of skunks or possums or rats digging under, you may omit the poultry-netting *floor*. But I think it is safer to have it. Then you know your valuable stock is absolutely safe, and that it will be there in the morning sound and well. Now to clean out these poultry-runs, big and little, just grab hold of one side and turn it upside down. This scatters the droppings over the ground, and it is certainly quicker and simpler than any method of cleaning the roosts, and will keep them sanitary.

To prevent chickens from getting into the habit of roosting on top instead of inside, friend Stoddard has used a triangular cage, the three sides being all alike. I do not exactly see how this works unless he has one roost the whole length of the long wire-cloth prism. In order to economize the expense of wire cloth he has also used a long cylinder, the birds roosting, as I understand it, on a pole that goes through the axis. To give them fresh ground every morning, you simply roll the cylinder over half a turn or less. Where this *square* cage is used for large fowls, two of the roosting-poles can project through far enough so a boy at each end can move it where you want it. These poultry-cages are to be used principally as colony houses—no yard—and friend Stoddard claims to be the first writer on poultry to suggest houses scattered over the "egg-farm" instead of having separate yards for his flocks. This may be true, for I well remember when his first account, with diagrams, in the *American Agriculturist*, of his plan of an egg-farm, came out, I was so much taken up with it that I could hardly sleep at night.

Now, friends, these poultry-cages can be used, I am sure, with much benefit to the health of the chickens here in the North in *warm weather*. In Florida, I *know* they will give good results the year round; for, as I have told you, I kept laying hens successfully for three or four winters in my Southern home, roosting in trees with no protection whatever from storms of any sort, and I never had chickens do better. For pity's sake, let us stop "killing our chickens by (mistaken) kindness."

WATER FOR DUCKS, ESPECIALLY IF YOU WANT FERTILE EGGS.

We frequently see it stated in the farm papers that Indian Runner ducks can be reared without water to swim in; and we are told again and again that little ducks must not be allowed to get into the water. You will remember I have discussed this latter point at considerable length. Well, a woman stated in one of the poultry journals (I am sorry I did not make a clipping of it) that ducks, in following nature, mate in water; and this reminds me of something about our Indian Runner ducks in Florida last winter. Before I let them out of the yard to go to the creek I repeatedly saw them mate; but after I let them go to the creek in the morning (after the eggs were laid), the very first thing after getting into the water was the mating. In fact, they seemed to postpone this matter (so important in regard to getting fertile eggs) until they were let out in shallow water; I wondered what this meant, and what was the cause of it. Well, now, this lady stated in one of the poultry-journals that, unless the breeding ducks were allowed to mate *in water*, the eggs would not all be fertile. Another writer in one of our poultry-journals, in speaking of *geese* and raising goslings, says the same thing in regard to geese —that the eggs would not hatch unless the breeders are permitted to do their mating *in the water*. Now, this is an exceedingly important matter; and yet our books and writers about Indian Runner ducks have had nothing to say about it. In the July number of that excellent journal called *Poultry*, the editor writes as follows:

> The eggs from the Indian Runners have failed to hatch entirely. Of more than 100 eggs which we have set, mostly under hens, we have had exactly three ducklings hatch, and not one of them lived to be three days old.

Of course, we do not know that the Runners that laid the above eggs had no access to water to swim in; but in view of what I said, it seems very likely. See below.

It seems that somebody complained to the editor of the *Practical Farmer* that goslings did not come out of the shell unless they were helped out. The poultry editor replies as follows:

> We asked Roy Crandall, the party who sold us the goose eggs, and who makes a business of raising geese on a large scale, about the trouble we had in getting the little goslings to come out of the shell, and he writes us as follows: "I should say that lack of moisture was the reason you had to peel the goslings off the shell. Some folks let the goslings die in the shell, and then complain about the eggs hatching poorly. We take the goose and set her in a pan of lukewarm water about the 7th, the 21st, and 27th or 28th day; get her fairly wet, and then let her go back on the nest. She won't like it, but has to stand it. This will moisten the eggs just about right. A goose goes into the water nearly every morning while sitting.

Now, the above is an important suggestion. A duck or goose, while sitting, surely goes into the water (if she can) every day or at least every two or three days; and when she comes back to her nest she certainly gives the eggs a pretty good wetting; and, if I am correct, the directions that go with almost every incubator, in regard to hatching *duck* eggs, recommend considerably more moisture than is ever needed with hens' eggs. And all this reminds us that ducks and geese *are* "waterfowls."

Gleanings in Bee Culture

Published by The A. I. Root Company, Medina, Ohio

H. H. Root, Assistant Editor
A. I. Root, Editor Home Department
E. R. Root, Editor
A. L. Boyden, Advertising Manager
J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX OCTOBER 1, 1911 NO. 18

Editorial

THE SHARP ADVANCE IN THE PRICE OF GRANULATED SUGAR.

The sharp advance in the price of sugar, unfortunately for the bee-keeper, came just at a time when he needed to do his fall feeding for winter. According to the sugar trust (and apparently it ought to know), the price will soon drop.

IS HONEY A STAPLE OR A LUXURY?

In this issue, under head of Stray Straws, the question is raised why honey has not taken a sharp advance the same as sugar has done of late. Most of our readers will be interested in the reply. This same question was thrashed out years ago, and James Heddon, then one of the leading bee-keepers and correspondents, took the position that honey was not a staple article like butter, eggs, and flour, but a luxury. The price of a staple is controlled by the law of supply and demand; and while a luxury is subject somewhat to the same influence it is not to the same degree.

THE POOREST SEASON IN MANY YEARS.

The year 1911, from the very best information we are able to gather, appears to be doomed to go down in history as the poorest one for honey that has been known for many years back. The crop east was very scanty. The western part of the country fared somewhat better. But there is no great loss without some small gain, for we rest in the hope and conviction that honey, having advanced in price by reason of its scarcity, will maintain its level, even when the crop is more abundant. All food stuffs, including luxuries, are advancing in price; but honey hitherto has not kept pace with other luxuries.

MR. AND MRS. A. I. ROOT CELEBRATE THEIR 50TH WEDDING ANNIVERSARY.

In reproducing the photographs, pages 594-5, we are responding to frequent and urgent requests on the part of many of our readers for a large picture, not only of A. I. Root, but of Mrs. Root. It seemed an appropriate time to gratify these requests in view of the anniversary of their wedding, 50 years ago, the 29th of September. Strenuous opposition was made by both "sides of the house," but as they knew nothing of it until the last minute, their protests were in vain.

A quiet anniversary dinner was held at the home of Mr. and Mrs. J. T. Calvert, the whole family, including the five children and nine grandchildren, being present. It is hardly necessary to state that A. I. Root does not believe in divorce. See Our Homes, this issue.

DOES THE SPRAYING OF THE COTTON-PLANT IN THE SOUTH KILL BEES?

A short time ago several of our correspondents asked the question whether the spraying of the cotton-plant in the South would not do serious damage to the bee-keepers near by. As we were unable to answer, we handed the matter over to Dr. E. F. Phillips, of the Bureau of Entomology, Washington, D. C. He in turn referred the matter to W. D. Hunter, in the employ of the Bureau, located at Dallas, Texas. Mr. Hunter, in charge of the southern field-crop work of the Bureau, replies as follows:

In my opinion there is only an exceedingly remote possibility that honey-bees will be poisoned by the proper application of Paris green or arsenate of lead to cotton for the leaf-worm. It is seldom necessary to apply the arsenical in cotton-fields at the rate of more than three pounds per acre. The object of the application is to place the poison on the leaves. It is not only unnecessary, but entirely impracticable, to force the poison into the blooms. Moreover, the method followed, which consists of sifting the poison from a sack, would not result in appreciable amounts of poison finding a way into the blooms. Of course, a very small amount might be blown in by the winds, but I believe this is absolutely inconsiderable.

Poisoning cotton is often practiced in the South, and many plantations have apiaries on them. I have never heard of a case of injury to bees resulting in poisoning the cotton; and, in fact, so far as I know it has never been suspected that such might be the case.

Dallas, Texas, Aug. 25. W. D. Hunter.

Mr. G. W. Hood, also of the Bureau, at the request of Dr. Phillips, also furnished an opinion, which we here reproduce:

This, in all probability, occurs rarely, due to the position of the flower on the plant, as well as the methods of application of the poison.

As you, no doubt, are aware, the flower has a short petiole, and is located close to the main branches of the plant. In this way they are protected by the large leaves, and the poison is applied in practically all cases by a dust-gun operated by negro help. The poison is forced out through a long tube by a small fan operated by hand. This gives very little force to the poison, which, in my

opinion, is insufficient to find its way into the flower, but lodges on the leaves of the plant.

G. W. Hood.

CAUTION IN REGARD TO OUTDOOR FEEDING.

In recent editorials on this subject it will be remembered we spoke of the liability of wearing out the old bees, and also of the danger of having a sweetened syrup sour in the combs. With regard to this, Mr. J. E. Hand writes:

Mr. E. R. Root:—I note with pleasure that you people at Medina are favorably impressed with the new system of feeding sweetened water to imitate nature's honey-flow. While a judicious system of open-air feeding is undoubtedly an indispensable adjunct to the queen-rearing yard, it is doubtful if it will prove of much benefit to the honey-producer except as a means of preventing robbing during a dearth of nectar when extracting late in the season, or when practicing any necessary manipulations with bees at a time when robbers would be troublesome. For this purpose there is no doubt that it will pay every bee-keeper to install a system of open-air feeding. On the other hand, it exhausts the vitality of the old bees, causing them to disappear at an alarming rate, and, in spite of the increased brood-rearing, it is a noticeable fact that at this date there are fewer bees in the hives than usual where stimulative feeding was not practiced. It is true there is plenty of capped brood which may more than make up for the loss of the old bees that would, perhaps, have died of old age long before spring. If there is any advantage in having all young bees to go into winter quarters, it is certain that open-air feeding will accomplish the purpose. Care should be exercised not to feed nuclei and weak colonies too rapidly, otherwise it will be likely to sour in the combs. Practically all our nuclei have got their living from the open-air feeders, and have stored a little in advance of present needs, while the strong cell-building colonies have shown a gradual gain, and the honey as a rule seems to be well ripened. I would not advocate open-air feeding to furnish winter stores where it is necessary to feed half and half, sugar and water, as it causes too much excitement among the bees, with the result already mentioned. I shall carefully note the effect of open-air feeding upon the wintering of bees, and will report the result.

Birmingham, O. J. E. Hand.

OUR QUESTION AND ANSWER DEPARTMENT.

Our readers will notice that we have an extra grist of Heads of Grain, or answers to questions, in this issue. By the way, we are putting more time on Heads of Grain than we ever did before. We believe that, if there is any department in our journal that is important and valuable to beginner and veteran alike, it is our Question and Answer department, or what we call Heads of Grain. While the editor does not arrogate to himself any superior knowledge on bees he occupies a position for gathering facts that most readers do not.

In this connection, it should be clearly understood that the Heads of Grain department contains matter for the professional bee-keepers as well as special matter for those just taking up bee-keeping. What does not interest the former he can skip.

If there is any answer that we give at any time that is not strictly orthodox or correct we shall regard it as a favor if our readers will put us right. It sometimes happens that a five-hive bee-keeper knows more on some particular phase of our wonderful industry on "how doth the busy little bee" than some of the veterans who count their colonies by the hundreds, and experience by the decade. For that reason every one is welcome to offer an opinion providing it is *backed by actual observation.*

ARE BEE STINGS EVER FATAL?

Occasionally we receive a newspaper clipping from a subscriber telling of some one who died shortly after being stung by a bee. The papers, eager for sensational items, generally put in these accounts in more or less exaggerated form. After investigating two or three cases, and finding that the unfortunate person either had a very weak heart or else was physically unsound in some other way, we have come to the conclusion that the sting itself is rarely, if ever, fatal—at least, any one in normal health need have very little fear. It is true that some persons are so constituted as to be unable to stand more than one sting without severe swelling of the throat, so that breathing is made difficult. We have advised all such to protect themselves carefully with a good veil and gloves so that it will be impossible to be stung more than once, and then not severely. As is well known, the effect of the sting depends upon the location of the wound and also upon the length of time the sting is allowed to remain in the flesh. If not scratched out very soon the muscles of the sting itself, by reflex action, keep up a pumping motion forcing all of the poison in the poison-sac down into the wound. With good protection there is no danger of receiving much more than a mere prick from a sting. Furthermore, as we have explained before, after one has been stung a few times, all swelling, even in these extremely bad instances, practically disappear, for the system becomes immune to the poison. The sharp pain at the moment the sting is received is, of course, felt by the veteran as well as the novice in the business.

It is a strange fact, and yet not so strange either, but to the laymen the stings loom up as an almost impassable barrier to all thoughts of keeping bees, while to the professional bee-keeper they are the least of all his troubles.

In England, lately, a man died of lockjaw following the sting of a bee. We believe there have been one or two other cases on record that are similar. Our correspondent, Mr. G. W. Bullamore, suggests that since the tetanus bacilli exist in practically every sample of cultivated earth, there is some danger, perhaps, although of course very remote, of lockjaw following the practice of applying damp earth or mud to the wound inflicted by the sting of an insect. There is just one remedy any way that is worth following, and that is to "grin and bear it." A great many amateurs have remedies that give relief in their own cases, but in ninety-nine times out of a hundred these have no effect on other people. The best way is to forget it as quickly as possible, for the less fuss one makes about a bee-sting, the better off he is.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

J. E. CRANE, p. 551, has a vision of pollen in sections when he thinks of their being used over a single story of shallow frames. I have a distinct *remembrance* of the same thing in this locality.

ARTHUR C. MILLER, you stir us all up with the idea that you've found out the cause of swarming, 560, and then, just as we think you're coming to the secret, say, "Find out for yourself." You're a fraud.

A THICK TOP-BAR is generally ⅞ inch. Louis Roehl has top-bars $1\frac{9}{16}$ inches thick. That thickness, with some drone comb in the brood-chamber, he thinks keeps the queen out of extracting-supers. — *Leipz. Bztg.*, 116.

MR. EDITOR, on page 548 you approve nine parts water to one of sugar, and on page 550 say, "We can't use any thing thinner than two of water to one of sugar." Which time were you in earnest? [On page 548, if you will glance at the small-cap heading above, you will see that we were talking about *open-air* feeding. On page 550 we had in mind *in-hive* feeding; for in your Straw just above you speak of one-hole feeders.—ED.]

O. B. METCALFE, *Review*, 212, tells us, when cross bees annoy, to take from your smoker a piece of burning burlap gummed up with propolis, or else saturate new burlap with kerosene, tie it to the end of a small stick, wave it about, and the bees will fly at the dark object and promptly fall to the ground with singed wings. [This looks like a good suggestion. A dozen or so cross bees will sometimes follow the apiarist for an hour at a time. They had better be killed.—ED.]

ADRIAN GETAZ' estimate of 200 lbs. annual consumption of honey for a colony is given, p. 537, for regions "where the winters are cold." Where they are warm would it be a little more? [Yes, the warmer the climate the more honey will be consumed. For the Southern States the amount that a colony would actually eat in a year's time, exclusive of surplus, might be nearly 300 or even 400 lbs. We should be glad to have some of our Southern readers give us an estimate.—ED.]

GEO. H. COULSON, *American Bee Journal*, 247, says bees may be moved a short distance at any time, and need not be confined to the hive to prevent returning to the old home if they are kept busy carrying syrup from the super to the brood-chamber. [We have no difficulty when we take the precaution to smoke the bees thoroughly, and then bump them on a springless wheelbarrow to a new location. The work should be done on a cool morning. It is quite useless to attempt it in the middle of the day when the bees are flying.—ED.]

DR. WALTER HEIN, in a paper prepared for the big German convention, says that what is now named *Nosema apis* was known as far back as 1857 by Doenhoff. Dr. Hein takes about the same view of *Nosema a.* as Dr. Phillips. It is to be found in most colonies, is not the originator of dangerous diarrhea, and in spite of its presence a colony may remain in good health. Let us breathe easier. [We have been breathing easier for some time back.—ED.]

WESLEY FOSTER asks, p. 517, if I ever saw a double-tier case with 3-in. glass. Come over to the shop, Wesley, and I'll show you one 8¾ inches deep inside, and another 9 inches deep. The front strips are not 1 in. wide, as you say, but 1¼. That leaves exposure of glass 2½ inches in one and 2⅝ in the other. You say they are not strong enough. As you never saw one, aren't you guessing at that? I used them several years; shipped tons of honey in them hundreds of miles; and they were strong enough to stand the racket. Would your longer haul need greater strength?

F. E. MATZKE, the inventor of that excellent bee-glue scraper, is told, page 572, "There should be anywhere from 10 to 15 square feet of feeding surface, depending on the number of bees." That leaves it pretty loose. Can't you give us something definite? How would 20 square inches per colony do? Then, too, instead of corn-cobs for floaters, why not use cork chips? [It is impossible to say just how many square inches would be necessary for a colony. An apiary of strong colonies would need more feeding surface than an apiary of light ones. Then, again, something depends on whether there is a light natural honey-flow or considerable natural pollen. We notice that on some days the bees will scarcely go near the outdoor feeder. On other days they will be busy on them. The point we meant to make was that there should be enough feeding surface so that the bees would not be crowded. When they struggle against each other they wear each other out. For that reason no hard-and-fast rule based on the number of colonies would be practicable.—ED.]

WHO HAS BEEN mixing the types to make them say, p. 537, "The young queens usually hatch from the cells about the day that the swarm is cast"? Shouldn't it be a week later? [No mistake, doctor, so far as the types are concerned. We have been under the impression that the hatching of swarming-cells was often and generally the signal for the swarm to come out if other conditions were favorable. We do not know how this is in your locality, but in most localities that we have visited we have found that this is the rule. A few minutes ago we asked our Mr. Marchant, who has

had years of experience with his father, A. B. Marchant, in the production of hundreds of barrels of honey in Florida, whether their swarms went out a week after the first hatching cells or simultaneously with them. His answer came back instantly, that he and his father figured that a swarm would come forth just about the time the first cells hatch. They might come out a day ahead of time or a day later, as something depended on the weather. We should be glad to get reports from others as to what they have found the prevailing rule is in their locality.—Ed.]

The guess is made, page 547, that moths might lay eggs in S. D. House's sections after they are taken from the hive. He may have had eggs laid in them while they were on the hive; but I'll venture the guess he never had an egg laid in them after they were taken off—at least that, I think, is the case here. [Possibly you are right, doctor; but on referring this to A. I. R., who has had much experience with black bees and moth-millers, he said he thought you must be wrong. It is generally supposed that freezing or fumigating with sulphur will kill the eggs that may have been laid in combs before they are stored away in a building. Is it not true that, when these combs have been frozen, after a long severe winter, they will develop the moth-worm without ever going back into the hives again if left exposed in a building? One thing we have noticed at Medina is that, when combs have passed through a severe winter, if they are thereafter kept away from the bees—in tight hives, so the moth-miller can not get to them, they will remain clean and safe. We also observe that, if these same combs are exposed in a building during summer, the moth-worm develops.

Why should not the moth-miller visit combs that are away from the bees, and deposit her eggs as freely as she would in combs covered with bees? If the wax-worm will eat comb not among bees, why should not the instincts of the moth-miller prompt her to put her brood where they can get their natural food, bees or no bees? If your inference is correct, all we need to do is to store combs in a building where they will have a good freeze, then we can from that time on, or until they go into a hive containing bees, leave them anywhere. We would like to hear from others.—Ed.]

Sugar 8 cents a pound, and still climbing. One of the reasons always given for the low price of honey is that sugar is so cheap. If there's any thing in that, honey ought now to be on the up grade. Indeed, quotations show that it is, although the short crop has something to say in the matter. What we ought to work for is not so much a high price for honey as to get every one to using it. That would be a great public good, and, incidentally, it would not hurt the price. [Honey seems to be a law almost unto itself. We do not share the feeling that a low-priced inferior glucose or a fine article of cane sugar influences the price of honey very much, because honey is bought for its flavor, and because it is easily assimilated. For the reason that people will pay 20, 30, 50 cts., and even $1.00 per lb. for candies, when good cane sugar, more wholesome, can be bought for 5 and 6 cts., those same dear people will buy honey and pay three or four times as much for it as they will for raw cane sugar or karo. Note this fact: The advance in honey this year over last year took place *before* sugar went up; also notice that when the price of sugar began to soar the price of honey remained practically stationary. Sugar at 8 cents is cheaper than any good table honey. If the reverse were true, the housewife might buy honey to sweeten her coffee and can her fruit, and it would make an excellent substitute if it were cheap enough. No, honey occupies a field all its own. We do not fear the competition of karo that sells for half or a fourth the price, nor of candies that sell for four times as much, any more than we fear the competition of whisky or wheat.—Ed.]

I can understand how one can think a case with 2-in. glass stronger than with 3-in., as it surely is; but how Messrs. Taylor and Foster can think the narrow glass looks better is beyond me. Mr. Foster says he would prefer the appearance of 2-inch glass to 3-inch, without saying why. If it is merely because it is narrower, so as to show less honey, does that not logically lead to the conclusion that 1-inch glass would be still better, and no glass best of all? Mr. Taylor gives a hint of his reason by saying, "There may be honey that looks better behind a 3-inch glass, but I have never seen it." That *may* mean, "To give a case of honey the best appearance, the upper and lower part, where it joins the wood, with its unsealed cells and possibly other deficiencies, must be hidden, and the part to be hidden is so great that any thing wider than 2-inch glass will not hide it. There may be shipments of honey so perfect that all the imperfections will be hidden with 3-inch glass, but I have never seen them." Pardon me, Bro. Taylor, if I misinterpret you. I'm doing the best I can. In reply I may say, "There may be honey that looks better behind 2-inch glass, but I have never seen it, unless it was so poor as not to be sold as first-class honey." I'd like to ask you this question: "Did you ever see a pile of first-class honey behind 3-inch glass that you thought would look better behind 2-inch?" I've seen honey in both kinds, and to me the wider glass looks better. The 1¼-inch strips have proved strong enough for me; but it may be that glass narrower than three inches might be used—say 2¾. That would leave the surface exposed still the same. Finally, brethren, will either of you answer this question? "If 2-in. glass looks better than 3-in., why does any one prefer the wider glass in single-tier cases?" [We arise to ask, "Does any one prefer wider glass in single-tier cases?"—Ed.]

NOTES FROM CANADA

J. L. Byer, Mt. Joy, Ont.

To-day I have received word from the crop committee of the O. B. K. A. relative to the prices for buckwheat honey. The committee report that there seems to be about the same quantity of this honey as last season, and about the same prices are recommended. If the crop is as reported, certainly some other section is making up the average, as around here the crop is much smaller than for a number of years.

Another month has passed since the copy for these Notes was sent the last time, and still the weather is "very dry." While we have had two light showers, yet the surface of the earth is but slightly moistened, and the ground below the surface is as dry as chalk. Districts not far from us have had copious showers, but our section has been most unfortunate in that respect, and as a result many wells that have never failed us before are now on the "dry" list. [We presume that the recent general rains have since given relief.—Ed.]

A tumbler of syrup at the entrance, with cork chips for floats, kick the hive, and run —page 516, Sept. 1. I have often used this principle in allowing colonies to clean out a comb, even in September, and it always works well. Lean the comb close to the entrance late in the evening, stir up the bees a bit, so that they come out, and in the morning the comb will be empty of honey. Of course, this would not be safe with a weak colony, and the practice is not to be commended under ordinary conditions. Really I hadn't the nerve to tell of this rough-and-tumble method of having an odd comb cleaned out until I read that Dr. Miller did something almost as bad.

A few days ago while walking through one of my apiaries with a friend my attention was called to a small bunch of bees on the front of the hive. As the day was cool and cloudy my curiosity was aroused, and on examination I found about a dozen bees clustered around an old clipped queen. I surmise that she had been superseded and driven from the hive, although I have not looked into that hive since seeing the old queen on the front. It was a colony that I had marked for requeening, and I judge the bees have saved me the trouble, This is the first time, however, that I have found the old queen driven out, although quite often I have found one on the further side of the combs with the young queen in charge of the brood-nest. It would be interesting to know how bees as a *rule* dispose of their superseded queens.

As predicted last month, buckwheat has done little, and in three yards hardly enough for winter stores was secured. At the Altona yard, for some reason the buckwheat yielded better than usual, although the acreage was much less than around the yards nearer home. However, what little buckwheat there was around the yard in question was earlier than around home, and it always turns out here that the earlier buckwheat yields the honey. Another factor in the case is the fact that at the Altona yard the bees are mostly Carniolan, and much more populous than are the bees at the other yards where more Italianizing has been done. After the clover flow was over we had about five weeks of very dry weather with scarcely a drop of nectar coming in. In a time like that, the Carniolans keep up their strength much better than other races, and, as a result, were boiling over with bees when the buckwheat was ready. Any way, let the reasons be what they may, while the three yards nearer home have stored hardly any thing in the supers, the Altona yard has put up an average of about 40 lbs. a colony—enough to buy all the sugar that will be needed for the other yards, and then they will be very heavy for winter after having shared up with the other apiaries.

I wish to endorse most emphatically the closing paragraph of Holtermann's article, page 360, June 15, where he says, "Another desirable feature in any honey-knife is that, when laid down on a straight surface, the shank and point shall not touch the surface. In other words, the blade should be on a general curve instead of being straight." We have seven or eight knives, all except one of the Bingham type. I say, "of the Bingham type," but possibly the one that all prefer and use, whenever it is to be had, and is stamped "B & H," may not be, strictly speaking, a Bingham knife. Any way, that particular knife has a curved blade; and as to its superiority—well, I know friend Bingham would own up to it himself if I had him testing the different knives in our possession. We have knives bought direct from Mr. Bingham and others bought from dealers, and all of them are simply "not in it" when compared with the old "Bingham & Hetherington," purchased by my grandfather many years ago. Why the change, I wonder, as the former type of knife should be made just as well as the awkward ones that are sold at present? And as to material, that old knife will take an edge that would shave one if his razor happened to be on a "wire-edge." While we now use mainly the heated uncapping-knife, yet when any work is to be done in a hurry, and we have not the heating arrangement with us, the old knife is always hunted up, even if the others are on hand. Why can not Mr. Bingham and other manufacturers make us some of the old-patterned knives such as our grandfathers used to use?

Bee-keeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

Mr. O. V. Coulter, of Rifle, tells me of one more serious crime charged up against the English sparrow. Cleome, or Rocky Mountain bee-plant, was very thick, and lined the roadsides of Garfield County with its beautiful purple blossoms until the English sparrows came in thick, dusky flocks, picking up the seed on the ground, then attacking the pods of unripened seeds, thrashing them out, and devouring every one. As a consequence, cleome is becoming less plentiful year after year, and the time is not distant when none can be found at all unless the English sparrows are destroyed.

THE PRICE OF HONEY.

Colorado comb honey, graded closely and according to the rules, and packed in double-tier glass-front cases, has brought above $2.50 per case for several years. Where selling conditions were most favorable, $3.00 and more has been secured for car lots. The outlook is good for a fair price again this year. Early comb honey has easily brought $3.75 to $4.00 per case. Customers are becoming accustomed to paying 20 cts. per section for honey.

Extracted honey, sold locally in pint Mason jars, brings $2.60 per dozen. It is no longer necessary to sell honey at $2.40 a dozen, as has been the practice in the past.

THE HONEY CROP IN COLORADO.

Most of the reports I have received about crop conditions are fairly accurate; however, there are times when one which is misleading slips in. The honey crop on the western slope, which includes Garfield, Mesa, Delta, Montrose, La Platte, and Montezuma Counties, is but barely half a crop. Delta Co., which last year shipped seven or eight cars of honey, will not ship more than three or four this year; and Delta Co. conditions prevail on the whole western slope. The Arkansas Valley has had a fair crop, as has the Platte Valley, considering the number of bees to gather the crop. Northern Colorado would have had quite a considerable amount of honey to ship if so many bees had not been lost last winter, and if fewer had been moved to other States. There is one thing gratifying—the price of honey is very good, and those who have a crop are smiling.

BEE-KEEPING AND HOMESTEADING.

These western bee-men are well worth knowing. A more hopeful, hard-working, and conscientious lot it would be hard to find. The qualities that win here in this alternating desert and Eden are well brought out in the bee-men on the western slope in Colorado. A large percentage are on homesteads, waiting for the irrigation projects to be finished, when the water will raise the value of their land from $100 an acre upward. You will find small cabins and cottages, most of them quite small, a little garden, and lots of dry yellow or reddish soil, covered more or less with chico, shad scale, and greasewood. There is considerable waste land on most of the tracts, and the roads are not kept up as they will be in a few years; but most of my bee-keeping friends have several children, and I think everybody is far happier than if living in some great city.

The bee-men have honey-houses on their homesteads, and run for both comb and extracted honey, though comb honey predominates. Out-apiaries are operated as are the homesteads, as a rule, and are too far from good alfalfa and sweet-clover pasturage. The bees are now making the living for many a homesteader, and it will not be many years until these men will be quite well-to do. Most of them now rank high as bee-keepers.

FALL TREATMENT FOR AMERICAN FOUL BROOD.

The usual shaking-out method practiced during the honey-flow for the cure of foul brood is too severe a treatment in the fall after the honey-flow has ceased, as there is then no chance for the bees to build comb and store enough honey for wintering. It is hardly to be advised to winter colonies which show even the slightest trace of disease, as breeding goes on within the hive here in Colorado practically all winter. This practice works well in the Eastern States; but conditions are very different here. A better plan is to select combs of fully sealed honey and shake the diseased colony on these frames after breeding has largely ceased, in which case the disease will very rarely reappear. If there is but little disease in the apiary, there are probably as many queenless colonies as there are diseased, in which case the queen should be caged to the diseased colony, and the queenless colony and the diseased one shaken in together into a clean hive having starters. The queen is left caged with the bees in this clean colony for three days, when the combs of honey from the queenless hive may be put in, in place of the starters, and the queen released. This is the most economical treatment for diseased colonies in the fall.

Using Eight-frame Supers on Ten-frame Hives.

On p. 342, June 1, G. W. Joice gives a plan for converting an eight-frame into a ten-frame hive. After using both eight and ten frame hives side by side for comb honey, I changed to ten-frame. I use my eight-frame supers on my ten-frame hives by nailing a 1¼ x 1½ x 20-inch cleat on each bottom edge of the super with the top edge beveled to shed rain. Supers arranged in this manner have given satisfaction.

Buena Vista, Texas, June 11. J. W. LOWRY.

Conversations with Doolittle

At Borodino, New York

BEE-STINGS.

"Can you tell me what becomes of a bee after it has stung some one? I never stopped to think about it until the other day, when an old bee-keeper told me that every bee which inflicts a sting is of no use afterward, for stinging causes it to die soon afterward. Then I thought of having seen the poison-sac, and apparently part of the vital parts of the bee, adhering to a sting which was left in some mittens I wear when working with the bees, and how the sac was working, contracting, etc., to pump all the poison possible into the wound made by the sting."

"Until a few years ago most persons had this idea, arguing that, in leaving the sting, as a bee nearly always does when attacking an animal or person, and with it part of the intestines, poison-sac, etc., the result would surely be the death of the bee. This seemed so reasonable that for many years I felt that the prevailing idea was true, until one day, after a bee had stung me, leaving its sting, it came to the attack again and again, with all the fury and vengeance possible, getting in my hair and angrily singing in such a way as to make the cold chills run up and down the back of any but the most hardened individual."

"Yes, I know something of this. One day toward night I was working with my bees, with my veil and mittens on, when the hired man approached to ask a question. An angry bee, which had been hovering about, flew into his hair just behind his ear. He began to jump into the air, and then started to run around the house. I thought that, as soon as he reappeared, I would kill the bee before it reached the skin and had a chance to sting. I had hardly gotten to where I knew he would come, before he was there, shouting frantically, 'Kill him!' I had my hand raised to find the bee, but he could not wait to listen to that singing any longer, and he jumped into the air again, yelling more frantically, if possible, 'Kill him! Kill him!' going around the house with a more accelerated speed than before. When he came in sight again he halted barely long enough to hear that sweet song once more, when he was off on another circuit around the house, yelling with every bound, 'Kill him! Kill him!' The next time he halted, and I heard an agonizing groan or two, and then, 'Oh! I'm stung!' when he allowed me to capture the bee and take out the sting. I do not know that I ever had any thing amuse me as that did, even in spite of my sympathy for him. I knew something of how he felt; but the fact that he did not stop for me to get the bee out of his hair, and that he was, for the time, so utterly bereft of any reason, just from the siren song of one little bee, was too much for me."

"Yes, these experiences have an amusing as well as a pathetic side; but I want to tell you more about the bee losing its life from parting with its sting, and what pulls away with it. As the bee to which I referred, which was singing in my hair, apparently had no thought of dying, I carefully disengaged it and caged it with four or five others, just as bees are caged with a queen for shipment. At the end of a week there were no dead bees in the cage, and, so far as I could see, there was no difference in any of them, as the white thread-like substance generally left at the point of the abdomen after a bee parts with its sting had all become dried up or absorbed by this time.

"At another time, when putting up queens to send to Southern Texas (a journey which often takes a week or more), a bee stung me on the end of the finger, and immediately ran into the cage. It occurred to me that here would be a chance to test the theory of the death of a bee from the loss of its sting. Accordingly I marked this cage, and wrote the person, to whom the queens were going, about its contents, asking him to take particular notice of this cage to see if there were any dead bees in it. In due time the reply came that the shipment reached him in perfect order, without a single dead bee in that particular cage nor in any other.

"Several times since then I have tried similar experiments to see if such bees as had lost their stings were in any way inconvenienced thereby; and, so far as I can tell by means of confining them so as to know that I had the same bee, I can see no difference in longevity between such bees and those which have their stings. Whether they are of any use as honey-gatherers, or whether they are allowed to live in the hive without their weapon of defense, is not known.

"But before we part I want to say a word about getting the sting out of the flesh as soon as possible, so that all the poison in the sac may not be pumped into the system, thereby making ten times the pain and trouble necessary. My way of extracting the sting is to rub it out by a drawing motion against the clothing, if on the hands; and by a sliding motion of the hand, against and under the poison-sac, when on the face or any other part of the body. These motions will soon become automatic if adhered to, and the sting may be rubbed or pushed out so quickly that very little pain will be felt."

Filed Pin For a Grafting-tool.

On p. 738, Nov. 15, 1910, I described my pin transferring-needle. Since then I have devised a better one. The improvement consists in filing the pinhead sidewise, and on the end, leaving two small points. The trouble with the old one was in getting the larva on the pinhead and also in getting it off. There is no trouble with the new one. Set the pin in the end of a stick at a slant, with the points standing crosswise, and then you can catch them either way.

Salem, N. J. HENRY BASSETT.

General Correspondence

EIGHT AND TEN FRAME HIVES COMPARED.

Are all the Arguments in Favor of the Ten-frame Well Grounded?

BY O. B. METCALFE.

The cry is, "See the eight-frame hive go out and the ten-frame come in." It will go, too, if everybody joins in the cry, and no one says what can be said in favor of the eight-frame. Even a thoroughly good thing may lose its popularity and become almost entirely discarded if no one continues to champion it; and something which is not as good may become very popular if the crowd advocates it. No doubt when the eight-frame hive was coming in, its advocates were as enthusiastic about it as the present advocates of the ten-frame hive are now for their particular size of hive. I do not intend now to start out to champion the eight-frame hive, but I think that this is a good time to do some actual investigating. Some actual tests should be made in the locality where one intends to keep bees, and of the methods used.

Among the bees we bought, there were about one hundred small hives which measure 7¾ inches deep, 12¼ wide, and 17 long, inside measurement. The frames were 6¾ inches deep, 15¾ long, inside measurement, with a scant one-inch top-bar. The man who sold them to us said that they were among the best make of hives he had. I supposed that this was to sell them; but since then I have noted from time to time that they are the best comb-honey hives, and that the bees raise more brood in them than in the eight and ten frame hives of the standard size. These little squatty hives were designed for this locality by a man named Gathright, who was, before so much alfalfa was planted, the only successful bee-man here in the Mesilla Valley. What about the bees doing so well in these little hives, you ten-frame advocates? Is it possible that location has any thing to do with which hive is the best? I think it does.

In the matter of weight, the eight frame has an advantage over the ten which is of great importance to the man of ordinary strength only. This point alone is worth considering; but perhaps the most important points are that swarming can be more easily controlled in the eight frame than in the ten, and a small honey-flow can be forced into the supers, where, with a ten-frame hive, a good part of it would stay in the brood-nest in the form of a ring of honey around the brood, with the final result that, in the fall, when it is hard to go into the brood-nests, there will be too much honey there, which will candy long before spring, and have to be melted, comb and all. This may make some of my Northern brothers scoff; but even the eight-frame hive here in New Mexico, when it is run for comb honey the entire season, nearly always has altogether too much honey left in it when the new honey comes in the spring. The ten-frame hive costs more, takes more store room, and it takes more loads to move an apiary of them. It is too big for the brood-nest of an average queen after her spring egg-laying rampage is over, and not big enough during that time.

If you have a lot of eight-frame hives, keep them until you have done some fair testing for yourself. Do not buy a lot of ten-frame hives and mix in with them. We have some ten-frame hives among our bees, and they are a nuisance. Nor have I been able to see that they produce any more surplus. Give queens two stories (sixteen frames) to lay in during their spring laying-spell; and when they have quieted down, put on queen-excluders and make good use of the extra super of frames which you used as brood-nest at the critical moment. Then if you do not conclude that the eight-frame hive is about good enough, your location must be different from mine.

But what about those little hives of ours being better here than the eight-frame? Well, I do not think it is because the eight-frame is too big, but, rather, that the frames are not made as well in regard to economy of space. The frames in these little Gathright hives are not quite as wide as the standard frame of to-day, and nine of them fit nicely in each hive. Since the hive is only ⅛ inch wider than the regular eight-frame, this allows a lesser distance between the sheets of foundation, or the midribs of the combs, and this is the only reason I can see that the bees will fill these little frames with brood right to the last cells against the top-bars. Now, I suppose that this matter of width of top-bars was thrashed out before my time; but if some one will be kind enough to repeat some of the evidence I shall be glad to hear it. There are among our standard frames many odd frames with little narrow top-bars—some of them not more than ¾ inch wide. I wonder if it is because these frames are old and long in the service that they are filled with cocoons clear to the wood of the top-bars, or is it because they are so narrow that the bees could not use them to good advantage for storing honey, and had, therefore, to leave them in shape for brood. I rather think it is more the latter, for it seems to me that, whenever I take them out, they are well filled with brood. This is no new idea which I have drummed up for argument's sake. I have had my eye on it for the past two or three years, and now I want some one to squelch me with an overwhelming argument or an avalanche of data lest I begin trying to prove that nine frames in an eight-frame hive body is what we want instead of ten frames in a larger and more bunglesome hive.

Mesilla Park, N. M.

DO BEES REASON?

Some Interesting Incidents that Apparently Support the View that they do.

BY D. M. MACDONALD.

We talk glibly of the *instinct* of insects, and ascribe many of the marvels of the hive to a series of unknown faculties implanted in the bee from the beginning of time. It is an instinct in the bee to gather honey, to feed the larvæ, to cluster closely in cool weather, and, more closely still, in seasons of excessive cold. But there are many enigmas about the hive which dig down deeper than such superficial instincts; for bees frequently seem to reason out a point, and appear, after due deliberation, to come to some clearly defined resolution.

It should not be asserted that, because bees in general follow a species of blind instinct, they can not, when necessity arises, call reason to their aid, for the latter faculty can coexist with the former. They can act at times independently of any past experience, and progress step by step without having the ultimate end in view. Certain actions out of the usual routine, and which, so far as we know, were never before performed in the long course of the ages, arise tending to the well-being of the community, and perhaps the existence of the colony; and the workers rise to the occasion, and not only outline a plan but carry it out by regular gradations to a successful consummation. Here is surely something a step ahead of mere instinct.

A friend last season sent me a hive of bees; but the combs were insecurely wired, and so some of them broke down. On the journey, one of the combs, too recently built to travel safely, fell in a heap on the floor. The bees, even in their excited state, proceeded to stay the partly broken combs, and to buttress the parts leaning to one side, while they constructed supports from the masses on the floor. Every stay, support, pillar, column, and buttress differed from every other in length, breadth, thickness, and general shape, but each one seemed to me to be admirably adapted as a means to the end in view. The whole appeared to be constructed on a systematic *plan;* and the lesson taught me was that there was something more in the wise little heads than simple instinct.

On arrival I proceeded to make the best I could of the catastrophe, and demolished a good part of their edifice—I confess I did so with some regret. Then I *taped* all the best combs in the frame. Instinct taught the bees that it was advisable to join on the semi-detached parts of the combs to the fixed parts, and this they performed with wonderful precision and no little skill. The work went on for about two days, during which the tapes were left in position; but after, when the workers had *reasoned* it out that the fabric would bear the strain without extraneous aid, they cut them asunder and laboriously carried them outside the hive, reason apparently teaching them that they were unnecessary *now.*

A comb in an observatory hive gave way partially, and part of the top leaned outward. Instinct taught the bees to fix it to the nearest stable support, which they accordingly proceeded to do; but gradually it seemed to dawn on the intellect of a few of the workers that no secure hold could be obtained on the glass, and some prospectors proceeded to investigate the surroundings. Not for some time did the others desist in their attempt to carry out the original plan, but at last they did. The whole assemblage then had what looked like a good long "bee talk," during which some scouts visited the point from which the comb had broken away, and it looked as if they even came back and reported. At last a large body of workers started to construct pillars rising from the comb to the roof. Dissatisfied with this, after expending a considerable amount of labor on the scheme, the bulk of the workers started from the top and worked downward until they completed a firm stay. The whole proceedings from first to last appeared to be carried on along reasoned lines thus far. But there was still a further instance of reasoning powers shown. The part of the comb leaning over seemed to be an inconvenience or obstruction to traffic, and the bees set patiently to nibbling it away.

If bees send out scouts at swarming time to spy out the land and investigate as to the best and most favorable spot for the swarm to settle, they must have some amount, at least, of reasoning powers to enable them to search out the adjoining country, to decide on a suitable spot, to return to their companions and report the results of their investigation. Some information must be supplied on their return, acquainting the bees of the swarm as to which of several places examined is considered the best for the proposed dwelling, and this decision must be arrived at by comparative estimates. Here we have the fruits of reason producing certain results. Then when the throng rises almost instantaneously, some reason must guide them direct to the point agreed upon, which may be miles away from the old home.

These points are all most interesting, and a somewhat analagous case is the return of laden bees to a hive with stolen or newly discovered sweets. By speech, or some sense not gifted to man, other bees are informed where this source of supply lies, and many members of the sisterhood are led straight to the point of attraction, where they load up, return to the hive, and acquaint other members of the fraternity with the existence of the little eldorado which has been opened up for their benefit.

Huber, I think it is, describes how he placed an insecurely fixed piece of a comb containing about a dozen cells, tenanted by living larvæ, along with a number of workers. These bumble-bees instinctively, no doubt, tried to mount the comb to nourish their

young; but, finding its instability a bar to brooding, they tried to prop it up. Not being provided with wax they had nothing to serve as supports. What did they do? Mere instinct was at fault, for here was a dilemma which possibly no bumble-bee had ever hitherto experienced. They had to find a way or make it. This they did as a result of deductive reasoning, I take it. Two of the bees mounted the comb, stood on their heads, with their fore feet on the table, while their hind feet propped it up. The posture was so painful a one that fresh bees had to relieve their comrades, and this they did for about three days, when the experimenter relieved them by propping up the comb securely. "How could mere machines thus provide for a case which never occurred to bumble-bees before?" asks a philosopher commenting on this, and he concludes naturally that this was not a case of mere instinct, but of sound reasoning. Man would act in the same way, and would endeavor to prop up any falling fabric until some one brought beams to support it.

I can imagine mere instinct guiding bees to prepare natal cradles for their future queens, but what guides these same workers when the time is not yet ripe for the issue of the imago to imprison her in her cell until weather conditions admit the bees to trak? When the drones are slaughtered annually, a colony whose queen is yet unfertilized is preserved. Do the bees reason it out that this is their only chance of being saved from annihilation? Mere instinct would enable bees to build even the beautiful hexagonal cell; but what mystic power induces them to depart from the uniform procedure, break into transitional cells, and then gradually adopt drone-cell formation? Mere instinct induces bees to leave the hive for nectar when flowers secrete this sweet, and weather favors; but what teaches only a proportion of them to do so, while others remain to attend to the duties of the hive? When drones are bred in worker combs, necessity compels the workers to elongate the cell walls, as we see them when a drone-breeder, a fertile worker, or an unfertilized queen has done the egg-laying; but does mere instinct teach them to revert to the normal, and pare the cell walls down to the former depth? To me each and all of these operations look like the fruits of reasoning.

Banff, Scotland.

["Are Bees Reflex Machines?" is the title of a work issued by the publishers of this journal, that goes into the whole question very minutely. It is one of the most valuable and interesting works that have come from the GLEANINGS press. Price 50 cts.—ED.]

A RECORD OF THE LOSS IN WEIGHT OF 14 COLONIES IN A CELLAR.

BY J. M. WALKER.

I hand you herewith the table of weights of my colonies in the cellar last year. These colonies were all of uniform strength when put in the cellar on Nov. 24. They were in eight-frame hives *without* cover, having a ⅝ piece of pine board screwed on top of the brood-chamber. They came through with abundance of stores for spring use—plenty of them not having used any of their sealed stores. They had a short flight only, on Feb. 18, it being a warm misty afternoon.

	1910 Nov. 24	1911 Feb. 18	1911 April 4		1910 Nov. 24	1911 Feb. 18	1911 April 4
1	48	44	39	8	46	41	36
2	44	39	34	9	43	40	33
3	49	44	35	10	43	40	34
4	48	43	38	11	46	42	38
5	46	42	38	12	48	44	38
6	47	42	38	13	45	38	34
7	47	41	36	14	44	40	35

When my bees are fed with syrup, and ready for winter, I put a ⅝ pine board, as mentioned above, with three circular saw-cuts lengthwise through it on top. I put the regular cover over this; but then when bees are put away I lay the covers aside until spring. The three cuts in the board keep it from warping; and as the cuts are turned down they give a very slight passage of fresh air over the bees.

Another little scheme I have is to use a small strip to close the entrance in handling bees. The alighting-board is removed and the strip inserted. When bees are in place, a cork is first pulled from a ⅝-inch hole in the center of the strip, and a little later the strip is removed. In this way the bees do not fly out and make trouble. I leave the entrances entirely open in the cellar.

Owing to lack of space and good ventilation, these 14 colonies lost 1½ gallons of bees, by actual measure; but I expect to improve my cellar conditions very much the coming winter.

New Bethlehem, Pa.

THE BOISE VALLEY, IDAHO.

The Situation as it Exists there To-day.

BY R. D. BRADSHAW.

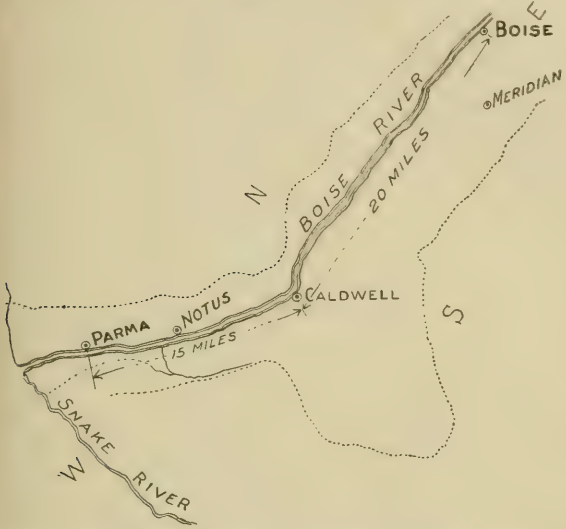
In response to an article by J. E. Miller, page 408, July 1, I wish to place before the readers of GLEANINGS the conditions in the Boise Valley as they are. To begin with, Mr. Miller states that there is lots of room here for more bees. In answer to this I have prepared the sketch shown herewith, showing the only section where bee-keeping at the present writing has been found at all profitable, and bee-keepers may judge for themselves.

Within dotted lines, a strip averaging two to three miles wide, is irrigated land, mostly bee-ranges; outside dotted lines, sage-brush deserts, now under reclamation; however, as yet there is but little or no range for bees, and will not be for some time.

Between Caldwell and Boise, a distance of 20 miles, as shown on the map, Messrs. Lyon, Atwater, Yoder, Dudley, Stark, Bixby, have a total of 2775 colonies, strung out

in a series of yards, about 150 to 200 in a yard; apiaries about two miles apart, and in some places less than one mile, according to the range.

At Caldwell, and to the south, Mr. McCarty, late of Colorado, has the range occupied with 1000 colonies, starting from Caldwell; and going on down the river two miles we have the yard of Mr. Sprague, another Colorado man, with 75 to 100 colonies; below this, about one mile, Mr. McCarty has another, 150. Going on down less than two miles, Messrs. Crowther & Powers have 250. Just across the river, and exactly 1¾ miles below, I own and run an apiary of 550 colonies.



This brings us to Notus, as shown on the map. Between Notus and Parma, 8 miles, we have the following yards: Messrs. Johnson, 40; Konke, 40; Coffin, 160; Powers, 300; Crowther, 250; Schultz, 250; Wendt Bros., 300; Paine, 300; Atwater, 250; Andrews, 50; Hall Bros., 150—a total of over 2000 colonies on a strip 8 miles long by 1½ wide. My own yard is a little below Notus, and could really be included in this district also. I ask any fair-minded apiarist, "Is it any wonder that Parma bee-keepers do not want any more additions to their number?"

He further states that we have no appropriation to fight foul brood. Here again he shows his knowledge to be limited. We have $1000 a year appropriated for this very purpose, and I, as deputy inspector, get $5.00 a day for my labor. Reference is also made that my apiary of 550 colonies is badly diseased. I am no exception to other bee-keepers in this vicinity, for we all have foul brood to contend with; but I am free to say that, at the present date, I have a clean yard.

No doubt it is the small farmer bee-keepers who aid in the spreading of foul brood, and Mr. Miller is no exception to this class. He is not progressive enough even to join our local association. He has never visited my apiary, and his knowledge of the conditions there are about on a par with his knowledge of the valley as a whole.

Notus, Ida.

THE SITUATION IN CALIFORNIA.

A Bountiful Honey-flow Surprised Many Who were Not Prepared for it.

BY C. W. DAYTON.

I ascribe the failure of honey last season, 1910, to a freeze we had in February of that year that destroyed the fungoid plants. It showed its effect not only on the sage but garden and farm crops also. Bees in this locality gathered plenty of honey to live on and for breeding purposes, but they seemed to be unable to use it. I have about 20 colonies that have gathered very little honey this season—not more than 10 to 20 lbs., while many other colonies have stored from 300 to 500 lbs. each.

The honey-flow, in this vicinity at least, was wonderful. We had very poor rains last winter, but there was a very heavy crop of bloom from all the honey-yielding flora. There was such peculiar weather that both the moisture and bloom were held back until settled warm weather arrived. The honey-flow was short but very abundant. It came spasmodically; and where the colonies were not ready with plenty of supers on the hives, and the bees already at work in them, most of the opportunities for storing were lost.

No colonies were kept on scales; but my supers average from 27 to 30 lbs. each, and I took from six to ten supers from single colonies within one week. I kept count of most of the colonies. The weather also continued unusually favorable. After black sage had yielded moderately for a few days, there came four or five days when honey seemed to be as plentiful as water. This slow yield developed the ripening ferment in the bees; and when the heavy flow came on, a colony of 5 to 12 lbs. of bees was able to "put away" honey very rapidly, so that there were from 10 to 30 lbs. stored during each of those days, just as I have seen them store honey from basswood in Iowa.

Black sage, balled sage, and mountain sumac all came separately, and had their heavy yielding days, and the hives were filled as if by magic. I never knew sumac to do as well unless it was in 1897. That season the yield was longer, but not as heavy as this year. What was lacking this year was bees and alert bee-keepers who could see ahead and prognosticate as to what might happen.

As I look backward over the past season I realize that there is nothing else in bee cul-

ture that is as important as plenty of bees and plenty of super room so arranged that the bees can or will use it quickly, and then await developments of the honey-flow. California yielded the honey this year, but the atmosphere harvested it.

With the very best of intensive management the colonies could have been built up so as to harvest 200 lbs. to the colony. But there was lack of faith all around. Bee-men were looking for something better than bees; but now many of them see that there was nothing as good as bees. What they lost would pay for two failures and disappointments. When there is such dwindling as there was last winter, the big bee-man is not in it. It requires skill and love for bees, and attention to little details, to nurse small and dwindling colonies. And the most abundant honey-flows often follow directly after such conditions of weather as produce weakened colonies.

Chatsworth, Cal.

GETTING THE BEES AS WELL AS THE HONEY FROM BEE-TREES.

BY W. C. MOLLETT.

A large part of this region is covered with timber, mostly beech, oak, and hickory; and it is very easy to find trees which contain swarms of bees which have gone to the woods. It is considered great sport to find the trees containing bees, and cut them to secure the honey and sometimes the bees; but a great many bee-hunters take the honey and leave the bees to perish of cold and starvation. I have always considered this as very cruel, and will not cut a bee-tree unless I expect to save the bees.

Last autumn I found a tree which had been cut about three days, and the bees left without any honey; and as the tree had been split open in order to secure the honey, the bees were in the open air without any shelter from the cold, and it was frosty every night, as it was the 20th of November. I took the bees to my home, about three miles distant, and put them in a hive with some empty comb, and fed them syrup made from common brown sugar. They came through the winter in fine shape, and in the spring they soon became as strong as the other colonies. Of course the trouble and expense amounted to more than they were worth; but I would never let bees die when it is possible to save them.

Once I had a very large swarm go to the woods, and I succeeded in finding them the same day; and as the weather was somewhat showery I did not cut the tree for about five days. By that time they had sheets of comb nearly three feet long, which were partly filled with honey and eggs. I put them into a hive with full sheets of foundation, and they worked surprisingly well, and gave a surplus of nearly 100 lbs., as the season was a very good one. As a rule it is easier and cheaper to start colonies when one has hives with movable frames than it is to secure those found in hollow trees, and I do not often take any trouble to find bee-trees. I am of the opinion that not more than one out of four swarms that go to the woods survive the first winter; and as a rule none of them live very long in the woods.

Stonecoal, W. Va.

BREEDING TO PREVENT SWARMING.

BY J. F. MUNDAY.

Twenty years ago I had great trouble with the swarming of my bees; but conceived the idea that, if I reared my queens artificially by Alley's method, and not during the swarming season, and from eggs produced by queens whose bees did not or were not much given to swarming, I might lessen that propensity. By continuing that practice I have succeeded beyond my expectations, as a swarm rarely issues from my hives. I keep the bees at work and contented by taking their surplus honey from them when it is fit, and by seeing that they have sufficient ventilation at the mouth of their hive (about ½ inch by the width of the hive), also that each hive is provided with a shade-board on its cover. Of course each hive has on it as many supers as are necessary—seldom more than two, usually only one.

METHOD OF PASTING LABELS ON HONEY TINS AND BOTTLES.

Possibly my method of sticking labels on my round honey-tins, bottles, and jars, may be interesting. I had a paste-pad just the size of my labels, 4x5½ inches. It is made of a piece of ⅜ board. On to the surface of the sides is nailed a strip of wood ¾ wide, ⅜ thick, and on it is tacked a piece of doubled cloth. On the other side (the back of the pad) is nailed across a piece of wood (edge upward) 2x½ inch, for a handle.

I have a piece of tin about two inches larger than the label, on which I spread thinly a little paste (which has in it a teaspoonful of honey to a cupful, rendering the sticking quality greater. The labels are in an even pile, face down. In my left hand I have a table-knife. I place the tip of the blade (flat way) on about the center of the left edge of the top label. I then take the paste-pad with my right hand, dab it on the paste, which is on the tin, and then dab the pad evenly on the top label, which I am holding down with the knife. After lifting the pad, which has left a thin layer of paste around the label, I again place the pad on the tin, which is spread with paste, and the knife on the table. I then take a bottle or jar and roll it over the pasted label. I rub it slightly with a cloth to be sure that it sticks properly. The operation is expeditious, and worth practicing. The pad is much quicker and better than a brush.

Woodville, N. S. W., Aus.



Fred W. Muth, of Cincinnati, demonstrating that bee-stings cure rheumatism.

STINGS AND RHEUMATISM.

A Rheumatic Man so Helped by Bee-stings as to be Able to Walk Without a Cane.

BY J. R. SCHMIDT.

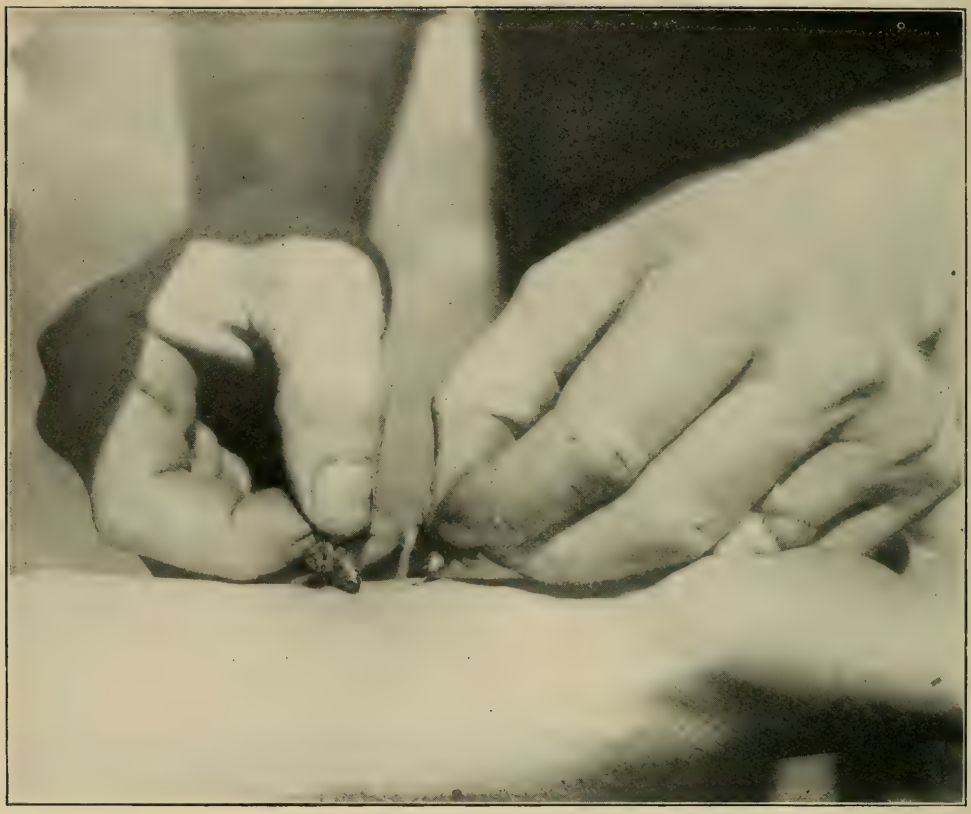
One of the most interesting experiments ever to be performed anywhere is that now taking place in Cincinnati, where a colony of bees is being used to cure a case of chronic rheumatism. That the sting of the honey-bee is a sure cure for rheumatism is being proven in the presence of many prominent physicians and representatives of the press.

This unusual treatment for rheumatism is being performed upon John Renner, of Cincinnati, who has been afflicted with the dread rheumatism for years, but now for the first time in years can walk about most sprightly without the aid of his cane. This wonderful improvement, the physicians say, is due to the formic acid, injected into the patient's system by the stinging bees, acting as a counter-irritant, and nullifying the rheumatic pains.

John Renner is a most willing patient to the unique treatment, though he has never before been stung by a bee. In spite of all this he takes the stings unflinchingly; and, sharp and acute as the pain is, he declares it is a pain of relief compared to the dull and incessant pains of his rheumatism. Twice each week the patient visits the apiary of Fred W. Muth, and is stung by the bees from three to five times at each of these treatments. The stings are applied by Muth to Renner's rheumatic arms and body where the rheumatism is most noticeable. The experiment with the bee-sting cure has been going on for two weeks, and the patient has just received 17 stings to date, which have transformed him from hobbling about on a cane to one who can walk almost as sprightly as any one.

Physicians who are watching the case declare that the formic acid will soon inoculate his entire system, and the rheumatic pains, due entirely to a poison in the system, will give way entirely to the poison of the bee-stings.

Cincinnati, O.



Bee-sting applied to the arm for curing rheumatism.

EDUCATING THE GROCER.

Some of his Objections to Handling Honey.

BY WESLEY FOSTER.

In the course of a little experience in selling honey to dealers, various objections were offered, some of them by hundreds of dealers, showing that there was and is ground for the objections. The writer has had all these to overcome in many cases, and will try to give the objections in the order of their importance as shown by the persistence of their repetition.

1. Honey does not sell here at all. I never have a call for comb or strained honey.

2. It is too expensive. My customers can not afford it. They buy corn syrup and New Orleans molasses instead.

3. There is no profit in handling honey. The jobber and producer want it all.

4. All honey is adulterated. The "strained" honey is sugar syrup flavored with honey "extract," and comb honey is artificial, made from paraffin and glucose.

5. Honey sells so slowly with me that it sugars or spoils, gets dusty, or the flies make a sticky mess of it on the shelves, and I finally have to throw it away.

6. Tiny red ants swarm after it; and as the candy-case is the only one which will keep out the ants, there is no place to keep the honey from them.

7. Comb honey dries up, evaporates, and the cells become empty.

8. It "combs," or all goes to wax in the glass jars (this is the explanation of "candying").

9. Honey is used only as a medicine for colds, sore throat, etc.

10. The honey raised here is not as good as that in the East. Buckwheat is the finest-flavored honey grown, and the color varies from clear white to a rich dark brown.

As I have gone over these objections given by grocers, and have analyzed them, I have found that they arise from three causes.

First, ignorance of the consumer concerning honey; second, ignorance on the part of the retailer; and, third, ignorance (or at least failure to prepare honey for the market properly) on the part of the bee-keeper.

Objections one, two, four, nine, and ten explain why customers do not order honey with other groceries, and all these objections can be overcome by education "honeyward." If we bee-keeepers had been as zealous as other "sweet-goods people," we should have a hard time supplying the

demand. There are very good reasons for this lack of advertising education on honey too: The profit will not permit as large an advertising fund as other lines afford.

The objections numbered one, three, four, five, seven, and eight, explain why the retailer does not sell more honey, if any at all. Some of these are mere notions, and others may have arisen from ideas gathered from newspaper stories of adulterated and manufactured comb honey. Most of them would never be expressed if the retailer had a better understanding of honey and its nature.

The objections numbered five and six are raised when the bee-keeper or dealer sells the retailer honey that has begun to candy or that is not put up in cases that will keep it away from dust and dirt. The writer has never seen a display-case for honey that would exclude ants. He has seen candy-cases made so that ants could not enter. This is an item too unimportant to call for a specially made case, as most of the honey is sold in the winter, when the ants are not abundant.

From these oft-repeated objections it can be seen where the trouble lies; where more emphasis must be placed in education for honey consumption, and where greater care must be taken to put up honey in a way that will preserve its qualities until all of it is sold. The bee-keeper can learn more about the sale of honey from grocers than by any amount of thought and theory. Ask the man who sells it, and then go further and ask the folks who eat it. In this way reliable pointers may be gained first hand, and they will prove profitable if followed.

Boulder, Col.

ANNUAL FIELD DAY OF THE MASSACHUSETTS SOCIETY OF BEE-KEEPERS.

BY J. M. LEWIS.

The annual field-day meeting of the Massachusetts Society of Bee-keepers was held July 15, on the grounds of Henry W. Britton, at Stoughton. The day was perfect, and a large number were present. The social hour was highly enjoyed. The company gathered in groups while eating their basket lunch and partaking bountifully of the coffee and ice cream furnished by Mr. Britton, who gave all present a cordial welcome.

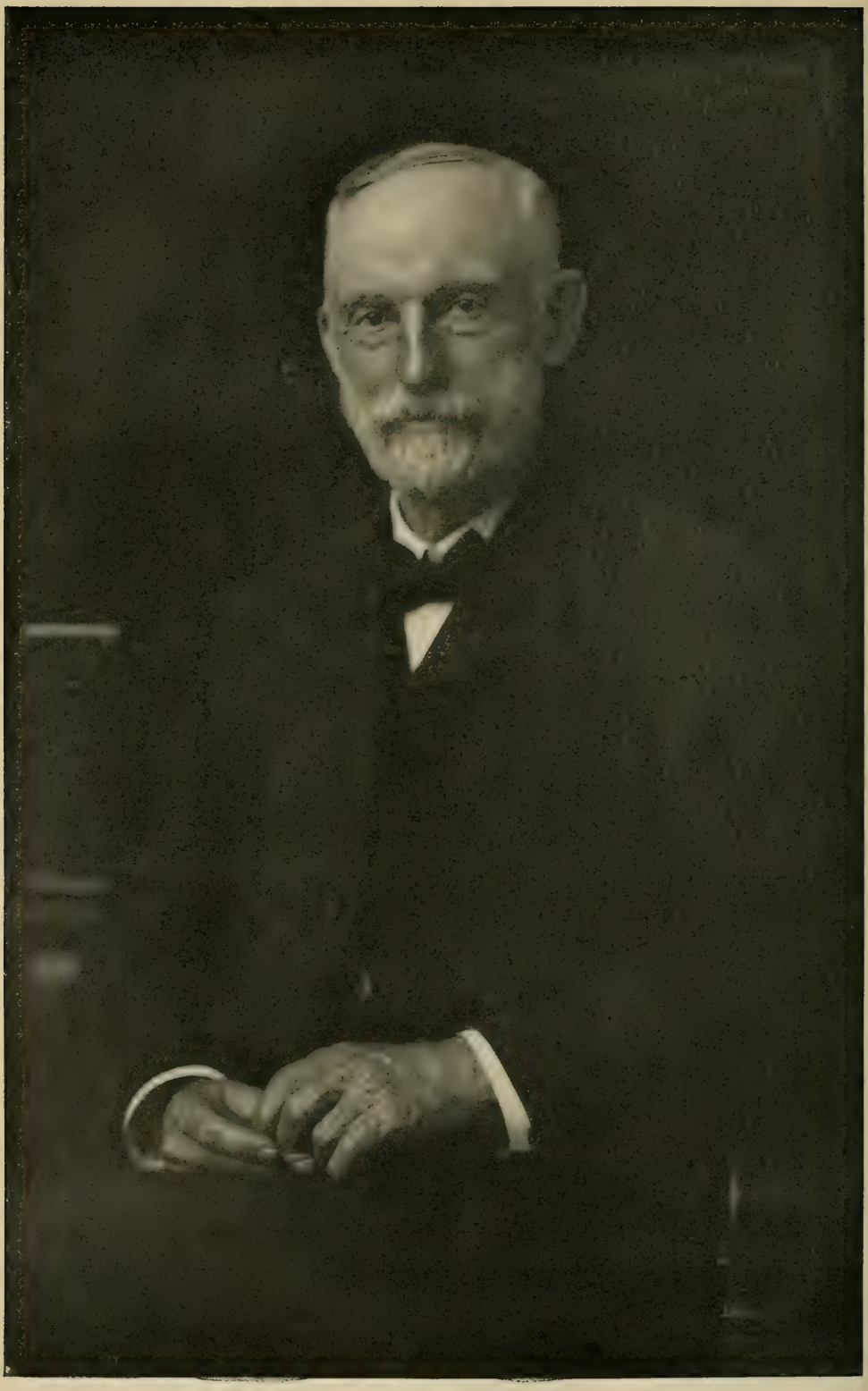
At 1:30 the meeting was called to order by the President, E. C. Britton. After the usual business was disposed of, Prof. Burton N. Gates, of Amherst, State Inspector of Apiaries, was introduced and spoke on apicultural advancement. He earnestly discouraged the use of the old-style hives, and strongly urged the use of the Langstroth hive with Hoffman frames. He advised the keeping of Italian bees, as he thought they are less liable to become affected with foul brood. He spoke of the Alexander method of building up weak colonies, and the spring handling of bees. His address was interesting throughout, and very instructive.

After the address the President showed a three-queen colony of bees in a large hive, with queen-excluders placed between the frames to prevent the queens from coming together, yet allowing the workers to pass throughout the hive. Honey and bees and observation hives were on exhibition, and the day was enjoyed by all present.

North Westport, Mass.



Field meeting of the Massachusetts Society of bee-keepers, held on the grounds of Henry W. Britton, Stoughton, Mass.



A. I. ROOT.



HIS WIFE AND HELPMEET FOR FIFTY YEARS.

TUPELO GUM AS A HONEY-PLANT.

Black Tupelo.

BY J. J. WILDER.

Three species of this great honey-plant have come under my observation, and they are all sources of honey from which my bees store a surplus. The first that usually comes in bloom is the black tupelo, which is prevalent along almost all of the water-courses of any consequence in the Southeast, and it grows thinly over the low forest lands that the streams cover when they overflow. Along the edges of the lake and small streams it grows more dense, as also in the low flat marshy places. These latter are very common, and large bodies of this plant can be found all along.

In the fall, after the berries have dropped, I have seen the overflow of water drift them up against logs, etc., until a carload or more could be gathered from one pile. This shows how thickly it is scattered over these parts.

This plant does not grow to any great size, but is usually slender and tall, and decays first about the tops; but when this happens, other limbs grow out below them and continue to bloom. The limbs are like stubble, even at their extremities, and the blossoms form about the new parts of the tender shoots. The berries, when ripened, are dark and about the color, size, and shape of a dried prune, although, perhaps, a little smaller.

The time for the honey-flow from this source is governed somewhat by the length of time that the swamps or lowlands are covered by water. If there has been no overflow in the early spring, the bloom will commence in March and last from twenty to twenty-five days. If there has been much rain, and the overflow has lasted for a considerable length of time, the flow is greatly delayed. The honey usually has a very good body, and is very light in color when first capped over, but begins to redden, whether still in the comb or extracted, and before long can be sold only for dark honey. When first gathered, the flavor is fine and mild; but it gets stronger until, when five or six months old, it is hardly fit for table use.

THE SCRUB TUPELO.

The above name is one that I have been using because I did not know its true name nor a better one. It is a very scrubby gum tree, almost never growing over twenty-five or thirty feet high. It resembles the white tupelo very much; the bark is smoother, and lighter in color than that of black tupelo, but not as light nor as smooth as the white tupelo.

This species of tupelo is also very prevalent in many sections of the Southeast, and is a honey-plant of considerable consequence. It does not grow in the same surroundings as the black variety, but is found along creeks, around ponds (as shown in Fig. 1), and along rivers which rarely overflow, and whose swamps are quickly dried. It will not grow under water nor on land that is constantly covered with water. It thrives best, however, where the water is not far below the earth's surface, and where the land is low, level, and drained by branches, creeks, and rivers.



Fig. 1.—The scrub tupelo of Georgia.

The scrub tupelo begins blooming near the first of March, lasts about twenty-five days, and is a sure yielder. For about fifteen days the flow is heavy. The honey is light in color, having a bright green hue which makes it an attractive article indeed; but it appears smoky in glass jars, which impairs its value as a fancy article when thus packed. The body is very heavy, and the flavor can not be excelled by any honey produced in the Southeast, being so mild that consumers never tire of it.

Fig. 2 shows a twig of this tree in bloom, the blossoms being similar to those of the other species. Each ball of blossoms contains both buds and flowers, all of which do not open at once, several days being required until they are out. Of course there are other balls of buds in all stages of development on each twig, so that the time of bloom is prolonged. In the open flowers shown, the nectar collects in such great quantities that one or more bees may gather a load on just one ball. The stamens, or pollen-producers, of the ball of blossoms protrude around the open buds.

This twig does not represent the bearing tree, but is very similar to it, although the latter forms its fruit or berries without bloom, save a small thin shuck about the end of the berry, with occasionally a pistil protruding. The flowering tree sheds its bloom, and continues its growth without bearing fruit.



Fig. 2.—A sprig of scrub tupelo, showing the shape of the leaves and blossoms.

THE WHITE TUPELO.

E. G. Baldwin, p. 175, March 15, gives a short description of this plant or tree, but says that it is confined to the swamps lying along the Apalachicola and Chipola rivers. I think that it really is more general in the Southeast than is usually supposed, because it grows in remote places along large streams where swamps either are not so dense, are covered with other forest trees, or are dried up and free from mud.

The bark of this tree is smoother and lighter is color, and the wood is much softer than the other varieties of tupelo. The tree also grows larger, and contains more branches, so that it is a greater honey-plant. The blossoms are similar to that of the scrub tupelo, but the honey has a yellow hue, and is more highly flavored.

I have never known or heard of tupelo honey granulating; but it gets very thick during cold weather. The nectar from these flowers is so plentiful that bees can harvest a vast amount of it in a short time; but the high dry winds may carry off a great portion of it as fast as it collects, which fact accounts for failures in the tupelo region. A. B. Marchant, who is an extensive producer of this honey, has said that this is the most delicate honey-plant in the South.

Cordele, Ga.

SMOKING BY RULE IMPRACTICAL.

BY J. A. BEARDEN.

S. D. Chapman, page 435, July 15, offers some new ideas. For instance, he suggests that the bees should be placed in such a position that they will face the smoke as it issues from the smoker; but as they do not



SOY BEANS AND EARTH-ALMONDS.

This row of soy beans was planted about the first week in June. The chufas, or earth-almonds, were planted about July 1. The picture was taken the last week in August.—See A. I. Root's department.

breathe as human beings do, through the mouth or nostrils, I don't see any advantage in this. As bees' eyes are immovable, and of a like substance with their bodies, I still fail to see why they should be smoked in this particular way, for I think that it would affect their respiration only when cool smoke is used; and if there was any considerable amount of heat to the smoke they would move away from it, to avoid the pain which comes to animate creatures by contact with fire or highly heated substances.

While I think Mr. Chapman is correct in his idea as to a sudden change of temperature having much to do with the handling of bees in a general way, there are many more causes, just as pertinent as this, which he could have applied equally well to his case.

To my mind it seems he could have said that, on a cool windy day, it is hard to get a sufficiently dense smoke from a smoker down to and into the cluster of bees; and if you do succeed, how quickly it is wafted away by the wind! or how rare a thing it is to find two colonies that are so much alike that you can't tell "which from the other" in behavior. I have yet to see the first colony that does not resent jarring, provided it has a good healthy queen therein.

As to smoking at the entrance of a hive, I think this is a matter of difficult solution, for I have found that, on certain occasions, and when one has to deal with bees whose hives are placed close together, the use of a very small quantity at the entrance is of decided benefit provided one follows up this entrance smoking by immediately removing the hive-cover and right away commencing to use more smoke beneath; for if one waits but a very short while, the entrance smoking loses the effect that is to be the most desired—viz., that of preventing the bees from alighting and clinging to one's clothing. If I am looking at a queenless colony, or one in which I desire to find the queen quickly, I seldom use any smoke at the entrance, nor do I like to use much smoke at all in such cases.

As to formulating any rule to use in smoking bees it is something that I for one do not believe will be accomplished by any one as long as a queen-bee dies and a new one takes the place of the old queen; for when this occurs it is very likely that a hitherto gentle colony will be transformed into a veritable hornet's nest.

Then, too, there is a tendency on the part of most beginners to overdo this smoking of bees at any time, partly from their lack of knowledge and sometimes from pure cowardice; but if one has fair common sense, and gets some black bees or Carniolans, and overdoes the smoking act once, he will be

apt to recollect that there is such a thing as overdoing a good thing, for either of these varieties is more easily excited than the sullen and stubborn Italians. Do not draw the inference that I dislike Carniolans, for I think they are good bees to use for the purpose of building up quickly in early spring, and when the early summer honey-flow is over they do not as nearly stop raising brood as do most Italians.

In the South we need young bees to come on in late summer as well as early spring, for then is the time when the moth-worm gets in its fatal work on the weak or queenless colony.

I am a user of the hot-blast smoker, but I believe most of us are too rash in our use of this very necessary tool, and are not as quiet and careful as we might be in handling our bees properly.

Harms, Tenn.

DRONES WITH RED EYES.

BY ALEXANDER TOMAN.

Red-eyed drones—what might this mean? A passing natural freak or evidence of a constant and lasting progress in the development of the Carniolan gray-banded Alpine bee which is accompanied by an increase in all the good qualities possessed by the above-named strain of bees.

A young Carniolan bee-keeper last year noticed a colony of bees in his apiary, which produced drones with red eyes. These eyes shine like rubies in a dark setting, the effect of the whole being quite strange and almost weird. The colony in which the red-eyed drones appeared was the strongest and the most productive in honey-gathering, in every respect the champion of all the many hundred colonies the young man possesses. This year the same colony again produced red-eyed drones, and it seems that the good qualities of the colony experienced even a greater development than in the past year. In the month of July this year another colony in the same apiary showed red-eyed drones, and this, too, is in respect to strength and honey production far above the average colonies of the apiary.

In one of its numbers of the past year the *Slovenski Cebelar* (*Slovenish Apiculturist*) contained a note which mentioned a very fine colony of Carniolan Alpine bees that was sold to some place in Germany, which had drones with red eyes. Nothing further was heard of the development of the breed which ensued from this colony, whether the offspring of the red-eyed drones showed constancy in their appearance and excellency which distinguished its mother-colony.

As the young Carniolan who is the possessor of the two colonies with red-eyed drones mentioned in this writing is an intelligent breeder of Carniolan gray-banded Alpine bees, who with the greatest zeal and enduring patience follows his calling, he will pursue with the utmost care and the eagerness of an expert the further development of the case, and all the accompanying circumstances which may, perhaps, result in an improved strain of Carniolans.

The name of the young man is Ivan Strgar, Wittnach, Carniola. He is connected with the Imperial-Royal Agricultural Association of Carniola in matters of an apicultural nature. He is now twenty-eight years old, has attended only the common schools, but by means of an iron will and undaunted perseverance has risen to the first place among the apiculturists of Carniola. For his achievements in the field of apiculture he has been granted at numerous apicultural expositions forty-four honors, some of which were of the first order, gold and silver medals, diplomas, etc. In activity, energy, and enterprise he is like an American "live wire," spending almost all his earnings in exhibiting his bees and apicultural products at expositions in Austria-Hungary and Germany, and in building an apiary which is the finest in Carniola. It cost 5000 krons ($1000) in cash for material, and was planned and built by himself. In the latter work he was assisted by his father and brother.

Not long ago the Carniolan Bee-keepers' Association had its annual excursion meeting in Wittnach (Slovenish, Bitnje), which was held in the apiary building of Mr. Strgar. Behind the rows of Carniolan original and American movable-frame hives that form the front wall of the apiary building is a room in which over a hundred men can follow the instructions delivered by the apicultural experts. In the second story of the building is a large well-lighted space for the extracting and storing of honey, wax, bee-keepers' utensils, etc. Every thing is clean and neat, and artistically arranged. The foundation, floor, and walks of the bee-house are of concrete, the woodwork of oak and pine tinted a reddish-brown shade. But the most ingenious feature of the whole is the arrangement by which the bees are provided with fresh flowing water. The rain water is collected by means of gutters and pipes in a concrete-lined basin which is located under the floor of the large room that is of the same material. The basin is four feet deep and five feet square. The water which flows from the roof of the building is clean, cool, and sweet, and is conducted by a small pipe from the bottom of the basin to a fountain in front of the front wall of hives. A minute spray of water falls on the moss which is arranged in the center of the fountain, and there the bees satisfy their wants for water.

The young apiarist constructs all the hives, frames—in short, every thing necessary for the successful keeping of bees and preparing their products for shipping and trading. For this purpose he has built, not far from the apiary, a little work-shop. Besides all this he is of an inventive spirit. Among other things he has invented a very effective honey-extractor. All the parts that in general are cast in iron (as wheels,

etc.) he made of hard wood. It works to perfection. He is extremely modest and reserved, and in a great country would achieve the greatest acknowledgment—a national fame in the world of bee-keepers; and last, but not least, money to "burn," which would occur only if he had no other fuel for the smoker; but the use of the latter is a very rare event, because he handles the bees in all his manipulations with bare hands and face. He is a busy bee among bees, and between him and the latter there seems to exist a silent sympathy.

The writer of this has asked him to mail some drones with red eyes to Dr. E. F. Phillips, of the Bureau of Entomology, Washington, D. C., for the purpose of investigating the entomological aspect of the case. As the Agricultural Department of the United States is the leading and foremost factor in all matters of an agricultural nature, I am satisfied that he will try to solve the strange puzzle—if such it may be—that nature has presented by producing drones with red eyes.

Carniola, Austria.

[This article was sent originally to Dr. Phillips, who prepared the following reply: —Ed.]

The finding of drones with red eyes is not usual; but, at the same time, such cases have been frequently seen and recorded. Drones with white eyes, and also with the two compound eyes united at the top of the head, are also recorded.

Queens without pigment in the eyes have also been reported. It is a well-known fact that drones and queens are much more variable in color and size than are the workers, and many more abnormalities are seen in their structure.

In the development of the eye during the pupæ stage, the eye is first white. Red pigment then appears, and finally the eye becomes practically black. This is due to the fact that there are two kinds of pigment-cells in the eye, and the ones forming red pigment seem to develop more rapidly than the cells producing black pigment.

In the case of drones with white eyes, no pigment is formed, and "albino" eyes are the result. Drones with red eyes are, therefore, in a sense, "half albinos," in that only one set of pigment-cells has developed color. Whether the various races of bees differ in the production of such variations is not known.

It is difficult to see how a variation of this kind could be of value to the practical breeder. If, accompanying the variation of red eyes, there appeared to be an increase in productiveness, the red eyes might be used for the purpose of determining whether the queens had mated purely. However, it is to be expected that such a character would be "recessive"—that is, if such a strain were crossed with normal individuals, in the first generation no red-eyed drones would appear.

Whether or not colonies with red-eyed drones are better than others, it would be most interesting to have queens reared from this colony and mated to red-eyed drones to see whether this character is inherited. If Mr. Strgar can find an isolated locality in the Alps where such matings can be made it will he an interesting experiment. In view of the fact that the colony is a valuable one as a breeder, he may be able to establish a better strain of Carniolans, even though the red eyes may be lost.

EVERY ONE HIS OWN INSPECTOR.

Get "Beesy."

BY D. E. LHOMMEDIEU.

Let me encourage you a little on the hit you make in editorial, page 448—"Every One an Inspector." You are right. Let me illustrate. Several years ago our folks had a steer worth $45 (now $90), that broke its neck, caused by the neighbors' dogs getting into the feeding-yard and chasing the cattle around. There was snow at the time, so we could tell by their different tracks. We went before the auditor and stated our case, in order that we might recover damage money caused by dogs. We stated that we and all of our neighbors had been paying a dog tax for years (and are still paying). Sequel: Our claim was the only one that was not allowed.

What has this to do with bees and honey? We saw that, in order to protect our stock, we must get out the old shotgun, which we did, and we found it the only safe way to go on with our business.

Moral.—To succeed with bee diseases, get out your old shotgun (smoker), and get "beesy" with the bees, and not wait too long for the inspector to do your work.

Colo, Iowa.

Leather-colored Italians vs. Common Black Bees as Honey-gatherers.

Here is the result of a test made late in the season with Italian and black bees as honey-gatherers. By August 1 I had taken off all my surplus-honey arrangements; but on the 10th I noticed that bees were bringing in honey from Spanish needle, so I put back on the hives supers with sections, and let them stay until this flow was over, which was the first part of September; then I took off all sections from both Italians and blacks (having about an equal number of each kind, or 45 colonies in all, in the same location). I weighed the honey separately, and found by actual weight that the Italians had averaged 11 lbs. to the colony, and the blacks only 10 *ounces* to the colony. Of course this was a small surplus for either kind; but considering the source, it was good for the Italians, as the Spanish needle was very limited in that locality, Grenada, Miss., 100 miles south of Memphis, Tenn. The Italians had done better than the blacks in the earlier part of the season; but I did not weigh the surplus of either, and can not give the difference in pounds.

This test put me decidedly in favor of the Italians, as the difference was great in their favor, and shows their superiority over the blacks in that part of the South, even in the latter part of the season.

Buena Vista, Texas. J. W. Lowry.

Heads of Grain from Different Fields

Cyprians and Their Characteristics; Why they were Discarded; Why Brood-rearing at Certain Seasons of the Year is Undesirable.

Are there any pamphlets about Cyprian bees that came out when they were introduced in the early 80's, or any other literature about them that does not simply dismiss them as being too cross? I have the old bulletin, No. 1, new series, but the information given about the actual management of these bees is meager. It must necessarily be so in such a short general treatise.

I seem to have much more trouble keeping them from swarming than with their tempers. The one colony that never got the fever gave me about 110 pounds of chunk honey, drawing the foundation, and at least seven out of the ten others would have done as well if they had never swarmed. I was much astonished when a bee-keeper a mile and a half north of me said he had no honey and no swarms so far as he knew. His bees were probably not quite ready for the dandelion flow, and in the drouth following did not build up for what there was of the clover flow.

I have some very wide L.-depth hives with the frames broadside. Cyprians kept in these are prone to fill the central combs chock full of brood, wholly neglecting a couple of combs at each end. But most of my brood-chambers are regular ten-frame width, with standard-length frame so deep that it nearly goes through a shallow super rim butted below the body. The capacity is about 15¾ L. In the latter type of hive they make a nicely rounded brood-nest such as ordinary bees might form in a ten-frame L. depth. This makes a far better winter nest, according to the ideas which have been advanced; and as the hive is more within the limits of possibility in handling, and is nearly standard in every thing but the length of the end-bar and the division-board, so far as I can see it is much to be preferred. I believe, too, that there is a slightly greater total amount of brood reared when the deep frames are used and the Cyprians allowed to gratify their desire to extend their brood-nest vertically.

I am much impressed with the idea that this race is overwhelmingly superior as honey-gatherers, under certain conditions—that is, on a long slow flow, or when drouth intervenes so as to stop other bees from brood-rearing. The clover and basswood are receding in most places, while from all I hear melilot and vetch are coming. This will finally make a slow flow from dandelion to asters in most places. The gentleman with whom I compared notes cellars his bees instead of leaving them unprotected on their summer stands, as so many do here, so there ought not to be a great difference on account of wintering.

Hicksville, O. BEN. P. EDGERTON.

[There are no pamphlets or bulletins, that we know any thing about, having to do particularly with Cyprian bees; but along in the early 80's, especially after D. A. Jones returned from the Orient, in 1881, there were many articles in all of the bee-journals concerning the merits and demerits of Cyprians and Holy Land bees. The Holy Lands seem to have been further differentiated into Palestine and Syrian. The only literature you will find relating to these strains was that published in the bee-journals during the time mentioned. In most of the text-books, a brief description of them will be found.

It was generally acknowledged at the time, that Cyprians were excellent honey-gatherers; but their bad temper, that showed itself considerably more at some times than others, put them out of favor with bee-keepers generally. We kept Cyprian and Holy Land bees at our outyards for years. We did not have much difficulty in handling them if we worked very slowly and not using too much smoke; but as both races ran excessively to brood-rearing, in season and out of season, whether they were stimulated or not, and as both of them were much crosser and took more time to handle than Italians, and did not very greatly excel them, if at all, in honey-gathering qualities, the demand for them grew less and less, until it ceased almost entirely. While it is very desirable to have a strain at times that will rear brood, and lots of it during the off seasons, at certain other times of the year it is better to have the queen let up. Generally speaking, in most of the Northern States it is not desirable to have brood-rearing continue in full force during the month of August; but it is well to have an infusion of fresh blood during September and October. By putting in young queens, and practicing stimulative feeding in September, and where the climate permits in October, Italians or Carniolans will rear all the brood that is usually required.

If you will try the Cyprians and Italians side by side year in and year out in the same yard, we doubt if you will find very much difference in honey-gathering. If the Cyprians do gather any honey in excess of Italians they are quite likely to use it up in *useless* brood-rearing, yes, worse than useless, at the *wrong time* of the year.* Italians, on the other hand, will conserve their stores by letting up on brood-rearing when they ought to do so; for it is wasteful to raise a lot of bees that will consume a lot of stores and then die before winter comes on.

To show you how easily you might be mistaken as to the working qualities of your bees and those of your neighbors a mile and a half away, we may say that of two of our outyards, only a mile and a half apart, and with exactly the same strain of bees in both, one lot crammed their hives full of honey, and the other had to be fed. Your Cyprian bees, you will see, might have been more favorably situated than the bees of your neighbors, for a difference of a mile and a half sometimes makes a big difference in the amount of honey gathered. This fact has been observed over and over again. Hence the importance of scattering bees in outyards.—ED.]

Baby Nuclei and their Care; Pollen Candy.

How many of your double mating-boxes is a man of some experience supposed to be competent to attend to? How many queens can be mated in a short season like ours?

Please give a recipe for pollen candy for late breeding.

How can we keep breeding going in September the same as in May? How can we protect drones? I want more stocks and queens.

Cranbrook, B. C. SUBSCRIBER.

[Our Mr. Mel Pritchard, with the help of one assistant, runs 250 twin nuclei; that is to say, 500 nuclei in all. He raises between 2000 and 3000 queens every year. If the season is early enough so that he can get queen-rearing operations under way by the last of May he can raise 3000 queens. Mr. Pritchard, however, is an expert in handling twin nuclei, and we doubt if the average person could do as well, at least without his experience.

In a small way we would not advise you to fuss with baby or twin nuclei. If you want to raise only queens for your own use, better by all means use regular Langstroth-size frames, or the frames you are using in the apiary about two frames to the nucleus. The baby nuclei require very close attention. They must be fed often; and the very act of feeding makes them subject to the attacks of robbers, which, by reason of their lack of strength, they may not be able to repel.

Recipe for making candy containing flour is as follows:

Into a porcelain, granite, or copper kettle (don't use iron) pour a quantity of granulated sugar and a very little water, and place it on the stove. Stir just enough to make a very thick syrup, and keep stirring until the sugar is all dissolved, but cease stirring after it is all dissolved. Heat it gradually until it boils, and keep a good fire until ready to take off. Care will have to be taken that the mixture be not overcooked. To determine when it has boiled enough, dip the finger into cold water, then into the boiling syrup, then *immediately* back into the water. When cooked enough, the film of syrup will crack on the finger when the joint is bent. If one hesitates to dip his wetted finger into the boiling syrup, let him dip out a little with a spoon and drop the contents into cold water. If the residue hardens so that it is brittle, and breaks between the fingers, the kettle should be lifted off; but the finger test is the more accurate. This is what is called "cooking to a hard crack." At this stage remove the syrup from the stove. It can now be poured into greased shallow tin pans, and when cooled hard it will have a crystalline rock-candy appearance if the work has been done right.

To make it into a pollen candy, add one-fourth part of wheat flour, stirring it into the hot syrup while it is cooling.

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* In some of the warm countries this habit of almost continuous brood-rearing is a good thing. Where the honey-flow lasts for months it needs fresh infusions of bees to fill in the ranks of old bees dying off.

We would not advise putting in flour if the candy is to be left in the hives all winter. If we remember correctly, pollen candy is liable to cause dysentery; but such candy is excellent for starting brood-rearing in early spring, before bees can get pollen from natural sources.

Queen-rearing and brood-rearing can be kept up in September by feeding 15 parts of water and one part of sugar by measure in outdoor feeders. Feeders will need to be filled two or three times a day, depending on the number of colonies in the apiary. In the fall or late spring, no artificial pollen need be given.

In order to preserve drones, colonies, where they are, should be kept queenless.—ED.]

Forming Nuclei by the Somerford Plan; the Kind of Buckwheat to Sow.

I was expecting to divide by the Somerford method. I opened one of the hives, and there was some brood and lots of bees. I closed the hive up, but did not catch the queen, as I thought it would be better to have more brood before dividing. The problem of preventing swarming is what concerns most bee-keepers; but I wish to make as rapid increase as possible. By the Somerford method it will be possible to make four new swarms from each of the old or original stands. I suppose it will be necessary to feed to accomplish this. Would you advise feeding before dividing when they are well filled with honey above?

If I can divide three stands and make four new swarms from each, that would make 15 in all, and next year the same. That would make 75 in all. I am thinking of keeping 100 stands as soon as I can increase them to that. Of course I can not get much honey from them while making increase at that rate, and I suppose it will be necessary to feed some to obtain such an increase. What would be your advice in regard to keeping 100 stands of bees in one place? This is a rich prairie soil. There is much clover most years. In the fall we have goldenrod, smartweed, Spanish needle, and other fall flowers. There is no buckwheat raised in these parts.

Will buckwheat yield much honey if sown in the corn? I suppose it would yield more honey if the corn were cut up; but it is not always desirable to cut the corn.

Does it pay to raise buckwheat for honey alone, without any consideration as to the seed? Which variety is best?

What kind of wax-press do you consider the best?

What kind of uncapping-can or device do you consider the best?

New Sharon, Ia., July 8. FRED BRIGGS.

[In forming nuclei by the Somerford plan, feed after making the division of the bees; but do not practice feeding until after the bees have made a hole through the grass and have become accustomed to the regular entrance. Before beginning the feeding, contract the entrances down to a space so that only two or three bees can pass at a time — not more than that at least. If you have the entrance too wide open, the bees may start robbing.

In following out this general plan we would go according to directions given by Mr. Somerford. In other words, make the colony queenless at least a week or ten days before forming the nuclei. This is very important.

Do not stuff the entrances of the hives too tight if the weather is too hot, notwithstanding Mr. Somerford's directions to the contrary. If the temperature does not go much higher than about 85° during the hottest part of the day it will be perfectly safe for you to follow out strictly the directions given by Mr. Somerford in regard to stuffing the entrances with grass or moss.

Another thing, when feeding give the bees about half a pint of syrup daily toward night. Do not give it to them during the day, as that will be likely to start robbing.

From the general description given of your locality we will say that you can very easily maintain a hundred colonies therein with profit. When a locality furnishes plenty of clover during the early or middle part of summer, and then furnishes a fall flow, we usually count it as exceptionally good. The fall flow simply saves a lot of expense for sugar in late feeding. Without a fall flow, one has to make an investment of hundreds of dollars for sugar.

With regard to buckwheat, we do not know what it would do when sown with corn, especially in your locality. You had better consult some practical farmer in your vicinity who has tried it. Buckwheat does not yield honey in all localities; and we would advise you to try it very sparingly at first, and determine whether the bees will visit it at all. Another thing, in some localities buckwheat will yield some years and not others.

With regard to the kind of buckwheat, Japanese is not quite as good for honey as the old-fashioned gray or silverhull.

With reference to uncapping-cans, we would recommend the German wax-press and uncapping-can. If you have very much uncapping to do, the Townsend is a most excellent machine. For a wax-press pure and simple, we know of nothing any better than the Hatch wax-press. Some bee-keepers like the Hershiser better.—ED.]

How Fast can Bees Fly? why Buckwheat Apparently Yields Only in the Morning.

On July 25 I sowed a patch of buckwheat. On August 1 it was just up, and on the 10th I was much pleased and surprised to see bees working on the new bloom just starting, as I was afraid I had been so late in sowing it that it was doubtful whether the bloom would develop before the frost. To-day (Aug. 16) it is a sight to behold, and a steady pleasure to listen to the hum of the bees. There are several questions I should like to ask you.

1. How long does it take a bee to fly a mile?
2. How long to discharge its load of nectar?
3. Do bees take a rest between times, or keep going all day?

I have four colonies a quarter of a mile from the buckwheat. My neighbor has twelve colonies 1½ miles away. Which will get the greater benefit from the honey-flow from this patch of buckwheat?

I have observed that very few bees work on buckwheat in the afternoon, while in the forenoon it is literally alive with bees. Does the nectar come faster at night with the dew? or does the hot sun dry up the honey-flow? In a cornfield adjoining they work all day on the tassels. Do they get nectar from the tassels or bloom of corn, or only bee-bread or honey-dew?

Kremlin, Wis. MERCIE R. WILLIAMS.

[1. Bees going to and from the field fly anywhere from twelve to twenty miles an hour. Perhaps fifteen miles will be a fair average if there is no strong head wind. This would be at the rate of a mile in four minutes.

2. We can not tell you just how long it takes a bee to discharge its load of nectar; but we suppose it might require a couple of minutes.

3. We do not know.

Buckwheat yields nectar just as fast at one time of the day as another. At night it continues secreting nectar, and continues till morning. The bees rush on it as soon as it is warm enough, clean up all the nectar, and, of course, as the buckwheat can not secrete fast enough to keep them going all day, there is usually nothing doing in the field from ten or eleven o'clock on until toward evening, and generally not until the next morning, when the buckwheat has had a chance to catch up. If, on the other hand, there is a very large acreage of buckwheat compared with the number of bees to gather the nectar from it, bees might be busy on it all day. No, the honey probably does not come any faster at night than in the day time; but it may be secreted faster when weather conditions are favorable than when they are not.

In all probability, bees gather only pollen from corn.—ED.]

The Glass-section Trade.

I have been asked by a New York firm to supply honey in glassed sections. As that method of putting up section honey is new to me please give me the *modus operandi*, probable cost per section, and the kind of shipping cases and crates needed.

Would it pay me to cater to that class of trade when I have averaged over 12 cts. per section, f. o. b. Allenville, on all grades shipped this year, and I can not nearly supply the demand? We have shipped about 10,000 sections so far, and are about half through.

Allenville, Ala. H. F. HART.

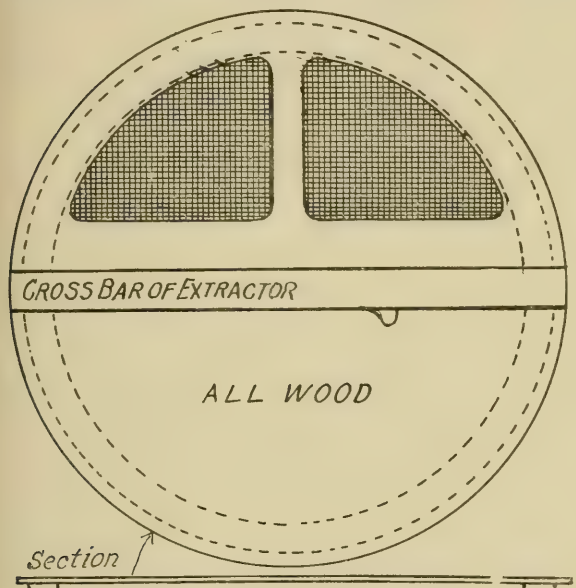
[At the price you will get for sections, we do not believe it would pay you to adopt glass sections, such as are used in some parts of the State of New

York. Sections for this purpose are made of four pieces of wood—top and bottom strips narrowed by one beeway. When the sections are taken off the hive, strips of glass cut the right size are slipped between the two projections of the side pieces of the sections. A fancy border of paper is sometimes pasted around the edge to hold the glass in place.

The glass-section business involves a lot of extra work, and we don't think you would be warranted in catering to that trade, as there is only a very limited call for it. You will find samples of English glass sections on page 120 of the A B C and X Y Z of Bee Culture, in the edition for 1908.—ED.]

A Substantial Extractor-cover.

I will tell you how I made a cover for my Root automatic extractor. I thought the cotton cover was the best thing out, and it worked well so long as there was no honey nor stickiness on the outside of the extractor; but it was not so easy to put on after it had been used a while, so it set me to thinking. I took the ⅜ basswood lumber from the



case that the extractor came in, and made a fine cover. At first I did not have wire screen in it; and every time I opened it, it did not smell nice and fresh. I leave the back half on all the time. Some cleats underneath, inside the can, keep the cover in place.

Arkona, Ont. I. LANGSTROTH.

Loss in Feeding Back to Produce Comb Honey.

What per cent of loss is there in feeding extracted honey to bees to make comb honey? I have some customers who will not use any thing but comb. I know where I can get some very finely colored and flavored honey. Please give me a definite answer with approximate estimate of loss. How late can this experiment be carried on? What is the best time of the year for it? Could choice clover extracted honey at 9 cents be fed to bees, and sold in the comb at 17 cents profitably?

Winchester, Ky., Aug. 24. J. M. WHEELER.

[The loss in converting good extracted honey into comb honey varies according to conditions. Sometimes there is no appreciable loss, and at other times it takes 5 lbs. of extracted to make 3 lbs. of comb honey. There is a great difference in bees. Some strains will do very well, while others are very poor at it.

Of course you understand the importance of thinning down the honey slightly with water before feeding back. For particulars, refer to "Feeding Back," under "Comb Honey," as given in the A B C and X Y Z of Bee Culture.

We doubt if it would pay you to feed back a nine-cent extracted honey when comb honey brings only 17 cts. The wear and tear on the bees, the expense of feeders, and time of the apiarist, would leave little or no profit. It is well, too, to take into consideration the fact that fed-back comb honey is usually not quite the equal of ordinary comb honey.—ED.]

Honey in Extracting-combs Candied while Still in the Hives.

Our bees have gathered a considerable quantity of honey which has granulated in the combs on the hives. The trouble seems to be general in this locality, for I have heard of the same thing from other bee-keepers. Some combs extract nicely, others not at all. In general, about one-third remains in the comb. I have not seen any thing like it in 20 years. Do you know of any way of getting the bees to clean out this granulated part without exposing the combs in the open? The reason I do not want to do this is because foul brood is very prevalent in the neighborhood; and although my bees are free from it, so far as I know, yet I do not feel safe in taking any chances.

The honey in the brood-nest is, most likely, in the same condition. How will that do to winter the bees on?

AUGUST F. KOCH.

Amana, Ia., Aug. 3.

[Dip the combs, after uncapping, in warm water; place them in a super on a hive, and feed back. It may be necessary to repeat the dipping several times. We would not advise trying to winter on honey candied in the combs.—ED.]

Smoking at the Entrance; the Hand Switch Bottom-board.

We are running several hundred colonies of bees as does Mr. Chapman, p. 435, July 15, and have not once this season insulted a single one by pouring a cloud of smoke into their front door. I am at a loss to understand why text-books and some writers advise smoke at the entrance.

I should like to ask for reports on the Hand switch bottom-boards. I would not give a cent for the opinion of one who has two or three powerful colonies in his back yard when it is probable he does not know what a powerful colony is; but if such men as Crane, Coggshall, Holtermann, Scholl, Gill, or any of *that* class think enough of the idea to try it, let's hear from them.

Birmingham, Mich. A. W. SMITH.

Why Queens were Slow about Laying.

I see by reports from different parts of the country that queens were slow this year in brood-rearing early, resulting, in this locality, in a small working force during our short clover flow.

Detroit, Mich. A. E. HASSELBACH.

[As to why queens were slow about rearing brood, we think it was largely due to the very hot weather bringing on a drouth early in the season. That early drouth stopped practically all sources of nectar. Queens will not lay, and bees will not rear very much brood unless there is either a big supply of stores in the hive or unless nectar is coming in little by little.—ED.]

Dead Brood Being Thrown Out in Front of the Entrance.

In the morning the alighting-board is covered with dead brood in all stages of growth, from the smallest to perfectly formed bees ready to step out and go to work. Please advise me what to do.

Kellettville, Pa. W. H. CARBAUGH.

[There are four (possibly five) conditions that might account for the dead larvæ in front of the hive. 1. The presence of the moth-miller, or, rather, moth-worm, if the bees are blacks or hybrids; 2. Brood that had been chilled some cool or cold night, and, consequently, died; 3. Brood affected by disease; or 4, brood that had been poisoned by something that the bees had gathered. Without

knowing more of the conditions, we could not indicate which is the probable one. If all the brood dies and continues to die when it reaches a certain stage, you would do well to send samples of it to Dr. E. F. Phillips, Bureau of Entomology, Washington, D. C., to determine whether disease is present. There is still a fifth condition that might be responsible for the trouble, namely, a weakness on the part of the queen. This is hardly probable. If the bees are blacks or hybrids, examine the combs carefully to discover whether there are any galleries of a moth-worm.

In view of the fact that at this time of year there are likely to be chilly or cold nights, and too few bees to hover the brood, we would favor the belief that the brood had been chilled. This seems more probable than any of the causes mentioned. If you had been examining the hive, and the brood had been exposed on a raw chilly day, you would need to look no further for your trouble.—ED.]

Will Queen-cells over an Excluder Induce Swarming?

On page 490, Aug. 15, this question is raised, and Dr. Miller is of opinion that, if the upper story is sufficiently removed from the bees to cause a feeling of queenlessness, it will be too remote to cause swarming below. In many cases cells above an excluder seem to do no harm, and are common enough when brood is raised into an extracting-super. As a general thing I think the bees tear down these cells before they hatch. If they do hatch, it occasionally causes trouble.

This summer I reared a stick of Doolittle cells in the super of a strong Italian colony, placing the cells between two frames of unsealed brood. A very light heney-flow was going on; in fact, the supers had just been put back after the first extracting, and they had only a few pounds of honey in them. At the proper time I removed the cells; but it appears that the bees, having their hand in, had also started several cells of their own on the frames of brood. I did not know this until later, however, and these cells hatched. My first intimation of any thing abnormal was on seeing the colony swarm. It had shown no swarming inclination during the clover flow, and I was proportionately astonished. I hived the swarm, however, and looked through the old hive, thinking that I could find some good queen-cells which would be useful just then. To my surprise, however, I found nothing more than three cups, each with an egg in it. I then examined the super, and discovered the hitherto unsuspected cells, and also a fine young virgin, just hatched. I removed the excluder, allowing her to mate.

Now, it seems clear that this colony had no intention of swarming until forced, as it were, by the hatching of the cell above the excluder. Then they must have hastily constructed cups, in which the queen deposited eggs and the swarm went off. Why they did not do away with the virgin is one of the mysteries of bee nature; but it is clear that they never would have swarmed but for the hatching cell. In future I intend to see that no cells are allowed to hatch in the super.

Stouffville, Ont. F. L. POLLOCK.

Did the Bees Steal the Eggs from Another Hive?

Early in the spring of 1910, when the bees had reached the point of breeding rapidly, and long before we were thinking of swarms, I found a swarm hanging on the grape-arbor. The cluster was smaller than the average. As I was much surprised, I looked over the colonies to see where it could have come from so early in the season, and finally discovered a colony with only a very few bees. On examination I found a fair amount of brood, but all drone and nearly all in worker-cells. There was not a cell of worker brood in the hive, and I examined the combs carefully. After removing the queen from the swarm, the bees returned to this hive. Now, the remarkable thing about this hive was that there was a recently hatched queen-cell, and a fine one it was too. In hiving the swarm I found a young queen, but there were no young worker bees. They were given worker combs, and in due time the queen began laying. As the bees were old, reared the previous fall, the colony became quite weak before the young bees emerged; but it built up well during the season. I purposely gave them no help, as I wished to see if the queen was of any use. Some time last fall, however, they evidently superseded the queen, as this spring a new one was on duty, and I am keeping this queen to see if she will be of any value to me the coming season.

Now, where did the egg come from that produced the queen reared in that cell? Did the old queen, by a mighty exercise of will power, lay a single worker egg where it was so badly needed to save the colony? or did the workers purloin an egg or larva from some other colony? Did the bees by their intense desire transform a drone larva into a queen-bee?

Port Orange, Fla., Aug. 2. J. B. CASE.

[There are two ways to account for the presence of this queen-cell. It sometimes happens that a good laying queen will begin to fail. This is shown by an increase of drone brood and a decrease of worker brood. The relative disproportion continues to increase until there is almost no worker brood but a great predominance of drone brood. It is possible in this particular case, that just before the queen failed entirely to produce worker eggs, the bees took one of those eggs and reared around it a supersedure cell. Ordinarily we may say, however, that bees would not allow such a condition to go from bad to worse for so long a period. The presumption is that they start supersedure cells about the time the drone-cells begin to show up prominently. We would, therefore, be inclined to favor the opinion that in this particular case the bees stole an egg from another hive.—ED.]

Honey-pumps Attached to Power Honey-extractors.

I am interested in centrifugal pumps to raise the honey from the extractor to the tank. Are they a success for that purpose?

Modesto, Cal. D. J. GRABILL.

[We are using a centrifugal pump for pumping honey in our honey-bottling department, and are very much pleased with its working. Of course you will need an electric motor or a small gasoline-engine to drive the pump. The pumps we use are the centrifugal type with a one-inch outlet. Power extractors are now being equipped with centrifugal pumps. R. F. Holtermann, of Brantford, Ontario, has a twelve-irame automatic extractor with a centrifugal pump, the whole operated by a gasoline-engine. The advantage of this arrangement is that the honey is pumped out of the extractor just as fast as it accumulates in the bottom of the machine, and then can be delivered to any height desired, or into any can. It is then not necessary to put the extractor up on some high bench so that the honey will run down into some can. In fact, the machine can be placed on the floor, on a level with the rest of the work, and the honey can then be elevated by means of the pump to a tank in an upper story of the building if desired.

We predict that the honey-pump has come to stay. There is no reason why it will not handle honey just as well as it will handle oil or any other product in a liquid form or semi-liquid condition.—ED.]

Smoking Bees at the Entrance Does Not Pay.

I agree with Mr. Chapman in all that he has said, p. 435, July 15. During my 14 years' experience in bee-keeping I have found that smoking bees at the entrance is a mistake except in the very rare case of the hive getting a severe jar, by accident or otherwise, when, in some cases, the bees pour out from the entrance, and, if not sent back by getting smoke in their eyes, they will make their anger felt unmistakably.

In handling bees in my apiaries, which I run for profit and not for amusement, I always have a smoker ready, but rarely use it.

I think the advice to a young bee-keeper, to begin manipulations with two puffs of smoke at the entrance, is the worst counsel that can be given.

The answer to the question, "Does it pay at any time?" should be "No," as the cases requiring it should be very few, and may be considered a negligible quantity. C. NOEL EDDOWES,

Aplarist at Government Farm School, Jamaica.

Halfway Tree, Jamaica, B. W. I.

[If a beginner uses no smoke in opening a hive he may come to grief. A good deal depends on the time of day and the bees. We would advise the beginner to use a little smoke when opening hives under all conditions; then experience will tell him when he can use it sparingly or not at all.—ED.]

Our Homes

A. I. ROOT.

Behold the Lamb of God that taketh away the sin of the world.—JOHN 1:29.

There is none other name under heaven given among men, whereby we must be saved.—ACTS 4:12.

Thou shalt not commit adultery.—EX. 20:14.

What therefore God hath joined together, let not man put asunder.—MATT. 19:6.

Our first text has always been a favorite one of mine. It has been to me one of the most hopeful texts in the whole Bible. These words were uttered by John the Baptist. It seems to me that even John himself did not begin to realize the wonderful and *tremendous* truth embodied in that brief sentence of only a few words. Well, dear friends, it has within just a few days come to me that not only are these words *true*, but, still further, nothing else in this whole wide universe *can* take away the "sin of the world." Other things have been tried and are being tried; but the Lamb of God is the only remedy and the only *cure*. In our second text we have the words of Scripture to indorse this very thing. These are the words of Peter after his baptism and new birth: "There is none other name under heaven given among men, whereby we must be saved." And the more I see of the world, the more I am convinced that there *is* no other safe and sure remedy for sin.

Some years ago a great discovery was made here in a certain part of Ohio, called the "gold" cure, and a good Christian, a reader of GLEANINGS, wanted me to help it through these Home papers. He wanted me to help poor struggling humanity out of the bondage of a fearful appetite, by administering a *drug*, the gold cure I asked him to go to the pastor of his church and get an endorsement of the work the gold cure was doing. A Congregational minister gave me a very favorable report. Then I asked this pastor of the church if the folks who were cured by the gold cure became Christians and united with the church. He seemed to think I was demanding too much, and replied something like this: "Why, Mr. Root, you might as well insist that a man who has been cured of typhoid fever should become a Christian when he gets well." I spoke of it here in these pages; and I said the man who had been cured of typhoid fever, or any thing else, would do a very sensible thing if he would become a Christian and "give God the praise" when he got well. You notice I could not accept the idea that there was any real substantial cure for any thing unless the "Lamb of God" came in somewhere sooner or later. Most of you probably know how the gold cure has turned out. A good friend of mine, who spent quite a sum of money in going to the gold-cure sanitarium, seemed all right for a few weeks or a few months. He finally, however, was back to his old habits. In talking with him about it afterward he said something like this: "Mr. Root, there has never been any thing invented, and never will be, that will prevent a man from getting drunk when he *takes a notion* to do so."

There it is, friends, and there is a whole sermon in that little speech. The only cure or remedy is to take away the disposition to wish to get drunk—to be born again, as Jesus expresses it; and only the Lamb of God that taketh away the sin of the world can bring about this new birth. Of course, much may be done to help the sinner by getting rid of the saloons, and by getting away from bad companions and removing temptation; but so long as the disposition remains the same, to use the language of our text, "There is none other name under heaven, whereby we must be saved."

Well, what brings this whole matter to mind this morning is a notice in the papers, which most of you have seen, to the effect that Upton Sinclair and his wife are going to part; and the strange part of it — the *unprecedented* feature — is that Upton, we are told, whom I have held as being almost a model in these pages, sits by calmly while the wife admits she would like to leave him and go away with another man who is also one of the little crowd of three. You will remember there has been a lot said about the "unwritten law." Somebody has undertaken or succeeded in "alienating" the affections of the wife—perhaps the mother of the family.

The lawful husband, whose home has been wrecked, or is about to be wrecked, shoots down the assassin, or the man who is worse than one. He shoots him down because he has robbed him of something that silver and gold, and not even millions of money, can ever repay. The community and the courts let him go scot free—at least they do sometimes; and the excuse given is what has been termed the "unwritten law." (In this case, Upton, instead of shooting the man, as I understand it, sits with them a consenting party.) Of course I do not justify the shooting. I do not believe it is best to take the law into one's own hands under any circumstances—that is, unless a midnight assassin might shoot you unless you shot him first, or unless he might shoot your wife and children unless you killed him first. To tell the truth, I am not sure that even this is the best and proper thing to do, for it necessitates keeping a loaded gun or pistol in the home.

In Our Homes for July 1, 1910, I quoted from Upton Sinclair in regard to his starvation remedy; in fact, I had quoted him quite at length before then. I spoke about his emancipating his good wife from the drudgery of preparing three square meals a day. In commenting on his starvation cure I said, "Who is Sinclair, and has he been a sensible man hitherto?" At another time, when I indorsed his articles in regard to securing health by the use of simple food and

simple ways of living outdoors, I said that, so far as I could gather, Mr. Sinclair was not a Christian. I wondered that a man should be doing such philanthropic work for the world and still refuse to acknowledge the claims of the Lord Jesus Christ. I confess I felt afraid of him, and a little suspicious too. Now imagine my consternation and the pain I felt to see the following in the Cleveland *Plain Dealer*, sent from New York, Aug. 23:

Upton Sinclair, author and social colonizer, in a surprising statement to-night announced his intention to bring a suit for divorce. In his statement Mr. Sinclair declares that his wife this morning wrote him a letter so clearly indicating her affection for a certain young poet that he has no hope of a reconciliation.

The action of Mr. Sinclair in giving out such a statement surprised his friends and co-workers in the social colony of which he is the head. He has repeatedly given his views on the marriage vow and ties, and some of these views seemed to indicate a belief on his part that husband and wife could at any time separate should they find the marriage burdensome. On one occasion Sinclair said:

"When my wife and I fell in love with each other we talked the whole marriage business over very conscientiously. We both hated the idea of being tied together by either a religious or legal ceremony, and we tried to make up our minds to set the right kind of example to the world.

"But we knew Mrs. Sinclair's father and mother would go raving crazy if we did what our consciences told us was right; so, to ease their minds, we let some one mumble a few words over us and made them happy. We are married, and now we have seen the world and know a great many married people, and we are a good deal ashamed of being married ourselves.

"Marriage in this day is nothing but legalized slavery. That is the most polite word to call it, I fancy. The average married woman is bought just as much as any horse or any dog is bought."

We can forgive Upton Sinclair for being like many other good men—a socialist; but I do not know how we can excuse him for being a "free lover," if the foregoing statement is true. Away back in my childhood there was some sort of sect that had a brief existence (thank God it was brief) who advocated free love; and if I am correct this thing has come up a few times since; but humanity, I am glad to say, frowned it down. There are, or at least used to be, quite a few who did not accept the gospel of Christ Jesus; but all of these, with very few exceptions, held fast to the marriage relation as handed down to us by our ancestors and the sanction of the Holy Scriptures. But Mr. Sinclair coolly says, if the report above is true, that he and his wife would never have been married at all, but they finally did have some words "mumbled" over them in order to keep Mrs. Sinclair's father and mother from going "raving crazy" (let us thank God Mrs. Sinclair had a father and mother who were sensible), and, therefore, now propose to part! If there is any thing in the whole wide universe connected with humanity that should be held more solemn and sacred than the marriage relation, I do not know of it. One of the papers has intimated that Mrs. Sinclair has a child; but a book he put out in regard to health gives not only a picture of himself and wife but of three children. Just think of the mother of three children, and a mother who has posed before the world with her husband as a reformer on the matter of diet, and as a leader toward higher and better things—think of such a woman proposing to leave her husband and children and go off with a "poet" just because she took a fancy to him!

History tells us again and again of good, faithful, and honest men who were proof against all the temptations that money could offer. In the shameful exposures now going on in Columbus in regard to the senators, the papers tell us that when they got hold of a man who could not be tempted with *money* they employed some skillful woman of good looks and winning ways (but of doubtful character) to do the work. Ever since the days of Adam and Eve, Satan has played havoc and ruin among the human family by means of what the Bible terms the "strange woman." Here is what the Bible says about it:

Hearken unto me now therefore, O ye children, and attend to the words of my mouth. Let not thy heart decline to her ways, go not astray in her paths. For she hath cast down many wounded; yea, many strong men have been slain by her. Her house is the way to hell, going down to the chambers of death.

Mrs. Sinclair is a very handsome woman. When they gave her picture in *McClure's Magazine*, fixing her up with all the skill that these folks who picture handsome women bring to bear, I said to Mrs. Root I was afraid that Mrs. Sinclair's good looks, without Christ Jesus in her heart, would bring trouble. We do not know who is most to blame—the woman or the "poet." When he found out that Sinclair himself had no objection to his making love to his wife—a married woman and a mother—of course he was not slow in taking advantage. When I was a child they used to have a fashion of suggesting and sometimes using "tar and feathers" for such men. I am glad the fashion has been done away with, along with other savage and heathen customs. Instead of tar and feathers, the scathing criticisms and sarcasm seen in the daily press ought to be more keenly felt than the tar and feathers. Sinclair and his wife and this poet (he is not worthy of having his name mentioned) are getting enough of it. I am getting to be what the world calls an "old man." I have seen considerable of humanity. I have been through the mill. I have felt Satan's claws. The scars of his clutches may not show on my body; but they have been left on my conscience and on my spiritual life. There has been a good deal said in regard to the evil the daily papers are doing in publishing crime. This may be true; but I am sure, notwithstanding, that our daily papers are doing us good in telling us about the downfall of men and women, and *why* they fell. They listened to Satan. Miss Florence Richards, in a temperance talk last night, Sept. 17, said some people do not believe in a personal devil, they declaring it all a myth. But some good woman replied by asking who it was, then, or *what* it was, that was at the bottom of all the crime and misery that are

going on in the world. Now, this woman whom we are discussing has got hold of a silly or crazy fancy, to the effect that that poet is a better man, or that she could be happier with him, than her own husband. It is simply Satan's work to wreck and ruin the lives of all three. This woman will see her mistake and blunder, and become tired of the man in a very few months or weeks. History is full of such cases. It is a species of infatuation. Satan pictures with great skill and eloquence some qualities that a woman does not possess at all; and after an elopement or runaway, or something of that sort, *both* of the stupid idiots soon find out their mistake; and some of them have good sense enough to go back and do all they can to right the great wrong. But *it can never be done.* A certain bee-keeper who, before he died, stood quite prominently before the world, became enamored with the good-looking *wife* of another bee-keeper whom he met at a convention. She was the mother of quite a family of children. This vile fellow (we can not call him a man) set to work systematically to persuade this poor foolish woman that her husband was not her equal; that her surroundings were not what she ought to have; and finally, for his sake, she consented to leave her home, a good faithful husband and children, and go off with a "strange man." It was not a *strange woman* in this case such as we have described in the Bible, but it was a strange man whom nature had endowed with an unusual faculty in the way of making himself agreeable. The poor deluded soul came to her senses in *just a few hours.* She came back to her humble little home (crippled, or *worse* than crippled, for life), and on her knees begged piteously to have the poor wronged husband and father forget and forgive her awful and sinful folly. The matter was finally submitted to me for advice and counsel; and after praying over it I felt impressed to say to the woman, much as the Savior said in olden time, "Go (back to your home and family), and sin no more." So far as I can learn, during the years that are past, peace and tranquillity have reigned in that home. The poor mother has probably been cured for life of the desire of praise because of her good looks.

Now just a word about our third text—"Thou shalt not commit adultery." In the 20th chapter of Exodus, you will notice this follows the command which says, "Thou shalt not kill." These two commands are given in a few short words; but since the world began it seems as if a terrible curse rested on the one who deliberately breaks either. The murderer never gets over the effects of his awful crime. One who has taken the life of a fellow-man is never the same man he was before the crime. The very thought of it follows him, and destroys his happiness and peace of mind until death, and who knows how long after death? It is much the same way with adultery. One who deliberately transgresses, yields to Satan, and tramples under foot this holy command, is never the same afterward. It is frequently remarked that a woman who has lost this priceless gem looks different ever afterward. The bloom of innocence and purity is gone. She may repent, and God may forgive her sin, but the scar remains. There is no getting back exactly where she was before. Now, the great wide world seems to repudiate the idea that it is the same with a man. Perhaps a man does not show it on his face and in his eyes as does a woman; but nevertheless the mark of Cain is there; and those who are skilled in reading humanity can judge pretty surely. Of course there is forgiveness for murder and adultery, for our first text tells us so; but, notwithstanding, more or less of a lifelong blight has fallen on the man or woman who deliberately transgresses in this way.

Sometimes I am consulted in regard to the advisability of getting a divorce. I think I have always said, "No, *no,* NO; do not do that. Do not even *think* of it;" and I usually end by saying, "What God hath joined together, let not man put asunder." Several times one or both parties will say, "But, Mr. Root, are you sure that God ever did bring us together?" And I think one friend added, "Is it not possible that it was a blunder that we ever got together? or did not *Satan* have something to do with it?" My reply is, usually, that Satan has nothing to do with bringing people together. *His* business is to separate and *break up* homes. And where children have been the fruit of the wedlock it is certainly God's plan.

My good friends, if any of you whose eyes rest on these pages have ever been thinking of getting a divorce, take my advice, and say, "Get thee behind me, Satan." Things may be bad as they are, but your old friend A. I. Root assures you they will be worse just as soon as you consider for a moment setting at naught God's law.

I have spoken several times about the day of my conversion. I told you that, when I decided to put the Lord Jesus Christ first and foremost of every thing in this world, I not only loved humanity better, but I loved even the horses that stood around the door of that old church. Perhaps I did not tell you, however, that, next to the Lord Jesus Christ, a love commenced from that day forward to grow and increase in my heart for the dear companion whom God gave me. That love has been growing stronger each year, and each day and hour.* When Satan tries me at every turn, as he tries most of us, the thought of Mrs. Root and the sacred and solemn ties that bind us together has been a more powerful antidote against Satan's wiles than any thing else in all this world. Let me, therefore, close with the beautiful text—the last of the four I have chosen—

"What therefore God hath joined together, let not man put asunder."

*The great Father, in his infinite love and mercy, has permitted us two to meet life's burdens and joys, hand in hand, for full fifty years. The 29th of September, 1911, will be the 50th anniversary of our humble start out together.

HIGH-PRESSURE GARDENING

A. I. Root

SOY BEANS AND CHUFAS FOR CHICKENS, PIGS, AND OTHER FARM STOCK.

On the last cover page of Gleanings for May 1 you may have noticed A. T. Cook's advertisement of his "domestic coffee-berry." He gives a picture of the plant loaded with the coffee-berry, or soy beans, for that is what it is. He says it is as easily raised as corn, will ripen in 80 days, and is one of the very best egg-producing foods for poultry. Some time in June I sent for a pint, I think it was, to try them again for coffee. Our older friends will remember we discussed the American coffee-berry in place of real coffee several years ago. Well, we tried it again and compared it with Terry's coffee made of browned wheat, and I myself prefer either of them to real coffee. As the soy bean has a slight beany flavor I rather prefer the wheat; but it is certainly a very good and nourishing coffee, and I think it is far preferable to the real stimulating coffee. As we did not use up all the beans for coffee, when my son-in-law was making garden he had some vacant ground—a part of a row—and I told him I should like to put in it my coffee-beans.

They were sprinkled in pretty thick. It made a row perhaps 100 feet long. This was about the middle of June. Well, we give you a picture, on page 598, of that row of soy beans 80 days after planting. I stood up in the row so as to give you an idea of the height and luxuriance of the plants. The ground they were planted on was where we had our plot of timothy grown on the Clark method (see advertising page 23, Aug. 15). I think there was some manure spread over the timothy sod before plowing before I came back from Florida. These beanstalks, as you see, are more than a yard tall, and they are covered with pods containing beans all the way up. If you look closely you can see the bean-pods hanging from the branches. They are all over the plant. Now, if cut and fed to cattle or horses while the beans are green, our experiment stations say they are about the most concentrated food of any thing in the shape of hay. I have just been out to this patch and stripped a lot of the beans from several stalks, and fed them to the poultry near by. The younger chickens did not seem to be satisfied at first that the beans were good to eat, and the old hens spent quite a little time in biting them and dropping them again. When they found beans that were soft enough to mash up so they could get a taste, they began to gobble them up eagerly. The two roosters, however, took them at sight and swallowed them all down, green or old, as fast as I shelled them out. I suppose you know poultry has to get used to a new kind of food or diet, especially when it is in the shape of grain.

Some years ago, up in Michigan, I grew a lot of Banner beans, as they were called in the seed catalogs. They were so prolific that my neighbor Hilbert pulled up a lot and carried them home in order to save the seed. Thinking that, of course, the hens would not eat *beans*, he put them on the barn floor. One rainy day, when the chickens were driven inside, they got to fussing with the beans, and before my friend knew it the fowls had shelled out the dry beans and had eaten almost every one. They had learned the trick, and found that beans were not "pizen." By the way, if you wish to teach chickens to eat beans and peas for food, just plant the beans in the garden and let the fowls dig them up. Do you ask why we should take so much pains to teach chickens to eat soy beans? Here is my answer. It is a copy of an advertisement from that excellent poultry-journal, the *Petaluma* (Cal.) *Weekly:*

SOY-BEAN MEAL PROTEIN EXCEEDING 44% FOR CATTLE, POULTRY, AND ALL FARM ANIMALS.

Will double your milk, cream, and egg supply. Takes the place of beef scraps for laying hens at about half the cost. Soy-bean meal is endorsed by the United States Department of Agriculture, and many university experiment stations, as one of the best concentrated foods obtainable. For sale by all dealers. If your dealer can not supply you, please send us his name and address. Samples supplied by us on application.

North American Mercantile Co.,
318-320 Front St., San Francisco, Cal.

From a pamphlet the above firm sends out we clip the following:

Farmers' Bulletin No. 372, U. S. Department of Agriculture, is authority for the statement that soy-bean hay is about equal to alfalfa for milk and butter production, and, also, that soy-bean meal is superior to cotton-seed meal for pork, mutton, and milk. According to experiments at the Tennessee Agricultural College, soy-bean hay proved to be superior to alfalfa hay. (Bulletin 80, Tennessee Agriculture College, 1908.)

The soy bean has been tested at most of the experiment stations as a forage crop, and the result has been very gratifying.

Good preparation of the soil is necessary for the soy bean, otherwise weeds are likely to choke out the young plants. They may be sown broadcast or drilled, with the idea of using them as hay. If in rows they should be planted so as to have a plant on an average of two or three inches in a row, and the rows thirty to thirty-six inches apart. Planting should be shallow, preferably one inch and not to exceed two inches in depth. They may be planted through a wide period from early spring to midsummer.

Soy-bean hay yields from two to three tons per acre. To make good hay the crop must be cut when about half the pods are full grown or when the top leaves first begin to turn yellow.

Always be sure when planting that you have fresh seed, as the bean deteriorates after a season, and sometimes when over a year old will not germinate at all.

A bushel of soy beans is at least twice as valuable for feed as a bushel of corn. (U. S. Dept. Agriculture, Bulletin 372.)

I suppose somebody will make another "kick" about my free advertising; but when an advertisement like this tells us about a new chicken food I think they merit some free advertising. I have not seen their booklet as yet, but I have sent for it. Now, if these soy beans or the soy-bean meal will really take the place of beef scraps, it is very important that all of us get on to it and raise our own meat for chickens. This soy-

bean meal, I know, is advertised now by dealers in poultry-supplies almost all over the world.

CHUFAS, OR EARTH-ALMONDS.

Now for a word or two about the row of chufas. I have said so much about this nut that grows under ground, like the peanut, in back numbers, that I need not go over the matter again here. After we had filled all orders for a free sample of the chufas, there was, perhaps, a quart or more left. Well, the only place to plant them was in a dead-furrow right beside the soy beans. I hastily scraped out that dead-furrow with a hoe, and sprinkled in the chufas. They were so much dried up I did not suppose that many of them would grow; but they are now knee-high, and growing like weeds. As they were in the dead-furrow I threw the dirt up against them and made a little ditch on each side to keep the water away from them. I think it would be better to hill them up like potatoes, so the nuts will not get out of the ground and be sunburned. At the present writing, Sept. 15, 75 days after planting, there were quite a few good-sized nuts in the hills, and lots of little ones starting. These also are splendid food for poultry, and very rich in protein and carbohydrates, like all other nuts.

By the way, I forgot to mention in the right place that soy beans picked green are very good food. There is so much oil in them that it swims on the surface, looking like globules of butter. Well, these chufas are also very oily; but it is a lot of trouble to get them out of the dirt, either in the sandy soil of Florida or the Medina clay ground. But if you are growing them for the chickens, you need not have any thing to do with the harvesting. I have not had any experience with pigs; but chickens will "work for nothing and board themselves," and get every chufa out of the ground. My good friend Daniel Hall, of Oneca, Fla., says they stopped his hens laying, or at least they stopped laying when they were digging over the chufa ground. But somebody who is expert on poultry told me that letting hens have a large quantity of any very rich food all at once would be very likely to cause them to stop egg-laying for a time; whereas a little given them every day with their usual rations would have the opposite effect.

I suppose you can buy soy beans of almost any seedsman; but you can get them a great deal cheaper of somebody who grows them; and they are now being grown almost all over the United States, more or less, and the same way with chufas. Do not send to me for either, for I am not in the seed business; besides, if I should offer seed for sale after giving all this write-up, you might with good reason think I was biased in the matter. For the rest of my life, so long as the great Father lets me keep up this department I will try not to mention on these pages any thing I have to sell. In fact, I do not expect to sell seeds or chickens nor any thing else, except to my home grocer, and at home market prices.

CHUFAS AND GROUND-NUTS.

Mr. A. I. Root:—I noticed in the *Breeder's Gazette* that in the South chufas become an ineradicable pest. Later, however, another writer says there are *two kinds* of ground-nuts, and that the *chufa* was not likely to become pestiferous.

MRS. J. W. BEAUCHAMP.

Doniphan, Mo., May 24.

The above reminds me that our first planting of chufas in Florida was close to a piece of woods and the ground-nuts and chufas came up all together, and the two, looked at from above ground, resembled each other so closely that I gave up. I could not, for the life of me, tell one from the other until I dug down so I could see the nut. The shape of the nut is entirely different, and the ground-nuts are no good at all, so far as I know. After I had given it up and we had lost our crop, practically, because we could not weed out the nuts without getting the chufas also, a neighbor told how to distinguish the difference, because chufas always stool out, while the ground-nuts make only a single stalk, and I think this may be true. I do not think the chufas, even if they do self-seed themselves, will ever prove to be a pest—that is, if pigs and chickens are allowed to get on to the ground. This same tendency to stool with chufas enables us to separate the plants of a hill, and plant them out separately. In this way a little seed can be made to go a long way, but, of course, it takes a longer season. A nurseryman who visited our premises suggested that the ground-nut is a "degenerate" chufa.

GARDENING IN FLORIDA IN THE SUMMER TIME.

We are very glad indeed to give place to the following:

Mr. A. I. Root:—Will you allow one of the new comers to add something to what has been said on gardening in Florida? We find some things can be raised in early summer if you can irrigate. We had corn, tomatoes, and string beans after the season for them had gone by. Some other things can be grown in the same way. We used only the waste water from the house. The tomatoes were given some shade until they outgrew it. Now there are still some tomatoes, but the later blossoms all drop. Our good neighbor, Mr. Gleason, tells us that now is the time to sow seeds for tomatoes and egg-plants. They should be shaded a little when first transplanted to open ground; also that potatoes can be planted in September. He tells us that bush lima beans, summer squash, sweet potatoes, and cow peas will grow through the rainy season. I think we may start beets early, as they seem to thrive in this climate and soil. MRS. L. W. DENSMORE.

Sarasota, Fla., July 24.

I will explain to our readers that Sarasota is a neighboring town to Bradentown, and so, of course, the conditions in the two places are about the same. I presume likely the old residents have so much garden stuff almost all the year round that they are not inclined to take as much pains as the new comers from the North, who are delighted with the possibilities that seem to open up there on every hand. You will remember our neighbor, D. Abbott, had beautiful lima beans all winter, and almost all summer, from the same plants.

Temperance

THE BREWERS' INDUSTRY OFFICIALLY RECOGNIZED; SEE PAGE 544 OF OUR ISSUE FOR SEPT. 1.

THE following circular letter sent out by Wayne B. Wheeler explains itself:

The enclosed is a copy of a letter sent by Secretary Knox to the Diplomatic and Consular Officers of the United States. You will observe by this letter that Secretary of Agriculture Wilson has accepted the position of honorary president of this brewers' congress, and that the Secretary of State is asking, through our foreign representatives, that the various governments send delegates to this convention. This is the most uncalled-for official recognition that has been given the brewing interests in this country for a long time; and at a time when the churches and temperance people of the country are exhausting every effort to turn back this tide of debauchery, it seems especially unwarranted.

The so-called "International Barley and Hop Exhibition" in connection with this congress is the thin veneering to cover the real purpose of the brewers, which is, to secure this recognition by our government. Can you not get at least two other persons who will write the President, or telegraph him at once, protesting against a member of his cabinet presiding at a brewers' convention?

Columbus, O. W. B. WHEELER, *State Supt.*

We are told by the papers that a tremendous delegation of thousands of people will form a procession, with protests, at the time this celebrated brewers' congress comes off. May God help us in our efforts to make our President and Secretary of Agriculture recognize and consider the mistake they are making just at this present crisis in the affairs of our nation.

Later.—When the above first came to my knowledge I sent the following protest to President Taft:

President W. H. Taft,
Washington, D. C.

Dear Sir:—Permit me, as a friend of agriculture as well as a friend of temperance, to make a vehement protest against permitting Secretary Wilson to appear as honorary president of the Brewers' Congress in Chicago, October 12th and 22d next.

I am well aware that Secretary Wilson has been a friend to agriculture, and that we owe him a debt of gratitude; but he certainly has failed to notice the wave of indignation that is now springing up everywhere against the brewers and their tools, the saloon-keepers. In writing this I am only voicing the sentiment of The A. I. Root Company, Medina, Ohio. Respectfully,

Medina, O., Sept. 5. A. I. ROOT.

To-day, Sept. 12, I am in receipt of the following from Secretary Wilson:

Mr. A. I. Root:—Your communication of a recent date is received. There is an international feature to this congress to be held in the United States. Agriculture is to be discussed. The United States is interested in the growing of barley and hops for domestic uses. They are naturally under the jurisdiction of the Department of Agriculture. Discussions along other lines would be foreign to us. This congress and this exhibition are not under the official patronage of the Government of the United States. The honorary presidency which comes to me is on account of my position as Secretary of Agriculture. I will have no actual presiding to do in this convention. Very respectfully,

Washington, D. C., Sept. 11. JAS. WILSON, *Sec.*

After reading the above I will admit that barley is used for other purposes than for making beer, especially in the Pacific States; and I suppose there is some market for hops aside from brewers' use; but I wonder how Secretary Wilson can approve, without a protest, the use the brewers make of his acceptance of the invitation to be present at that congress.

GOOD NEWS FROM CHINA.

A letter is in my hands from that noble and consecrated woman, Mrs. Lucy Page Gaston, the superintendent and founder of the Anti-cigaret League of America. The letter reads as follows:

My dear Mr. Root:—I suppose you have noticed the fight that is on in China against "the deadly." Dr. Wu and his compatriots who are putting in time, effort, and money in dead earnest are likely to bring some practical results.

China is leading the world in reform. Does not that seem strange?

You will be glad to know that the outlook for our work is better than ever before in spite of the difficulties in the way. My complete break-down two years ago was, of course, quite a misfortune; but I seem to be on my feet again, ready for the America-wide campaign that is needed.

LUCY PAGE GASTON.

1119 Woman's Temple, Chicago, Aug. 25.

In connection with the above I take pleasure in submitting the following clipping from the *Cleveland Plain Dealer:*

Singing hymns of praise which followed the opening of the exercises with prayer, citizens and students of the little college town of Mars Hill to-day marched around a big bonfire of all the cigarets and tobacco kept in stock by the merchants here, who promise that no more will be ordered.

An evangelist started a movement to stop the sale of tobacco to students, and the merchants agreed to discontinue its sale as soon as the stock on hand was sold.

The college authorities would not suffer any delay; $200 was raised by subscription, and the tobacco stock bought for destruction.

Asheville, N. C., Sept. 8.

Please notice, friends, that the above wave of indignation against cigarets and tobacco was started by an *evangelist.* Notwithstanding the great work that Billy Sunday and others of his class have been doing in our land, I am sorry to see some severe criticisms—yes, and some of them come from periodicals that claim to be religious. These criticisms are mostly because of the amount of money that has been given Mr. Sunday. Let me suggest, first, that these vast sums of money are free-will offerings; second, as with Moody, and I might also say Carrie Nation, the money has been used (so far as I can learn) for benevolent purposes and the good of humanity.

Referring to the newspaper clipping, notice also that the money was raised by subscription to purchase the stock of cigarettes and tobacco, so the dealers lost little or nothing by the crusade.

ADOLPHUS BUSCH, HIS "SUNKEN GARDENS," ETC.

When in Ohio last week, "The Crown of Diamonds and the Crown of Thorns" came to my notice. I feel very warmly on this subject, and wish to help you in the good work. I enclose 10 cts. in stamps for 100 of the pamphlets to distribute. Busch's "sunken gardens" in Pasadena are beautiful, and I could enjoy them if the money expended was obtained for something that did not degrade. He went to a "dry" town to settle and beautify it. Why did he not go among those to whom he has sold his misery-making stuff?

Minneapolis, Minn., Sept. 21. MRS. J. W. BULL.

Gleanings in Bee Culture

Published by The A. I. Root Company, Medina, Ohio

H. H. Root, Assistant Editor — E. R. Root, Editor — A. L. Boyden, Advertising Manager
A. I. Root, Editor Home Department — J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX — OCTOBER 15, 1911 — NO. 19

Editorial

Honey continues to be a scarce article. The quality this year does not seem to be equal to that of former years. Even much of the Western honey is a little off.

KILLING THE GOOSE THAT LAYS THE GOLDEN EGG.

Many are writing in that, owing to the extra-high price of sugar, they will not do much feeding. This may mean that many will let their bees starve. Can they afford, for a dollar's expense, to let four or five dollars' worth of property go to waste? Old bee-keepers know perfectly well that, in a single year, a colony of bees will very often make up for the expense and setback of two poor years twice over; and on the principle that it seldom happens that two bad years follow in succession, and that a third one never does so, then we have a right to expect that the year 1912, with the splendid rains we have been having this fall, will more than retrieve the loss of the off seasons. Look up, brethren. If you let your bees starve now, you will be kicking yourself next summer when your more provident neighbor harvests his crop of honey. Then you will be in the market to buy bees at prices a great deal higher than it will cost you to save what you now have at a small figure. Don't kill the goose that lays the golden egg.

RIPENING HONEY ARTIFICIALLY.

On page 632 of this issue Mr. Isaac Hopkins takes a stand with the late E. W. Alexander against the opinion of most of the extensive honey-producers of this country—that honey extracted before it is capped, if ripened outside the hive, can not be detected from that taken from sealed combs. We do not want to appear as discrediting what Mr. Hopkins has written, for we are aware of the extent of his experience and of the vast amount of good that he has done the bee-keeping industry in his country; but we understand that chemists are able to tell artificially ripened honey from that ripened by the bees. The chief point of the controversy, however, as we look at it, is that the average bee-keeper had better err on the safe side and allow the bees to ripen the honey thoroughly inside the hive before it is extracted, for the reason that, without proper facilities for ripening it artificially, and without proper knowledge of methods employed, the results are likely to be disastrous. There is not much inferior honey on the market, perhaps; but there is enough, and strenuous effort should be made to improve the quality of honey rather than to cheapen the process of producing.

Perhaps the difference of opinion on the subject can be laid to the different conditions existing in New Zealand and this country; but the kind of honey certainly has a bearing on the question. We remember very well sampling some buckwheat honey that Mr. Alexander extracted from combs that were largely unsealed and then ripened artificially in the large tanks that he used, and this honey certainly had a good body and flavor. But sage and clover honeys, with their delicate flavors, have a distinctly finer aroma if allowed to ripen thoroughly *in the hives.*

"FIRST LESSONS IN BEE-KEEPING."

This is the title of an old bee-book under a new name, newly revised. Formerly it was known as "Bees and Honey," by T. G. Newman, then editor of the *American Bee Journal.* The work, still published by our contemporary, has now been revised by C. P. Dadant, certainly one of the best authorities on bees in this country or Europe, and for many years a large honey-producer, owning and operating a series of outyards. In glancing over its pages we notice numerous changes and many new engravings illustrating bee culture as it is to-day. In the preface the reviser says, "Those who have read previous editions may not recognize the book in its new form; but I have, nevertheless, tried to preserve as much as possible Mr. Newman's flowery descriptions, in which he excelled. I have also retained such of his methods as I consider safe and practical. In short, I have tried to produce a book suitable for beginners."

So far as we can judge from a glance over its pages, Mr. Dadant has done exactly what he says. The new title is certainly an improvement and in keeping with its pages. The price of the book, in paper covers, is 50 cts.

BEES MORE QUIET TO HANDLE UNDER A CAGE OR IN A HOUSE-APIARY.

ELSEWHERE in this issue Mr. J. L. Byer speaks of the ease with which he handles bees under a wire-cloth cage or bee-tent at a time when, ordinarily, they would be very cross. This, he explains, was done, primarily, to circumvent robbers. We have noticed this time and time again. When robbers are prowling around, bees are apt to be cross; but even when they are inclined to sting from other conditions, they can usually be handled very easily under a cage; for the moment that a cross bee or a number of them find they are imprisoned in the enclosure, their desire to sting is immediately transformed into the desire for liberty. They bump their heads against the wire cloth, and then when tired out they cluster quietly in the top of the cage. Outside cross bees, of course, can not make any trouble, and for that reason the apiarist can work hour after hour and day after day, with a great deal of comfort.

Years ago, when we had entire charge of our home yard, doing nearly all the work, it was our invariable practice, after the robbing season when we had more than a moment's work at a hive, to work under a cage. In our effort to circumvent the thieving bees, we found we had inadvertently stopped all the sting nuisance; and, as our friend Byer says, we also discovered we could take off the bee-veil because no bees offered to sting.

Precisely the same thing is observed when we work in a house-apiary. Bees released on the inside of the building seek only to get out, for the enclosure in which they suddenly find themselves is unnatural.

FINDING BLACK QUEENS FOR THE PURPOSE OF REQUEENING.

THE article by J. L. Byer, on page 619, is interesting because he undertook a problem that is new to most modern bee-keepers; that is to say, bee-keeping where it is carried on to any extent has to do mainly with Italians and hybrids, or, more correctly speaking, a cross between the old-fashioned blacks and the yellow bees. It is very seldom that we find an apiary of any size that has pure blacks—such blacks as we used to see in ye olden days.

The editor well remembers in the early 70's what a time he used to have in trying to find black queens; how two or three of us* would collect around the hive as the black fellows boiled over and ran like droves of sheep from one part of the hive to the other until all seemed one moving mass of confusion.

Mr. Byer's problem was the more complicated because he undertook the work during the robbing season.

We might say that he wrote us, as he did a number of others, asking for the best method of hunting up black queens. We suggested the use of extrance-guards, shaking the bees in front, and catching the queen when she attempted to get in. But that was impracticable on account of robbing. Elsewhere in this issue J. E. Crane gives a method that he thinks eliminates the difficulty almost entirely. See page 615.

But why is the matter of finding black queens of particular interest now—especially so if we do not have black bees in the modern yard? Simply this: It is proven now, we think, beyond any question, that black bees do not resist foul brood, especially the European type, nearly as well as pure Italians. It has come to pass that many of the up-to-date bee-keepers are now compelled to buy out their neighbors' "black stuff" and Italianize it. The disease has been spreading, and their only protection lies in having only pure Italians. What Mr. Crane and Mr. Byer have to say in this issue on finding queens will be read with particular interest.

BLACK BEES NOT IMMUNE TO THE RAVAGES OF EUROPEAN FOUL BROOD.

ELSEWHERE in this department we refer to the fact that the old-fashioned blacks do not resist European foul brood as do the Italians, and the same is true to a great extent of hybrids. In this issue Dr. Miller speaks of the recurrence of European foul brood among his bees. He does not touch on the question whether he has, during the last two or three years, Italianized any of his apiaries. For many years he has rather favored hybrid bees—not only because they were cheaper, but he thought them as good as if not a little superior to pure Italians in the production of *comb* honey. Now, then, as it seems to have been pretty well proven that European foul brood is inclined to linger in an apiary of hybrids or blacks in spite of treatment, we wonder if our good friend the doctor has yet Italianzed. Mr. S. D. House, of Camillus, N. Y., showed us an apiary a year ago, with his strain of pure Italians, that did not have a trace of European foul brood; and he assured us that the disease existed among all the bees of his neighbors who had hybrids and blacks within a mile or two. Mr. House considers a vigorous strain of Italians as almost entirely immune to European foul brood. One of his pupils, Mr. Irving Kinyon, whose apiary we carefully inspected, showed no trace of the disease, and Mr. Kinyon, like Mr. House, attributed that immunity to vigorous Italian stock.

The inspectors of New York, if we are not mistaken, are urging the very great importance of Italianizing to ward off disease. Mr. Byer is only one among hundreds of others who are now taking steps to insure themselves against the European type of foul brood. In fact, this year, so far as our experience goes, shows the largest trade in Italian queens that we have ever known.

* It seemed to require three pairs of eyes located at different points of view to locate the queen in her wild scramble with the rest.

AUTOMOBILES FOR BEE-KEEPERS.

ALMOST every day we get an inquiry from some one relative to the use of an automobile in the apiary, or else some one who already has a machine writes of his experience in using it for hauling bees, etc. We are expecting to have a photograph very soon, showing how one of our subscribers who had rented a high-powered truck hauled his bees for less money than he had always spent for the horse-drawn vehicles used before.

We have been asked a number of times to give our opinion as to the best car for the bee-keeper, but always replied that we did not regard any one car the best for all conditions and circumstances. The simple machine, and the one that has good material combined with good workmanship, is the one to buy. High speed is by no means an essential, as this does not necessarily indicate a good reserve of power economically applied when the roads are bad and the load heavy. There are a number of good reliable machines that are neither expensive nor high-powered. Starting with the little Brush and Sears, we might mention the Reo, Ford, Overland, Cartercar, E. M. F., Buick, Maxwell, etc. We have seen all of these running in this vicinity, and we believe that any of them would be a safe investment for a bee-keeper or farmer. The experimental stage, to a great extent, has passed, and the machines are becoming so standardized that the prices have become lower—or, rather, the same amount of money to-day buys a much better machine than it did five or six years ago. We know that some are holding back, fearing that some great discovery or revolution in invention will make all existing machines out of date; but we regard this as a very remote possibility.

WHAT IS THE BEST FORM OF TRANSMISSION?

We have also been asked what transmission to select. By way of explanation we would say that, since it is not practicable to start and stop the gasoline-engine in the modern automobile every time the car is stopped and started, there must be some form of clutch and change-speed mechanism which will allow the engine to run faster on bad roads and the car itself slower (thus giving the engine greater leverage), and also to enable the engine, without reversing its motion, to drive the car backward.

By far the larger proportion of machines manufactured to-day have the sliding-gear transmission, with three speeds, forward and reverse. These have the advantage of efficiency and an intermediate speed on rough or bad roads. The disadvantage is that this type of transmission requires considerably more skill to operate than any other form.

The planetary transmission (two speeds forward and reverse) is ideal for a light machine, but is hardly suitable for large cars where roads are rough or hilly, and where medium speed and much power are required. This transmission has the advantage of being easily operated. The Ford, which enjoys a larger sale than any other machine, has the planetary transmission; and since this is a light car, having ample power for its weight, the planetary gives splendid results.

The third type of transmission, which is less used than any other, perhaps, but which has a number of advantages, is the friction transmission, with an infinite number of speeds. It is quiet at all speeds, the easiest operated of any, and the simplest. In fact, the only part that wears out on this transmission is the paper rim of the driving-wheel, which, after three or four thousand miles' usage, wears down and has to be renewed at an expense of about three dollars. The reason why this type of transmission is not more universally used is that a number of concerns manufacturing very cheap cars utilized this transmission with plain bearings, which gave a great deal of trouble. It is highly important that a friction transmission have the best ball bearings in order that it may have long life and the proper efficiency. The friction transmission in the Cartercar has many times proven its reliability for every thing except racing and extremely high speed; and the fact that quite a number of the manufacturers of the heavy trucks are beginning to use this form shows that it is well adapted for hard service. Indeed, for truck work we regard it by all odds as the simplest to operate and the most reliable. The fact that the engine can be geared to any ratio to the speed of the car makes it possible to pull a heavy load over bad roads where any other type of transmission would stall the engine.

The one objection to the friction transmission is that a chain has to be used instead of the customary shaft drive as found on most cars. The chain is more efficient than the shaft drive, but makes somewhat more noise, especially when the car is running at a speed of over twenty miles an hour.

An automobile man said to us not long ago: "Although most people wait for good weather in the spring before buying an automobile, the fall is really the best time to purchase a machine. The factories are not so crowded then, and a more carefully assembled car is the result." In the spring, all is rush and hurry; the dealer and manufacturer are both working at a disadvantage; and the customer, when he finally gets his machine, well along in the summer, is in such a hurry to use it that he fails to make a study of it and learn how to take care of it. Instead, he gets on to the road at once, and in many cases actually abuses his car before he understands enough about it to take care of it properly. Most of the factories have their next year's models ready early in the fall, and there is really no object in waiting till spring. Of course, it may not be possible to use the car very much through the winter; but at the same time it is a good plan to have it on hand ready for business when it is needed.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

E. M. GIBSON, page 530, my experience with whole bottom-bars in connection with splints is probably much less than yours, and it may be safer to go by your experience and use the split bottom-bars.

BASSWOOD HONEY in many regions appears almost black!—*Deutsche Bzcht.*, 145. [Is it not possible that the basswood honey, instead of being almost black, was mixed with an almost black honey from *some other source?* We doubt if any pure basswood honey is ever almost black; it is, in fact, almost the whitest honey that is produced.—ED.]

THE DISGRACE of the nation by Secretary Wilson may be a good thing if it rouses the people to the horrible fact, as stated in *The Epworth Herald*, that since the days of Blaine it has been the *settled policy* of the government to aid the liquor interests. [If what you say is true, it is not always going to be the settled policy of the government to aid the liquor business.—ED.]

GLAD TO SEE A. I. Root lift his voice against the terrible divorce scourge. A heavy blow at the thing has been struck lately by an Illinois judge, ruling that, when a temporary residence is gained in another State just for the purpose of getting a divorce, *that divorce doesn't count in Illinois.* What we need is laws and rulings, not to loosen, but to make tighter the bonds of matrimony.

A. I. ROOT, although a bit late, let me congratulate you on your 50-year trudge alongside so good a woman. Well may you say to her in Browning's words:

> Grow old along with me!
> The best is yet to be,
> The last of life, for which the first was made.
> Our times are in his hand
> Who saith, "A whole I planned:
> Youth shows but half; trust God:
> See all, nor be afraid!"

A. I. ROOT goes without supper, and eats apples. For the present I'm going without breakfast and filling up on ripe pears. [The fact is, several good apples will make a good supper, a good dinner, or a good breakfast. The same is true of pears. President Taft is said to eat only apples for his lunch at noon. The other day a young man told us he had been without work, and had been walking twenty miles a day hunting for a job, and all he had had to eat for *three whole days* was apples that he picked up in going through the orchards. He did not look as if he was starving either, by a long way. Say, doctor, are you poking fun at A. I. R. or at yourself? If so, you should have labeled this Straw as a joke.—ED.]

HIVE ODOR, according to N. Ludwig, *Leipz. Bztg.*, 131, goes further than is generally supposed. Give bees a frame of honey from another colony, and directly there is excitement, the bees pitch upon the honey, and likely play at the entrance, although they may already have plenty of honey in the hive. From a frame of hatching brood brush all the bees, wait till a number of young bees have hatched, and then put them on the brood-frames of other colonies. The strangers will be seized by the wings and dragged to the entrance. I wonder now. [We never saw young bees—at least bees just hatched—receive any more hostile attention than mild toleration. In other words, very young bees are received the same as bees just hatched from the hive, according to our experience, anywhere and any time. We believe in colony odor and in queen odor; but Mr. Ludwig is apparently overworking colony odor.—ED.]

DR. WILEY may well thank his enemies for their frantic efforts to oust him from office. Nothing could have shown him so plainly the hosts of friends he has made all over the country by his brave fight for the interests of the people as against the interests of The Interests. [Had it not been for the people, Dr. Wiley would have been shelved in disgrace. We notice by the morning papers that McCabe has been dismissed, and Dunlap given an indefinite leave of absence. It is about time the Remsen Board were given its walking papers also. It was created, apparently, for the purpose of setting aside Dr. Wiley's *important* decisions, or, rather, decisions that affected big interests. At all events, the big corporations have got off easy and the little fellows, without influence or money either, have been made to meet the requirements of the law. We hope that Dr. Wiley will now be able to make some of the big fellows understand that they too must obey the same law that should be no respecter of persons.—ED.]

EDITOR YORK, according to *American Advance*, has been interested in the liquor business—in a way. A liquor-manufacturing concern sent him a nice little advertising contract, which was promptly returned, with the reply, "Not for all the world would we advertise whisky. Better get into some honest business quick." The intimation that making whisky is not an honest business was taken in high dudgeon. "We let you know that we expect a prompt letter of apology from you, in which we expect you to state plainly you did not mean a word of what you said." And unless the apology was received in six days (by Aug. 16) something might be expected to happen. The reply was not an apology. Quite the contrary. Aug. 16 passed without any earthquake, and George is still out of jail. [Good for Bro. York! There is probably not enough liquor money in this whole country to make him say that the liquor business is an honest one. Too many publishers are influenced by the big stick of "advertising." See what Collier's has to say about this.—ED.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

Mr. B. D. Cook, a master of his profession, looking over our bees preparatory to fall feeding, reports that he finds carbolic acid a great help in preventing robbing.

Mr. Byer states, page 453, Aug. 1, that British Columbia has the strictest foulbrood law yet enacted. Hold a little, my brother! Massachusetts has a law that holds bees in quarantine unless accompanied by certificate from an inspector that they are free from disease.

In attending the Charter Oak fair at Hartford, Conn., recently, I was introduced to a physician who told me that the medical profession had recently discovered that honey is one of the best remedies known for nervous exhaustion, the patient taking from a teaspoonful to a tablespoonful of honey in a glass of water six or seven times a day.

On page 459, Aug. 1, Mr. Beucus has given in a single paragraph more truth about the cause of swarming than has, perhaps, ever before been condensed into the same space, or possibly more than all that has been written on the subject before. It tallies exactly, too, with the conclusions I had reached some time before. Indeed, I had hoped to write up the subject when I had time, for I believe that, with the knowledge we now have, we may be able nearly or completely to check swarming by natural rather than artificial means.

Hello, friend Doolittle! You say, page 454, Aug. 1, that to look up black or hybrid queens you sit down and examine the combs until the queen is found, etc. Now, then, I want to know if you can do that for an hour when no honey is coming in, without music about your ears in the key of seven sharps. Yet we have been finding them this season for many days, sorting out the old or defective ones with great rapidity. We use a queen sieve, and are not troubled by robbing. You say, too, on the same page, that a dark room keeps the color of combs better than a light one. Goodness me! I thought the less color we had on our surplus combs the better; while, poor ignoramus that I am, I have been keeping a thousand combs in the light of a window for the avowed purpose of getting rid of the color; and as fast as they lose it I take them down and replace with others.

"Every one his own foul-brood inspector" is the heading of an editorial, page 448, Aug. 1. A capital idea, surely; but the majority of bee-keepers can not see—not that they are without eyesight, but they have not been trained to look carefully enough to notice the difference between healthy and diseased brood. I find some intelligent bee-keepers on the watch for it; but until more than one bee-keeper in seven reads some journal devoted to bee-keeping, not much will be accomplished. I was surprised when I began inspection work to discover how very few ever read or care to read any thing about bees. Why! the ignorance of the great majority of bee-keepers is beyond my powers of description.

I visited a yard the last of May, which is owned by a young man. He was not at home, but I showed his father the disease in various stages. When I was that way again, the young man said his father showed him the disease, but that he had to show him the second time before he was sure of it. To his credit let it be said that, when he did see it, he went to work with a will and cleaned out his yard in good shape.

Page 415, July 15, the editor calls on me to "describe exactly how to use" carbolic acid to secure the best results. I can not do better than give my experience in a single instance. On the afternoon of July 24 I rode with Earl M. Nichols from Lyonsville, Mass., to Reedsboro, Vt., to inspect a yard of some thirty-five colonies of bees. We arrived in the midst of a heavy thundershower, and could do nothing that day. The next morning was clear, and the sun was shining when not obscured by passing clouds. Mr. Crozier, a very intelligent beekeeper in whose care the bees were, informed us that there had been no honey coming in for some time, and it was almost impossible to handle them in the open on account of robbing; and he had a small inclosure made of fine wire cloth where he could open a hive when absolutely necessary. Most of the hives had one or more supers which, of course, had to be removed to reach the brood-chamber. The bees, as I understood, were to be shipped later into Massachusetts, where the law is very strict; besides, Mr. Nichols would not want any bees with the least suspicion of disease near him. The bees were Italians with an unenviable reputation for robbing. We worked leisurely, examining every hive carefully, and, when through, there were very few bees lurking suspiciously about the hives. I had with me a ten-per-cent solution of carbolic acid and an atomizer. Before opening a hive I would sprinkle a little of the acid on the front of the hive and about the entrance, or, more frequently, two or three at a time. Possibly a much weaker solution would do just as well, although I am not certain. Now, I would not say that, if the acid had not been used, there would have been high-handed robbery; but it was an occasion where, if ever, we would expect it.

BEE-KEEPING IN CALIFORNIA

P. C. CHADWICK, Redlands, Cal.

Friend Hutchinson said, "Keep more bees." Dr. Miller says, "Keep better bees." It might be well to add a third bit of advice, "Keep bees better."

There are not many apiaries in this locality that could practice outdoor feeding without supporting a few neighboring colonies. There are a thousand or more colonies within reach of mine.

As long as sugar retails at about $8.00 a hundred pounds, the price of honey should keep up well. During a recent trip to San Diego I noticed extracted honey retailing at 12 cts. a pound.

I sometimes wonder what would be the result of a thorough inspection of some of our California apiaries, in line with modern ideas on cleanliness and sanitation. I am convinced that some could not stand such a test.

We have just had more than an inch of rain, which is unusual for September; but it will be of little practical value, as it is probable it will be gone long before time for the regular rainy season. Besides, such early rains are not considered a good omen for the rainy season.

We want the National convention in 1915. It will be hard work to bring it to the Pacific coast; but with a world's fair at San Diego and one at San Francisco it should be an easy matter to get it that particular year, Los Angeles being an ideal place between the two cities mentioned.

Skunks have been very troublesome for some time. Hardly a colony in the yard has been left alone. I am using arsenic and eggs to destroy the pests, with good results. A stock of old bees can be rapidly depleted at this time of the year when breeding is slack and old bees are being regularly destroyed.

I am in receipt of a letter from Mr. J. D. Bixby, of Covina, Los Angeles Co., asking me to visit him and to see some genuine downeast black brood. Mr. Bixby fought the disease six years ago in New York, and should know what it is. It looks dubious when such reports as this come in together with that of Mr. Rays, of Monrovia. I expect to visit this infected district soon, and to learn more about this disease, for my own benefit, not being acquainted with it in this form. My experience with the American form, however, has taught me how to cope with it; and while I entertain no fears, I confess I am much worried over our proximity to this new form.

There is no part of a hive as indispensable as queen-excluders; yet to my notion, aside from the matter of economy, their use is conducive to more sanitary conditions. The larvæ can then be left undisturbed in the lower chamber, which is much better than later to strain them out of the honey. In many apiaries in California where they are not used I have seen conditions that were revolting.

The subject of queens laying eggs that would not hatch, commented on by Dr. Miller, p. 418, July 15, brings to mind a case that occurred in 1905. The queen was self-hived on empty combs in a hive where a colony had died. She laid continually for over three months, having been supplied with brood to help her restock the hive; but when it seemed to be a hopeless case she was destroyed. I had previously supposed that any egg laid by a queen would at least hatch drones; but this has left me in doubt.

Quoting Arthur C. Miller, page 560, Sept. 15, "From the writer's point of view Mr. Beucus erred in trying to put the various forms of absconding in the phenomenon of swarming." Swarming, to my mind, is not in any sense a phenomenon, but a law of nature, just as truly as reproduction in any form of life is a law of nature. To speak of it as a phenomenon is to discredit nature's laws. Quoting again, "Normal swarming is always accompanied by the production of queens." Here another law of nature is followed, that of self-preservation; for resources for a future queen for the parent colony are left when the swarm with the old queen issues; otherwise the ends designed by nature would be defeated, and the new swarm would become no more than an absconding one from the standpoint of reproduction. Superseding is in accordance with the same law, and is a most beautifully worked-out plan. If swarming, then, is one of nature's laws, success in controlling it will depend on one's ability to thwart those laws. Cell-building will never occur except in obedience to one of these laws; and theories attempting to eliminate the law of reproduction entirely are destined to be exploded.

Bee-keeping in the Southwest

Louis Scholl, New Braunfels, Texas

COMPARATIVE PROFIT OF EXTRACTED, SECTION, OR BULK COMB.

In answer to several letters regarding the comparative profits per colony when run for extracted honey, section comb honey, or bulk comb honey, the following, which is in part a copy of a letter in answer to a similar enquiry, will serve to show to a certain extent the difference in production of each of the above kinds of honey.

An average yield per colony, well located, should be at least 100 lbs. of extracted honey. During favorable seasons, and where the bees can be gotten into the best possible condition for the honey-flows, this can be doubled or even better. This amount, 100 pounds, is meant as an average per colony for an entire apiary; whereas some colonies, especially strong, may gather as much as four or five hundred pounds of extracted honey in a single season, if rightly managed. A sufficient supply of empty combs given at the right time, so that the bees will have all the room needed will help much toward accomplishing this. At the same time there may be colonies in the same yard that will not reach the hundred-pound mark, thus bringing the total average of the entire apiary down to 100 pounds, more or less, according to the season.

With comb-honey production these large yields can not be obtained, the main reason being that the bees are required to build new combs in which to store the honey. This delays the work materially, besides making it necessary that they consume from 12 to 24 pounds of honey, out of which the wax is secreted, for every pound of comb built, thus costing much loss of time and honey in the production of comb honey. Besides, the bees do not like to build in the small compartments of the section super, and hesitate to enter them readily. This causes further delay, loss of time and honey; and as this condition results in the bees becoming more or less crowded in the main part of the hive, which often incites the swarming fever, the bees swarm instead of gathering honey when the main flow comes. The result is a great deal more work for the apiarist and a smaller average of honey per colony, ranging from 50 to 125 lbs. of section honey per colony.

Although some persons believe that comb honey ought to be the cheapest in price since its production saves the bee-keeper all the trouble of extracting the honey from the combs, the explanation above will doubtless reveal at once the reason why bee-keepers should receive a higher price for comb honey. With extracted-honey production the combs once built are used over and over again, the honey extracted from them, and the combs returned to the hives to be filled again, thus saving all the loss of time and honey that takes place in comb-building. Besides this, the cost of preparing the comb-honey supers every year with new sections and foundation, and the extra labor of getting those ready, and further labor and expense of putting the comb-honey in expensive shipping-cases and crating these before the honey can be marketed, increases the expense and lessens the profits of comb-honey production over extracted honey.

But since the market demands both kinds, and it is often hard to sell extracted honey, both forms are produced. It is rather difficult to say just what the relative net profits would be in each case. Granting that an average yield of extracted honey is 150 lbs. at 8 cents per pound, the result would be $12.00. Figuring that, under the same condition, the average for comb honey would be 80 lbs. per colony, selling for 15 cents per pound, it would also be $12.00. While the price received in each case is the same, the production in one is the easier and cheaper, and hence the profits the greater. While the comparison used here, so far as the figures are concerned, may not be exactly correct for all localities, they are very near right for our own here in this part of Texas, and for a long period of many years. The prices quoted are those ranging on the average market here at this time as received by the bee-keepers.

Since the expense of section-honey production is so much greater, the Texas bee-keepers long ago resorted to other ways of producing comb honey, and to-day there is very little section honey produced in this State. Bulk comb honey, on the other hand, is the leading product of the Texas apiaries, and is produced in shallow frames with full sheets of foundation, which are easily put in; and as the bees do not hesitate to enter the supers, much larger averages per colony can be obtained. Although the bees are required in this case to build their own comb, which would be a loss in this respect, it is not necessary to crowd the bees, and less swarming is the consequence; and as they work much more readily in the supers, the colonies are much more easily managed. On the whole, bulk-comb-honey production is easier, and less laborious and expensive, than section honey, and is not much more difficult than extracted, while the profits are much greater. Bulk comb honey is sold at an average price of 11 cents per pound after it is packed for the market. It must be considered that one-third of the honey in the package is extracted honey that is poured over the comb honey after the cans have been packed full to fill up the open spaces and make up the required weight. Figuring the real price of the comb honey by itself, therefore, we find that the bee-keeper receives 12½ cents per pound for the comb honey. This is obtained in this way: A sixty-pound can of comb honey at 11 cents per pound will be $6.60. Since 20 pounds of the contents is extracted honey

Continued on page 633.

Conversations with Doolittle

At Borodino, New York

WORK WITH THE BEES IN THE FALL.

"What should be done with the bees in October, when the honey crop is entirely over, but when there are still supers on—mostly those holding the combs that have been run through the extractor and returned to the hives for cleaning?"

"It is best to take these off before the end of the month; and if you have never tried the plan of removing them by cold instead of with smoke I would advise you to try it."

"How is that?"

"When smoke is used, part of the bees are driven down below, after which the combs have to be handled separately to shake and brush off the remaining bees. To do away with this handling of each separate comb, some prefer the bee-escape, as in taking off supers of comb honey. While this is preferable to the smoke, it requires much lifting of hives and handling of the escape-boards.

When removing supers by the cold plan, unless the supers are full or partially so of section honey, wait until there is a cool or cold spell, when the mercury sinks nearly to the freezing-point, when the bees will have congregated in the brood-chamber. At the end of this cold spell there is generally a morning when there is a frost, when, by rising early, all of the supers may be taken off free from bees, requiring only one lifting of the super, with not a single comb to handle separately. I have practiced this plan for years, but I do not remember to have told any one about it before, neither do I remember having read about it for several years. In this way the whole apiary can be gone over, and all supers taken off in an hour or so, and these supers collected and wheeled into the storehouse, usually before the bees begin to fly. Then by delaying until cool weather comes, one may avoid the possible development of eggs from the wax-moth among the combs after they are deprived of the bees."

"I have some weak colonies, part of which I fear do not have stores enough for winter. How about these?"

"Colonies that have not succeeded in securing a sufficient surplus, or those that are queenless or too weak in bees to go well through the winter, should be united without delay, either with stronger colonies or with one another. In this way it is possible to have good colonies in the spring instead of hives of empty combs and dead bees."

"But how is this uniting best done?"

"The old way was to move the colonies toward each other a little each day so that the bees would mark anew at each flight, thus saving a loss by their going back to the old location when finally brought together and united. But few use that plan now. After a cool, cloudy, windy, or rainy spell, bees generally mark their location more or less, especially in the fall or early spring. At such a time a newspaper should be spread on top of the hive containing the colony where one wishes the united colony to stand, and one of the other weak colonies should be placed on top of it, then another newspaper on top of this, and the third colony on top of this paper, and so on, according to the number to be united. When it grows warmer the bees will eat or gnaw holes through the papers, and the whole will become one colony, flying out through the entrance of the lower hive, marking this new location as does a new swarm, owing to the mixup of bees before their flight. In a week or two, select combs containing sufficient stores for winter, and remove all other combs. The colony should be confined to one hive for winter."

"This is a great improvement over the old plan; but I prefer to go over each hive to be united some warm day, selecting the best queen to keep, using or killing the others, and leaving with the bees only the three or four combs containing the most honey, spreading these apart far enough so that the bees will cluster between them during a cold spell. Then when a cold morning comes, all there is to do is to insert the fingers down between the ends of these frames with the bees bunched between them; and by clutching them with the fingers and thumb they can be carried as a handful and inserted in the selected hive, putting the two, three, or four weaklings in as planned. In this way the bees are all mixed up, when all desire to fight is gone; and, through the mixing, the new location is marked, so that no loss occurs by returning to the old stands.

"If, after uniting all that are not strong enough to winter alone, some are lacking in stores, feeding may be done. The best way to feed is to secure heavy combs from colonies which have more honey than they need, exchanging these for those having little in them. But it is not always safe to depend on this way. The wise apiarist will look out for heavy combs during the surplus season, and, instead of extracting every thing which has honey, he will put enough of these heavy combs in supers, tiered up on colonies strong enough to keep them until they are needed for use. If, after all the colonies have enough for winter, there remains a surplus of these heavy combs, they can be stored away for use the next spring, by any colonies which may not have enough to carry them until the flowers yield."

Cat Eats Bees.

I have seen mention several times of chickens picking bees from the front of hives. Did you ever hear of a cat eating them? We have a cat that will sit in front of the hive or on top and pick out the bees heavy with pollen.

Monaca, Pa. CHAS. P. BLAIR.

General Correspondence

EUROPEAN FOUL BROOD STILL IN DR. MILLER'S YARD.

A Summary of the Results of the Treatment.

BY DR. C. C. MILLER.

April 20, 1911, European foul brood was found in one of my colonies. At the same time it was found that the colony was queenless and had queen-cells. It reared a queen which, in spite of its being so early, was fairly good, and there was no more foul brood in that colony. The term of queenlessness had served as a cure.

May 5 a second case was found, and another on each of the following dates: May 9, 10, 11, 16, 18, 19, there being two found May 18. Then a case was found June 3 and June 7. Then cases were found as follows:

June 15, 7 cases; June 19, 6; June 24, 3; June 26, 4; June 27, 7; June 28, 1; July 5, 2.

I give these dates thus particularly, as there seems to be some breaking of rule, the rule being said to be that the disease appears early in the season, and then disappears more or less as the season advances. It will be observed that only 11 cases were found before June 15. On and after that date 30 cases were found. It might be said, however, that the season didn't "advance," for it was a season of terrific drouth and dearth. Not till August did the pastures turn green again.

In my favor was the fact that the colonies were strong, and remained strong in spite of the dearth. For it will be remembered that an important part of the treatment of European foul brood is to make the colonies strong.

As to the severity of the disease—in a few cases only a single bad cell was found; in some, 2 or 3 bad cells; in some, 5 or 6; and none that could be called very bad. In order to know something definite I went to the colony that I believed was the worst, selected the worst frame, and on that the worst 4 inches square. I think it was July 7. The queen was 4 years old. In the space marked off were 23 rows with 19 cells in a row, making 437 cells. Of these 437 cells, 76 were bad, or 17.4 per cent. Considering that less than one cell in five was bad in this worst spot in the hive, I suppose it would be safe to say that not one cell in ten was bad in the whole hive.

Now comes something that was a surprise to me. It is generally understood that in European foul brood the affected brood usually dies quite young; and if I had been asked what proportion of the diseased cells were sealed I might have said perhaps one in fifty. Indeed, I might have said so in the present case if I had not counted and *carefully scrutinized* the sealed cells in counting. As a matter of fact, of the 76 bad cells 14 were sealed or partly sealed. That is, 17.4 per cent, or nearly one in five. Without careful scrutiny I would not have suspected any thing wrong with these, for most of them were perfectly sealed, and without picking them open nothing could be seen wrong with them, unless it be that the sealing was a trifle darker than that of the sound brood.

Of the eight cases found in May, five suffered a relapse after being treated, although there is no certainty that they were not freshly affected from some surrounding diseased colony. Indeed, it looks a little as if most of the cases were from the latter source, for it hardly seems likely that, if the disease was a home product, it would have appeared in most cases only after the middle of June. Yet I have an uncomfortable feeling that I would still have had trouble if no neighboring bees had been within a thousand miles.

In the two previous years it was rather common for a colony to clean up itself where the disease was mild. But it seemed no use to wait for any thing of the kind this year, as it occurred in only one case. Was this on account of the dearth? So in the first week in July I made a business of treating every case, no matter if only a single bad cell was found. Except in the one worst case, the queens seemed active and vigorous, so I killed only that one queen. In the other cases I caged the queen, and left her caged seven to twelve days, generally ten days. Ten days later all were found clean; but for how long, I am not prepared to say.

Please note that I am talking about European foul brood, not American, and that nearly all cases were very mild. In severe cases I would have given a cell or a very young virgin in place of the old queen.

Marengo, Ill.

WHOLESALE REQUEENING.

Finding Queens in Populous Black Colonies During a Time of Robbing.

BY J. L. BYER.

While an article on finding queens and requeening colonies from which the queens have been taken may be a bit unseasonable at this time of the year, yet in view of the fact that I have just recently had an interesting experience in this line of work I feel that perhaps some who may have similar work to do in the near future may be benefited by knowing just how the work was done, and may thus be in a position to form their own deductions and avoid the mistakes that we made.

Last spring we bought an apiary of 220 colonies about 200 miles east of our home; and with some increase, made by natural swarming, the yard now consists of 280 colonies. The bees were all black; and as European or black brood is approaching the locality from at least two directions we came to the conclusion that it would be best to requeen the whole apiary with Italian blood.

Accordingly 300 queens were ordered to be sent at the rate of 40 per day, and on the 21st of August I left my home with the intention of requeening, taking off the buckwheat honey, and doing all other work necessary to put the colonies in shape for winter, thinking that no more trips would be necessary this fall, as we have a good man engaged to put the bees in the cellar when the time comes.

I found that I should have come to the apiary at least a week sooner, for by that time most of the buckwheat was over, and the bees were not getting enough honey to prevent them from trying to rob if the hives were opened to any extent. When I viewed the 280 colonies, all strong with bees, I was impressed with the magnitude of the task of having to go through the whole outfit to find the queens. The hives are 14 by 20, and two inches deeper than the L. frame; but instead of 8 frames lengthwise in the hives, there are 12 frames crosswise in each hive. The frames had been moved but little for years; and as the hives were jammed with honey, any one who has had much experience with bees will know what I was up against. Of course the main problem was how to find the queens; and on this point I had fortified myself with the best advice possible from some of the best-known beemen.

Among the methods advised were the following:

"Place entrance-guards over the fronts of the hives, shake the bees in front, and thus screen out the queens." "Use a device similar to the one described by Mr. Greiner, which is known as the Hanneman device for hunting queens." "Put a comb or two in an empty hive, and on top of this place a queen-excluder with the hive to be treated above that. Shake and smoke the bees down and find the queen on the excluder." "Place a super just above the brood-nest, first having nailed a bottom on the super, then drum the bees up into the super, and, when all are up, dump them in a hive-body over the brood-nest, the two having a queen-excluder between them; then chase the bees down and find your queen on the zinc."

As soon as I started operations it was quite apparent that, with the exception of the latter method, all of the foregoing advice would be impracticable, as it would be necessary to do all of the work under a tent, owing to the fierce robbing tendency of the bees whenever a hive was opened. While I had great faith in the plan of drumming, I was much disappointed to find that it would not work in my hands; and after trying it with three colonies, and getting none of the queens, I felt blue over the prospect of finding those black queens that could get such a move on whenever the combs were handled. As intimated already, all work had to be done under a tent; and as this necessitated my being on my knees all the time, some plan had to be worked out that would not expose honey to the robbers, and at the same time it had to be one that would not require too much paraphernalia owing to the cramped space at my disposal under the tent.

After considerable thinking, the following plan was decided upon; and it worked so well that in future operations of the kind I shall probably follow the same method. In a shallow extracting-super two combs were nailed fast in the center; over this was placed an excluder; and on top of this, again, a full-depth super (same size as the hive-bodies) was fastened. The tent was placed over the particular hive to be operated on, and the super or supers, thus prepared, were placed to the left in front of the hive. Then I crawled under the tent with the smoker and proceeded to business. After a puff of smoke had been blown in the entrance, a block was placed over it to prevent the bees from stampeding out of the hive in front, for kneeling there I did not care to have *too many* bees going up my trousers; and then, again, the queen was apt to run out as well as the rest of the bees. After opening the hive, the front comb was lifted out; and after a hasty look over it, it was placed in the prepared super in front of the hive. This process was continued until all the combs were out of the hive, unless, of course, the queen was found on the combs, which was not very frequent, I am sorry to say. As a rule, as soon as the combs were out I would, on looking among the host of running bees on the bottom and sides of the hive, find the queen in a few seconds; and by actual count, out of every ten colonies I found six queens on the bottom-boards, three on the combs, and one on the zinc between the two supers after shaking the bees off the combs before returning them to the hives, which was, of course, necessary only when the queen was not found on the combs nor in the hive. The fact that the frames were bad to handle no doubt explains why so many of the queens ran off the combs.

Naturally the question will be asked as to how many queens would be missed; and just here I might say that no one was more surprised than I at the good luck experienced. In going through the first 75 colonies, 73 queens were found, and next morning I found a dead queen in front of one of the two missed, so that, in reality, only one queen was missed out of the lot. Then, again, no doubt many will think the process followed was a laborious one, and very slow at that. By actual timing, five queens an hour could be found—indeed, *were* found at that rate whenever we went at the work.

One morning the weather was dull and cloudy, with not a bee flying; and as the robbers were bad, even when working under a tent during sunshine, I went at finding queens under circumstances which only those who have been similarly engaged in can understand. From 7 in the morning until a little after 10, sixteen strong colonies were examined, and *every* queen found. It is needless to remind one that, with the tent to carry around, and with all the inconvenience of working under it, our movements were much hindered; and there can

be no question but that, in a time with no robbing and plenty of honey coming in, much better time could be made.

The apiary in question is in a small village, with a blacksmith shop and other buildings but a few rods away from the yard; and when a number of colonies were dequeened, that factor, together with the tendency of the bees to rob all the time, caused them to get very cross, and I was afraid of trouble from stinging. This condition caused me to abandon the idea of requeening the whole apiary at this time; but certainly the difficulty of finding the queens had nothing to do with changing my plans. While working under the tent it was a revelation to me to learn that, although the bees outside were very cross, yet inside one could work with impunity without a veil or hat on, and get scarcely any stings. The cross bees from the hive seemed to cluster in the corner of the tent and stay there until shaken down when moving to another hive. But when I would emerge from *cover*, certainly it was a case of "lower the curtain" or get lots of plugging.

One thing that puzzled me very much was why I failed in drumming the bees into a box over the hive. I know some good beekeepers who have followed the plan with success, and it must have been bungling on my part in some way. The first time I tried, I had an idea that too much smoke was used at the entrance, and some of it went into the super above and made it unpleasant for the bees to stay above. The next time no smoke was used, and still I could not get the bees to stay there in a cluster. Then, again, it took too much time to get them even started to go above in any considerable quantity; and when a queen could be found every 12 minutes by the other plan, a method that took at least twice as long was not to be considered.

In thus describing in a rambling way the methods employed in hunting out a lot of black queens under the most unfavorable circumstances, I am fully aware that there must be some details that can be improved upon, and, as intimated, the foregoing has been given, not with any idea of its being a perfect method; and no one will appreciate more than the writer some suggestions that may be given that will point out how we can get along better *next* time, as we have a lot of this work to do in other yards another year.

Just a word as to introducing the queens. When we found the condition prevailing in the yard, a heavy loss in queens was anticipated, especially when, on the following morning after dequeening colonies, as many as a cupful of bees was found in front of each colony that had been operated on. My original intention was to introduce on the plan of pressing a wire-cloth cage over brood with the queen underneath; but this was abandoned when we found robbing so bad. The plan adopted was as follows:

In the honey-house in front of the window, all bees were removed and the queen was placed in a cage *alone*. Cardboard was left over the plug of candy; but the cardboard was perforated with a pin until it would hardly hold together. The second evening after dequeening, the cage thus prepared was placed between two combs, the combs being spread apart for that purpose. The colony was left strictly *alone*, at least long enough for the queen to be released, before the hive was disturbed. All but 15 were introduced by this plan, and, to the best of my knowledge, not a queen was lost. The 15 exceptions were run in the tops of the hives in the evening, after the colonies were heavily smoked with tobacco. One was lost by this method; but I think the colony was treated too early in the evening, and not enough tobacco used. These surmises are based on the fact that the colony that killed the queen was the first one that I started on in the evening when the work was done. I was greatly pleased at my success in introducing at a time when ordinarily one would expect heavy losses; and one reason that I assign for such good results is that the hives were not molested until after the queens were released and had begun to lay, as I believe violations of this principle cause the loss of many queens during the process of introduction.

Mount Joy, Ont., Can.

SWARM PREVENTION VS. SWARM CONTROL.

BY J. E. HAND.

Mr. J. E. Hand:—I have read with much interest what you and others have written in GLEANINGS about your system of controlling swarms with your double switch-board. I think that all the principles involved in the methods of Alexander and Doolittle can be carried out, and others besides, with much less labor, and in a more pleasant way, by your method, if correctly understood and properly applied. I have just the number of colonies I desire. I do not want to increase nor decrease. All are in fine fix, with choice queens. There are three frames of brood and eggs in each to-day. Now, can I put two of those colonies on your switch-board, and with safety to queen and bees, switch the working bees of one into the other, and, after eight or ten days, switch them back again into No. 1, changing supers over, of course, to No. 1, thus uniting the working force of two colonies in one set of supers?

Of course I mean that the first switch is to be made after the colonies have become strong, and are near the swarming-point; also that all queen-cells started in No. 2 should be cut out before bees from No. 1 are switched into it. I should also, perhaps, remove all combs containing only honey from No. 2, and replace with frames of foundation only, so as to satisfy the disposition for comb-building, giving super space as conditions require.

Selma, Ala. REV. F. G. RAILEY.

From the nature of the correspondence I am receiving with reference to the new method of controlling bees it is evident that some have a wrong conception concerning the correct system to be carried out in connection with my bottom-board equipment for the successful control of swarming.

While the method mapped out by our Southern friend could doubtless be operated with safety to bees and queens, the result would undoubtedly be a disappointment to the operator, for the reason that the principle is applied in open violation of the laws that

govern the successful control of swarming. The method above outlined is virtually a system of swarm prevention—a thing that is much talked about though seldom realized—a will-o'-the-wisp that is ever eluding the grasp of would-be promoters of systems and methods of swarm control.

While the terms "swarm prevention" and "swarm control" would seem at first to be synonymous, a closer study reveals the fact that they have a separate and distinct meaning. Swarm prevention is supposed to prohibit swarming entirely, while swarm control does not necessarily prohibit swarming but may forestall the event by substituting the artificial for the natural swarm; and thus by working in harmony with the habits of bees we pay tribute to the demands of nature, the swarming instinct is satisfied, swarming is held under control, and the bees are placed in condition to do the best work that they are capable of performing under the most favorable circumstances.

As a rule, where colonies are strong at the beginning of the honey-flow it is advisable to begin the season with a single colony on one side of a double switch-board, and, at the approach of swarming, shift the flying force over into a new hive that is placed beside the first one for this purpose, and in eight or ten days the swarm is reinforced by a subsequeut shift of young bees by means of the switch lever. Of course, the queen and a frame of brood goes with the swarm at the time of shifting. If increase is desired, a young laying queen or a virgin just hatched is given to the depleted colony, which will build up strong for wintering. If no increase is desired, no queen is given; and at the time of the reinforcing shift, insert a specially constructed bee-escape in the entrance between the switch lever and the end of the main entrance, into which the returning bees will go, since no bee can enter the depleted hive.

When the brood has nearly all hatched, and the bees added to the swarm automatically, the hive and combs may be used as desired. Since all colonies are not strong at the beginning of the harvest it is very desirable to have a system whereby the working force of two colonies may be combined in one set of supers, as suggested by our correspondent, without violating the principles that govern the successful control of swarming, and with the minimum of labor. To accomplish this, and to avoid the intermingling of strange bees at swarming time, which would have a tendency to defeat the plans of swarm control, one colony is placed on top of the other on one side of a double switch-board, the two separated by a queen-excluder; this should be done a week or two prior to the time of shifting.

These double deckers use one common entrance with apparently one strong colony having two brood-chambers and two queens. At the beginning of the honey-flow the flying bees from both hives are shifted over into a new hive containing full sheets of foundation in brood-frames. In the center is placed a frame of brood and bees, including the queen from the top hive, giving the swarm a super of sections or extracting-combs above a queen-excluder and reinforcing the swarm thus made by subsequent shifts of young bees from the parent hive as previously described. If working for extracted honey, the top story of the parent colony containing brood and honey, but no queen, may be placed on top of the super on the hive containing the swarm; and as fast as the brood hatches, the combs will be filled with honey. Whether working for comb or extracted honey this method will give excellent results in honey production with no swarming and with the minimum of labor.

Doubling the working force of an already strong colony at swarming time, without the application of principles that would satisfy the swarming impulse, would defeat the plans of swarm control; furthermore, the shifting of the working force of a strong colony over into a hive containing a colony of bees and a hive full of brood at swarming time would have a strong tendency to accelerate swarming.

Don't think it is profitable or even desirable to attempt to prohibit swarming entirely. Don't forget that the surest method of swarm control is to substitute the artificial for the natural swarm. Don't forget that the intermingling of strange bees at swarming time will defeat the plans of swarm control. Don't make artificial swarms until you are sure of the honey-flow. Don't forget that the time to shift bees and form increase is during the honey-flow. Don't forget that the Hand system is virtually a system of swarm prevention by substituting the artificial for the natural swarm, and not a system of swarm prevention.

Birmingham, O.

Bees Fly Through Netting.

In a Straw, page 516, Sept. 1, Dr. Miller translates the following from the *Schweizerische Bienenzeitung* —page 229: "To protect passers-by from an apiary within 25 feet of the street, a fence of poultry-netting 40 inches high was erected. The netting had a two-inch mesh, but the bees all flew over it, not one going through, although one colony was only 12 inches from the fence." Now, they act differently for me. I have some bees at Hot Springs, Ark.; and when I left there, April 17, the bees from one hive were passing back and forth through the meshes of a thirty-inch fence of netting, although it was 18 inches from the hive, and not in front of it, but at the *side*. My brother from Hot Springs reports that the bees have done this throughout the summer. Pernaps that colony is a freak.

Vandalia, Ill. L. H HOOVER.

Record on Scale-hive for August.

Aug. 2, 65 lbs., one super on: 6, 74¼; 8, 82¾, super No. 2 on; 9, 91¾; 11, 100¼; 13, 108; 16, 119¾; 18, 123½; 20, 126¾; 22, 131; 23, 133; 24, 134; 24, 143, super No. 3; 27, 143; Sept. 3, 147; 4, 148½. Dry-weather vine yielded from Aug. 2 to 24; color white; wild cucumber and heartsease came the first part of September. One week, rains and cold weather stopped gain. I have a larger yield in September most years if dry and warm.

Evansville, Ind., Sept. 5. W. W. VICKERY.

MIGRATORY BEE-KEEPING IN CALIFORNIA.

Moving to the Sages.

BY FRANK F. FRANCE.

In order to develop one's education in the methods of bee-keeping it is necessary to become fully acquainted with the ways of manipulation in different sections of the country. Having a good practical and working education of the northern ways of bee-keeping I decided to plan a season's work in Southern California, in the region of Ventura, for some of the most extensive bee-keepers on the western coast are found there. About the middle of January, 1911, I started from the cold and icy North, where the temperature at that time was about thirty below, and on my journey across the continent, and over the Sierra Nevada Mountains, the snow was so deep that it blocked the through mail trains at different sections. After leaving these mountains I noticed a gradual change in temperature, passing through the Green Mountains and into the green vegetation of California. Reaching the garden spot of all California, the southern valley and coast section, I did not wonder that the bee-keeper had an ideal temperature and location for his apiaries.



Fig. 1.—Method of clamping loose hanging frames for moving.

It was in January, about the 22d, that I began my work in preparing bees, hives, and fixtures for moving apiaries from the coast to the sage belt in the mountains. In making this preparation, all of the little details about the hives and moving appliances must not be overlooked. The bottoms of all hives are stapled or nailed on solid, and the frames, if of the California style, are clamped so that there is no play whatever. The manner of clamping these frames is shown in Fig. 1. This clamp is made of frame material, the top of which is the same thickness as that of the bottom-bar, of the common Langstroth frame, and the spurs about the same thickness as the side bar, width ⅞ inch. All hives not having this extra moving-clamp space above the frames are clamped in the same way, only the clamp has a tin top-bar. The frames are held from moving in this way, and there is no fear of breaking combs from jamming together or of killing any bees. All clamps should be removed immediately after the bees are moved, or they will be glued in so tight that it would be impossible to remove them without breaking.

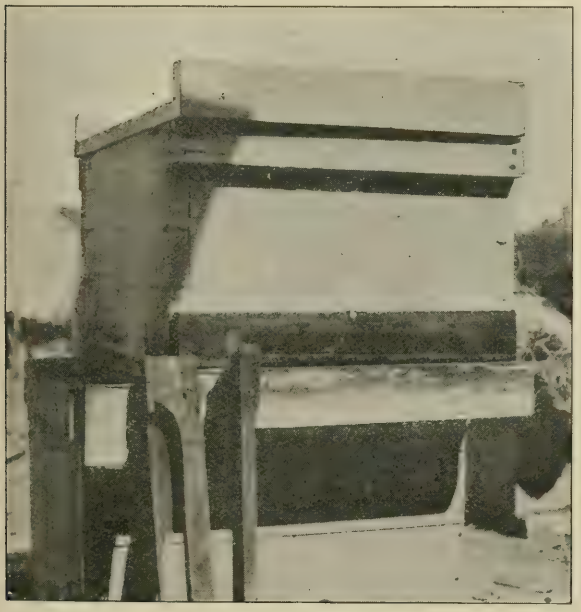


Fig. 2.—A substantial screen for closing entrances of colonies to be moved.

Colonies moved single story, and not too strong, have an entrance screen only. This



Fig. 3.—Rack made in California especially for hauling bees.

screen used is shown in Fig. 2, and can be used one season after another. Many bee-keepers use just plain wire cloth tacked over the entrance; but this plan of a screen on a frame means less labor. This screen frame is fastened by one nail in the center of the top and one at each end. This holds it bee-tight, and gives proper ventilation. For strong colonies the entrance is nailed tight with a cleat, and the whole top screened. This top screen is also made on a frame of inch stuff, and 1½ inches deep, with a cleat ⅝ inch at each end to hold the cover up from the screen. The cover is then nailed on by two nails on either side.

Now the hives are ready for loading on the rack. The rack used is made especially for hauling bees, and as shown in Fig. 3.

Many bee-keepers also use a plain hay-rack with good easy springs, while some use a plain flat wagon-bed with springs. The manner of loading and binding hives on this rack and small wagons will be seen by the small wagon used for out-yards, as shown in Fig. 4. This system holds each hive in its proper place, with no slipping or jumping around. About 150 colonies, single story, on this rack make a load; but if only supers, some 300 are loaded.



Fig. 4.—A spring wagon does very well for small loads.

All moving is generally done

at night to save the worry of the bees from heat and light. Many bee-keepers in Imperial Valley use ice in moving in that climate. All this first moving is done about the middle of March. If the bees are moved by car they are loaded the same way, only more space is allowed between the rows for ventilation, though preserving compact form, so as to have no breakdowns in switching. A common well-made cattle-car is best suited for this purpose. For hauling small loads of colonies from one yard to another, a light spring wagon, as shown in Fig. 4, is used. With proper care in loading and binding, 26 one-story colonies make a nice load.

The main honey-flow of this mountainous section runs from the first part of April until about the first of July, and comes mostly from the sages. About the middle of March the black sage (button sage) makes its first appearance, and blossoms more and more as the season advances. Like most honey-plants, its first flowers do not yield any amount of nectar, hence no flow for a week or two. The little buttons are made up of flower-buds, and the little white-lipped blossoms commence to come out on the outer edge of the bunch of buds. The plant is then in continual bloom until each button is flowered out. After the season is over, the buttons and leaves turn dark, from which I think it derives its name.

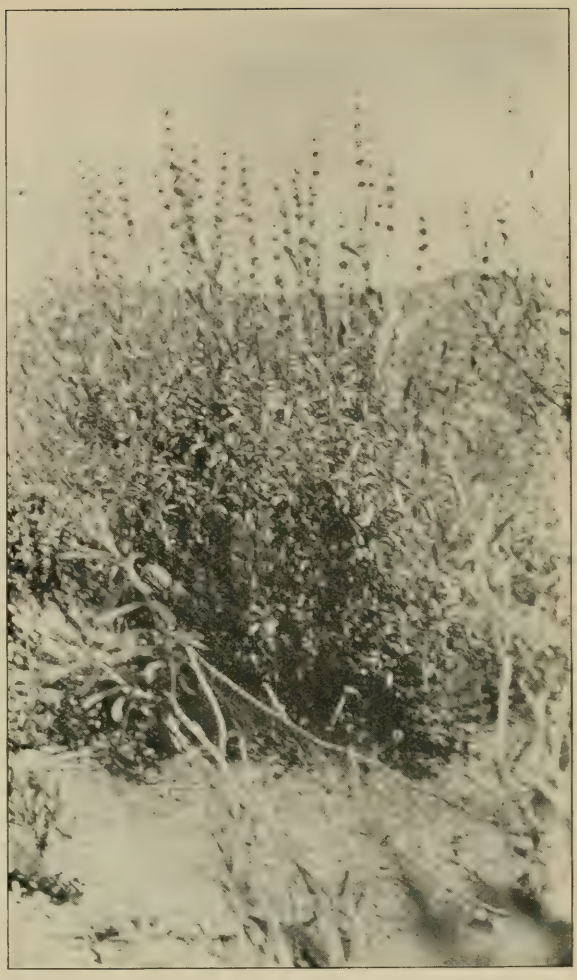


Fig. 5.—Black sage.

About the first of May, the next and most important honey-plant to come into bloom is the purple sage. This plant is almost like the black sage, only the flowering buttons are larger and the flowers of a purple hue. While there are many other minor honey-plants of some importance, such as the wild alfalfa, sunflower, white sage, and wild buckwheat, none can equal the purple sage, which produces the celebrated water-white honey. This clear honey, when taken out at its proper age, has one quality above all other honeys—that of remaining liquid in any climate. Figs. 5, 6, 7, are good clear pictures of the three important honey-plants of this section. No. 5 is black sage; No. 6, purple sage, and No. 7, wild buckwheat.

The first of July, to many bee-men of this section, means move again from this mountainous country back to the coast or bean-fields. This great Santa Clara Valley produces more lima beans than any other section in the world; hence if the season turns good it pays to move into good locations near these fields. (This point may also be located on the map in Ventura County, between the cities Ventura and Saugus.) The bean-bloom begins about the middle of July, and continues for some weeks, giving a white nectar.

In comparing the crops, etc., of California with the East, it is interesting to note that Westeners estimate in tons and carloads, and sell to the commission man generally. The flow and quality are very good when they have a good year; but it comes only about once in four or five years, so that the good sections of the East will balance up by having something of a showing every year. Good locations are hard to get, and the sages are being cut and burned, making room for more cultivation, so that in the near future California is destined to lose its high rank among the first of the honey States.

The commission-man problem should also



Fig. 6.—Purple sage.

be done away with by the bee-keepers coming together as one and in an organization, either through its own association or through the National Bee-keepers' Association, which in time I hope to see a controlling body in its chosen field.

Platteville, Wis.

[The bee-keepers of Holland think nothing of moving an apiary to different pasturage several times a season; and in many localities in this country migratory bee-keeping is fast becoming an expedient, if not a real necessity. If a permanent equipment is provided, instead of hastily gotten-together make-shifts, moving bees should not prove the vexatious and burdensome task that it so often does when a temporary and flimsy moving outfit is used. Most of the accidents result from breakage of parts not designed for emergencies. The work is hazardous enough at best, and for this reason it pays to spend time and money for an equipment designed for this purpose.—ED.]



Fig. 7.—Wild buckwheat.

HOME-MADE FOOT-POWER SAWS FOR MAKING BEE-KEEPERS' SUPPLIES.

BY PERCY ORTON.

The four engravings show my two foot-power sawing-machines, which, as will be seen, are home-made; nevertheless, I have found them very satisfactory. The frames I made myself, while the mandrels and the ball-bearings (grindstone hangers) on the drive-wheels are from Sears, Roebuck & Co. The cost of the material in each saw was about $6.00, not counting my own work.

Figs. 1 and 2 show the cut-off saw, and 3 and 4 the rip-saw. In Fig. 3 some of the products from the saw are also shown; that is, the hive-bodies in the flat, brood-frames, etc. For making the end-bars of frames I use a 1⅜-inch pine plank, 9⅛ inches long, wabble-sawed on the ends ⅜x⅞, and then this plank rip-sawed into pieces ⅜ inch thick, thus making the end-bars of the frames like those nailed up. The bottom-bars of the frames are ⅜x⅞, just fitting in the notch in the lower end of the end-bars. The top-bars are ⅞ inch square and 19⅛ inches long.

To fasten foundation in my frames, one-fourth of the top-bar is cut out of the lower side, the strip cut out being $\frac{7}{16}$ inch square, less the width of the saw-cut. The foundation is laid in this cut, and the strip nailed in place with three small wire nails, thus holding the sheet very firmly.

Northampton, N. Y.



Fig. 1.—Cut-off saw-table for cutting bee-keepers' supplies; built by Percy Orton.

THE ORIGIN OF PROPOLIS.

Not a By-product of Pollen; Dr. Kuestenmacher's Theory Erroneous, and Why.

BY ARTHUR C. MILLER.

Dr. M. Kuestenmacher's theory of the origin of propolis is certainly unique, and would be "interesting if true," but it happens to be erroneous—page 568.

Pollen does have some resinous gum, but not in any such quantity as would be necessary to produce the amounts of propolis found about the hives. Furthermore, it is distributed largely, if not entirely, over the husks of the pollen grains, and, being virtually insoluble in the stomach juices, it is not freed from the husks, but remains on them and passes from the system with them. Balsam in various forms, when taken into the human stomach, emulsifies and passes on, and is not "floating on top" of stomach content. This "floating" idea is very much like the childish idea of food lying in layers in the stomach, and the childish play of "topping off" with griddle cakes to serve as a "cover" for the rest.

A few simple facts which any one may observe will serve to determine the origin of propolis. First, large quantities of propolis are distributed in the hive when no brood is being fed and no pollen being gathered. Second, where the poplars known as balm of Gilead (*Populus balsamifera*) abound, the bulk of the propolis is gathered from them, and large quantities are gathered in the fall. As the tree blooms in early spring, and the pollen from it is consumed about as fast as gathered, it is difficult to see how it can be the source of the propolis. Third, bees can readily be seen gathering gum and packing it in their pollen-baskets, where it forms little glossy beads, varying in color according to its source.

Pollen is packed while the bee is flying; propolis is packed while she is standing. In the hive the bee has no trouble in getting rid of it, never being bedaubed with it. In its removal and distribution, mandibles and tongues of oth-

er bees take an active part. It is the tongue which forces the warm, almost fluid gum into cracks and crevices. Watch a bee busy in propolizing, and it is readily seen that the tongue is merely spreading propolis. It may have been from this that Dr. Kuestenmacher surmised that propolis came from the bee's stomach.

To those who wish to check propolizing, to keep covers from being stuck down, frames glued together, etc., the following simple remedy will be found efficacious: Whitewash all parts which it is desired to keep free. Our English cousins have for years used chalk rubbed along hive edges, etc., for the same purpose. After trying both of these for several seasons, the writer abandoned the practice so far as covers, floors, and some other parts were concerned. It was found to be more satisfactory to have things reasonably sealed. When the accumulation of propolis becomes too great it is the work of but a moment to remove the excess.

Providence, R. I.

BIGELOW'S HEN-HOUSE STILL IN STAMFORD.

Arcadia: Sound Beach, Connecticut.

BY EDWARD F. BIGELOW.

For many years, until about two years ago last spring, I had an experimental house known as a biological laboratory, and a smaller building known as an apiarian laboratory, in a small back yard at the corner of Grove Street and Highland Avenue, Stamford, Ct. In the larger of the two buildings I had a few hens, a few rabbits, cavies, and other pets. Every thing was kept perfectly clean, yet every autumn the neighbors complained about the offensive condition of that hen-house. Two or three repeatedly complained to the health department. Mr. Anderson, a zealous and efficient health officer, paid me a series of visits—one in response to each complaint. He carefully inspected the coops and the hutches. He sniffed at the ground, the sides of the building, and even turned his nose skyward. He was mystified. That there was a smell was plain, but it did not seem "henny." After each call he remarked that every thing appeared to be in good condition. But the neighbors passed by sometimes on the other side, and continued to complain, and to ask for an inves-

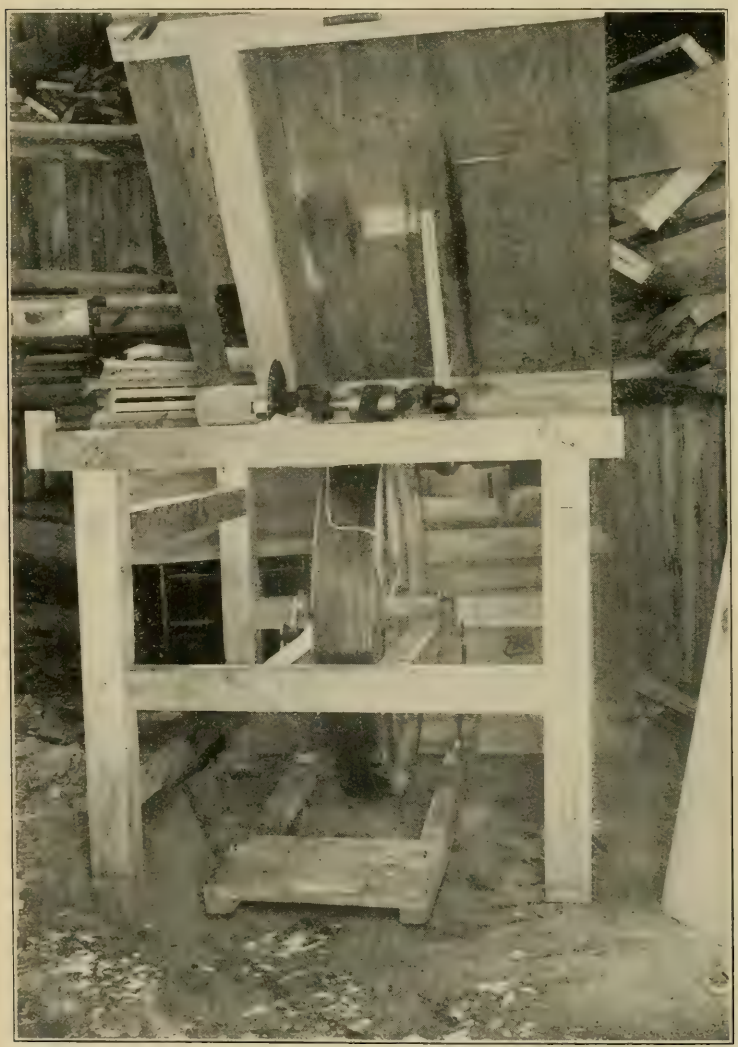


Fig. 2.—The cut-off saw with table raised.

tigation of that Bigelow hen-house.

Now, hen-house, apiary, house for my pets, all were moved two years ago to Sound Beach, several miles away, but, according to Highland Avenue, the smell of that hen-house lingers there still. It comes about in this way: Those same neighborswith the sensitive nostrils became interested in honey-bees, and my apiary left its trail on that street in the form of three enthusiastic converts to bee - keeping. One who in particular, with the members of his family, was zealous in complaining, has not yet got rid of the smell; but now that he knows the cause, he appreciates the joke. There is a fact unknown, even by many bee-keepers, unless it is revealed by the proximity of the apiary to the house. In September and October the bees gather quantities of goldenrod nectar; and while this makes good honey, it has an odor that is pleasing to some but disagreeable to others, and it was especially so to some of the present bee-keepers of Highland Avenue before they became bee-keepers. The offensive odor was from the goldenrod and the bees, and not caused by the biddies nor by their owner. They were guiltless.

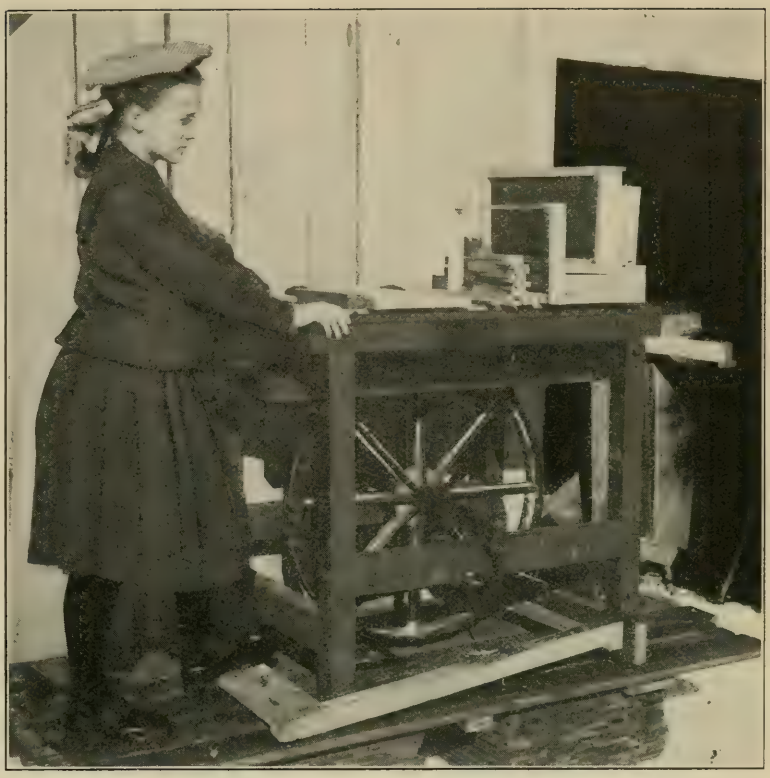


Fig. 3.—Orton's home-made rip-saw.

This reminds me of another marked example of the influence of a naturalist who is at the best regarded as a little queer, and is expected to do things differently from ordinary people. Nearly two years ago it was announced that the bee-house was to be moved to Sound Beach, and to be placed in the center of the village and near the postoffice. The entire neighborhood was alarmed. "We shall all be stung to death!" But the bees arrived; they prospered, and so did the people of Sound Beach. There were no stings except in the remarks made about the new natural-history establishment. The boys and girls learned to like the honey-bees, and so did other visitors. But some of the neighbors did not. They remarked that the bees were puncturing their fruit, spoiling their blossoms, and, I suppose, were upsetting the general equilibrium of the home. Some of these complaints began kindly but firmly during the first year. They increased a little in the second. Wherever in all Sound Beach were seen honey-bees, bumble-bees, bee-flies, horse-flies, and I am not sure but flying ants and other members of the hymenoptera, they were laid to the charge of Bigelow's apiary. But here is just one little fact that has a bearing upon the situation, and that has been known to very few outside outside of Arcadia, and those few are not residents in the vicinity. The entire apiary was discontinued early last spring, and the building since then has been used for other purposes. There has not been a bee in Arcadia during this entire season. But the ghosts of Bigelow's bees plundered the flowers and pierced the fruits of Sound Beach during this entire season. *Dictum sapienti sat est.* "Overhaul your catechism till you find that passage, and, when found, turn the leaf down."

Sound Beach, Conn.

[There have been several reports regarding the disagreeable odor when bees are working on certain fall flowers. The aster seems to be the principal offender —Ed.]

IN MEMORIAM OF E. C. PORTER.

The Maker of the Porter Bee-escape; Bee-keeper and Tile-maker.

BY A FRIEND.

[As there had been no picture taken of Mr. Porter except when he was a very young man, his friends did not send any. The following sketch of his life was prepared by a neighbor and friend.—ED.]

Edmond C. Porter was born June 10, 1857, and died August 6, 1911. He was the only child of Rufus and Mary E. Porter. He was a man of excellent character and stirling worth. He was honorable, reticent, studious, and industrious, taking the utmost pains to perfect any thing he undertook along any line of work. He possessed a vast fund of knowledge on various topics—very unusual in this day of rush and hustle. Nothing but the best satisfied him; and if any question came up, he did not rest until he had answered it and was sure he was right. He was an ardent lover of nature, and it was his pride to cultivate choice varieties of fruit and plants.

His father, Rufus Porter, was a raiser of bees, and from his earliest childhood Edmond, too, loved and worked with them.

While Mr. Rufus Porter was the original inventor of the Porter bee-escape, the son improved upon it, and it was he who manufactured them and placed them on the market.

Just before his death he had been granted a patent on the improvement. He had many bees of his own, and made a specialty of extracted honey.

He was a fine financier, and, in addition to the bee industry, he had a large farm, and took charge of the tile-factory which had belonged to his father.

He was unmarried, and had always been at home with his mother, to whom he was devoted, especially since the father's death seven years ago. He has given her the most tender love and care. She is now well advanced in years, and feels his loss keenly.

He was loyal to his friends, just and generous to all, and in his death we have lost a really good man who will be greatly missed in the community in which he lived.

Ray, Ill.

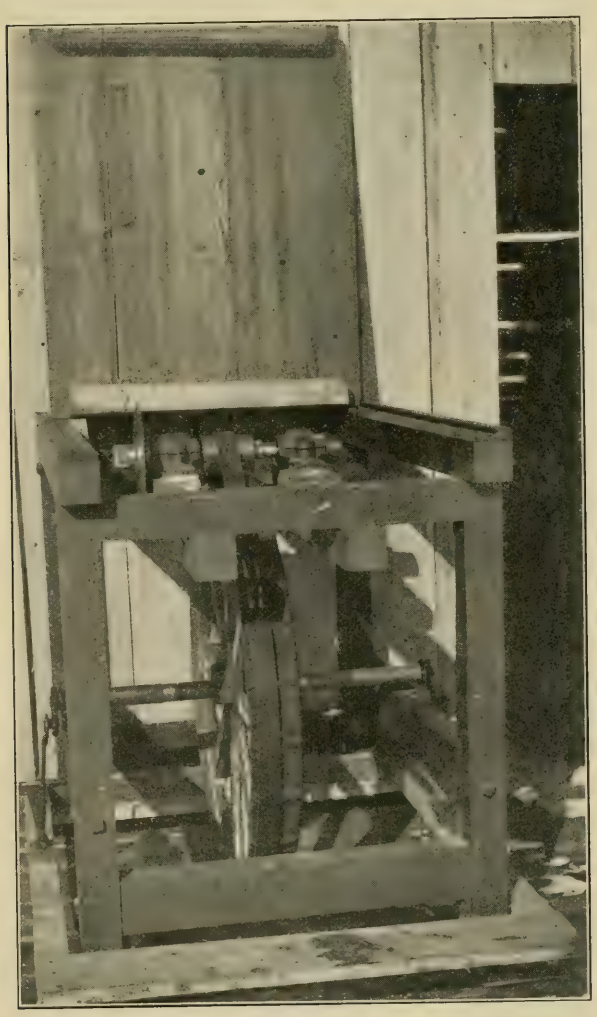


Fig. 4.—Rip-saw with table raised.

AN INGENIOUS WAY OF PREVENTING ROBBING.

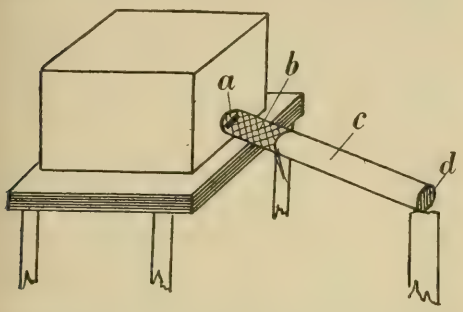
BY DR. C. C. MILLER.

There are times when there is very great danger that nuclei for fertilizing queens will be robbed out. Rudolf Eisner has devised a plan, *Bienen-Vater*, page 239, whereby he says the nucleus is safe from robbers without having its entrance contracted. A tube of wire cloth, *b*, is attached to the entrance, *a*. This tube is three or four inches long, and an inch or more in diameter. To this is attached another tube, *c*, 20 or 25 inches long, made of wood, pasteboard, etc. When the bees take their flight, they may try to get out through the wire cloth, but will soon find their way to the outer end of the tube, *d*, which rests on the top of a stake, the top of the stake serving as an alighting-board.

Well, what's to hinder the robbers from entering at the same place? Just this little trick: The end *d* is lower than

the end *a*. The bees of the nucleus have marked the end *d* as their place of entrance, and use it freely, while there is nothing to attract the robbers there, for the air rises in the tube, and all the odor passes out through the wire cloth, at which place the robbers vainly try to enter.

As an experiment, Mr. Eisner encouraged robbing last fall in a nucleus separately located. He daubed the front of the hive



with honey, and also placed there 1½ pounds of comb honey. In a short time it looked as if a swarm had settled there. Soon the honey was gone, but not the robbers. For nearly a week they kept up their attack upon the wire cloth, where the odor from within was perceived, while the little community quietly kept on its way without hindrance.

Although Mr. Eisner says nothing about it, it would seem possible that such an arrangement might work to stop robbing after it has begun. Have the tube ready to fasten upon the entrance of any hive, always with the outer end lower than the entrance, and then, when a case of robbing is found, apply the device and let the robbers fight away at the wire cloth. "But then," you ask, "would not the robbers that were already in the hive mark the outer entrance as they escape, as well as the bees of the hive?" Like enough. But it might work if put on the hive in the evening after flight has ceased for the day.

Marengo, Ill.

MAKING SURE OF PLENTY OF WINTER STORES IN THE DANZENBAKER HIVES.

BY E. D. TOWNSEND.

Mr. E. D. Townsend:—I want you to tell me how to manipulate my hives so that the bees will best prepare their winter nest. They are now in three-story Danzenbaker hives, each story the brood size (ten frames, 17 x 7½), and I run them for extracted honey. The upper story is now full and ripe; but it is so difficult to store empty combs until cool weather, on account of moth, that I should like to let all three stories remain on until Oct. 10, if I can do this and have bees properly fix the winter nest. I want them to winter in the lower story; but they will store nothing in the lower story as long as one or more stories remain above.

I have not tried carbon bisulphide with stored combs. Would you take off the upper story now, leaving two stories on, and put the bottom one—the one I wish to winter in—on top, and then later remove the bottom one? Please tell me just how you would do it. From now on, bees here usually gather enough to winter on from peas, fall asters, goldenrod, etc.

Hollis, N. C. C. C. GETTYS.

[Mr. Townsend replies:]

The Danzenbaker hive is not the only one that may have an empty brood-nest at the end of the season. Bees naturally go to the top of their hive to begin storing honey; and the queen, if unrestricted, will gradually move the brood-nest along near the lower edge of the honey, vacating the original brood-nest for the inviting place above. Now, if no more room is given, and the honey-flow continues, the bees will finally crowd the queen out of the top stories back into the lower story, or brood-nest, with honey. On the other hand, if more combs are given a colony than the bees can possibly use, the lower hive is likely to be entirely deserted, except a considerable amount of bee-bread, and to be in no shape for winter unless the upper stories are removed (after the brood hatches out) and the colony fed for winter.

This fall feeding we have abandoned, as it is too late in the season where a fall flow of honey is secured, as with you. Both the size and shape of the brood-nest cut some figure in the amount of honey left in the hive at the close of the season for winter stores. A deep hive is more likely to have more honey left for winter stores than a shallow one. Then there is a difference in the strain of bees about carrying and storing honey. Pure Italians store their honey nearer the brood-nest, while the blacks or hybrids store their honey freely at a considerable distance from their brood.

You want to winter your colonies in the lower story of your three-story Danzenbaker hive; but as the lower story has no honey, the colony will need at least 30 lbs. in your location, to winter and spring, and an upper story of honey should be left on for this purpose. A Danzenbaker body, when sealed full, will likely hold 40 lbs. of honey and bee-bread; so if the story were three-fourths full of honey it would be about right in this location. It will not take less in your location, and may take more. A little watching along this line will help you to determine for yourself the stores you will need. You say that the top story is now full of honey, and a fall flow in sight. It is quite likely that the second story will be filled during the fall flow, and the queen and her brood-nest in the lower story, as you want them. In this case all you will have to do the 10th of October will be to extract the top story, leaving the two lower stories and the honey they contain for the bees during winter.

This aster honey will not be quite as good as the early honey for winter stores; but with you, bees ought not to be confined to their hives more than sixty days during winter without a fly. If bees have an opportunity to fly each six weeks or two months during winter, the quality of winter stores need not be considered. The only requisite is to see that they have plenty.

The Danzenbaker or eight-frame L. hive is too small to breed up a normal colony for winter and still have room for the storing of their winter food, as 30 lbs. of honey will fill the Danzenbaker hive four-fifths full, which would leave scant room for the brood-nest.

Remus, Mich.

RIPENING HONEY OUTSIDE THE HIVE; VENTILATION OF HIVES.

A Detailed History of Some Extended Experiments.

BY I. HOPKINS.

Both of these questions are of very great importance in the economy of bee-keeping, and both are now controversial subjects, especially the first. Bee-keepers as a rule are apt to follow without considering whether the leader may be on the right track or not. There appears to be a tendency among the majority to accept as facts theories without scientific foundation, which have been put forward by popular writers and others. This is especially true where a statement is made which happens to be in accordance with preconceived ideas on the subject; yet it may be altogether misleading. When this is the case, much harm is done; for if generally accepted as correct, it may be the means of obscuring the real point at issue, and of delaying a scientific investigation for years. This, I consider, has been the case with the first subject at the head of these notes.

RIPENING HONEY ARTIFICIALLY.

We all remember what a commotion was created in the bee-world when the late E. W. Alexander gave, early in 1906, in GLEANINGS, his method of extracting uncapped honey. Yet not one of the opponents of his system ever put forward one definite reason for his opposition. I have watched very closely all that has been written against the system, for I have been particularly interested in all that could be said for and against it, as I first adopted it in 1883, and carry it out still at our government apiaries. Out of all the correspondence there has been nothing but vague statements that honey can be properly ripened only within the hive. The opponents of the system hold that honey ripened outside is inferior. I would ask what grounds they have for their assertion. Against their loose statements we have the experience of Mr. Alexander, who was one of the foremost men in the bee-keeping world.

I have also proved by practice, to my own satisfaction, the great advantages of the system, and that absolutely no difference can be detected between honey ripened outside and inside the hive. Nevertheless I should like to learn that chemical investigation of the matter is likely to be carried out. I am of the opinion that the chief factor in ripening honey, aside from the possibility of some chemical change in the sugars going on, is the ridding it of its surplus moisture, which can proceed outside as well as inside the hive in suitable surroundings.

VENTILATION OF HIVES.

The fact that this question periodically crops out in the bee-journals indicates a lack of knowledge of its principles; yet it is most important that every bee-keeper should understand the matter. Though the question of the best method of ventilating a hive is capable of being demonstrated in the apiary, without recourse to a scientific person, it is not every bee-keeper who has the patience or time to devote to experiments which need great care and considerable time to carry them out properly. I don't remember any account in the journals of such experiments being conducted. Probably this is due to the fact of its appearing such a simple matter that it has not been considered necessary to experiment.

In my early days of bee-keeping, in the mid '70s, I used to be troubled every spring with moldy combs, which, considering the favorable surroundings, I could not account for until years afterward; but I was convinced it had some connection with the ventilation. In 1889, with the aid of a friend of mine (the Rev. J. R. Madan), I carried out an exhaustive series of experiments, extending over a good part of two months The hives (a ten-frame Langstroth, of one and two stories) was prepared by boring holes in each part so as to take 12 thermometers, which were secured in such a manner as not to be influenced by the outside atmosphere; in fact, we took every precaution to exclude, as far as possible, all likely sources of error. In addition we had five thermometers outside the hive. We took readings every hour, and sometimes every half-hour, from early in the morning until late at night. We used a porous mat over the frames sometimes, and at other times hermetically sealed the hive above the frames to prevent all upward ventilation. We also experimented with a one and two story hive with colonies of a strength to suit. It was in January and February, our two warmest months; and the place where the experiments were conducted was Auckland, N. Z., in latitude 37 degrees south, the hives standing in the open, but sheltered.

Without going into details I may state that, during the whole of our experiments, the temperature of the center and lower parts of the hive (with the exception of one side near the entrance) was higher than the top portion. My note, made at the time, reads: "The most notable features are, 1, that the temperature at the top, just under the mat, was always lower than that three inches below; 2, that the lower thermometer (near the bottom-board on one side) was highest until the sun set; and, 3, that when the external temperature fell there was always a fall inside the hive." The difference in the temperature between the upper and middle parts ranged from three to six degrees, and on one occasion was eight degrees.

I doubt whether a more complete series of

hive-ventilating experiments was ever carried out; and whether the fact that a single porous mat was in use, or the hive was hermetically sealed above the frames, made any difference provided there was a liberal or large entrance. If this was much contracted, the inside temperature rose at once, and a force of bees immediately started fanning outside. The two thermometers, placed one on each side of the entrance, and projecting inside the hive, always showed a difference of several degrees. This fact, in conjunction with the results of each phase of our experiments, pointed unmistakably to the conclusion that the bees under all conditions carry out their own ventilation—that the exhausted air is driven out on one side of the entrance while the fresh air is being drawn in at the other.

May this not be accounted for by the probability that the bees give off a considerable amount of carbonic-acid gas, which, being heavier than the atmosphere, would descend to the lower part of the hive, and therefore necessitate its being driven out from the bottom? The fact that the bees try to close up every chink above shows that bottom ventilation is their system.

Dampness and moldy combs within the hives in our climate of Australasia in winter is due chiefly to insufficient bottom-ventilating space, and I always advocate a fairly large entrance during the winter.

Auckland, New Zealand.

BEE-KEEPING IN JAMAICA.

Some Misstatements Corrected.

BY SEPTIMUS NASH.

I read with interest the article in August 1st number, p. 463, written by Mr. W. C. Morris, and wish to make a few comments on what the writer has to say on the subject of bee-keeping in Jamaica. His first two sentences read: "The bee-keeping industry in Jamaica is only in its infancy. There is flora to support profitably a million and a half colonies, and there are only 112,000 colonies."

The area of Jamaica is 4200 square miles. Assuming that the odd 200 square miles are unprofitable for the bee industry, being swamp lands or under cultivation of canes, grass, etc., there are 4000 square miles left which are more or less suitable for bee-keeping. According to Mr. Morris, there are 112,000 colonies of bees here—probably a fair estimate — thus making about 28 colonies of bees per square mile. Does that sound like a country in which the bee-keeping industry is in its infancy? Mr. Morris states that 1,500,000 colonies could be kept here profitably—an average of 375 colonies per square mile, and he further adds that the average crop obtained is 50 lbs. per colony, but that with *intelligent* management it could be increased easily to 200 lbs. We bee-keepers would like to know whether there is another country on the face of the earth, of the area of Jamaica, that supports an average of more than 28 colonies of bees per square mile and makes 5,600,000 lbs. of honey, the result secured from the figures as given. What would you think of Mr. Morris' Jamaica supporting 375 colonies of bees per square mile, and producing a crop of 30,000,000 lbs. per annum?

Black River, Jamaica.

COMPARATIVE PROFIT OF EXTRACTED, SECTION, OR BULK COMB.

BY LOUIS SCHOLL.

Continued from page 617.

at 8 cents per pound, this must be deducted from the $6.60, leaving $5.00 for the 40 lbs. of comb honey in the can.

The average yield per colony of bulk comb honey is about 100 lbs.; and as extracted honey must be used to put up the comb honey with, both are generally produced in the same hive. The extracted-honey supers are placed on early in the season to catch the early honey before the season is well enough advanced for the best work in the comb-honey supers, and use is also made of them again at the end of the flow to catch the honey, which otherwise would result in a great deal of unfinished comb honey. Thus the comb honey is produced rapidly during the most favorable part of the season or the honey-flow, and during a time when the bees are secreting wax more rapidly, which lessens the delay in comb-building and consumption of honey otherwise necessary. Using the extracted supers in the early spring furnishes the bees extra room and keeps them contented longer, so that, when still more room is provided by giving the shallow supers with frames filled with full sheets of foundation when the flow begins, there is no desire to swarm, as is the case when supers with sections are given to a crowded hive.

Instead of using the regular deep hive or those of the Langstroth dimensions throughout for supers as well as for the brood-chamber below, the shallow supers, 5⅝ inches deep, are used most extensively now, as these are the most suitable in size to use for the manipulations as outlined above for the production of bulk comb honey. It is possible to use a much lighter weight of foundation in the shallow frames, being both a saving, and making the presence of such less susceptible in the finished product than if heavier foundation were used. For extracted honey the shallow frames are also well adapted, as their comb surfaces are more easily uncapped before extracting, as the knife reaches across their width entirely, and one stroke uncaps the entire surface. Room can be given to the colonies more gradually as needed with the shallow supers, which is a great advantage over the deeper and larger hives for colonies that are not able to take care of so much room at one time. The writer is using these shallow supers throughout for the brood-chambers as well as for the supers, and their great advantages enable him to accomplish manipulations throughout the season that result in larger profits.

As there is a very large demand for bulk comb honey in Texas, greater than for the other two kinds together, its production has been most profitable for many years, and hence is the most extensively produced by far.

New Braunfels, Texas.

Heads of Grain from Different Fields

When to Ship Full Colonies; Fat versus Slender Queens; When does Supersedure Occur? Sending Queen-eggs by Mail for Grafting, etc.

1. What time of the year is best to ship full colonies of bees? how best to prepare for shipment?

2. Are drones reared from pure queens that mated with black or hybrid drones pure? If so, why are they darker in color than pure drones?

3. If it is necessary to have a good flow of honey coming in to rear good queens, why do the bees always wait until after the flow to supersede their queens?

4. Which will give the most surplus honey where you have to build your combs—when all colonies are strong, take half of them and shake bees and queens into empty hives with starters or full sheets of foundation, taking their brood and combs to the remaining half, to be filled as fast as the brood hatches, or take the queens from the whole number and put them below excluders on foundation?

5. Can I use thin super foundation one inch wide in brood-frames, without trouble?

6. Are not queens with abdomens with plump fat bodies better than those having long slender slate-pencil-like bodies? I notice that all of my queens reared by up-to-date methods are shaped like the latter; and those reared naturally are shaped like the first named.

7. Why do queens reared from a purely mated queen vary in color?

8. Can fresh-laid eggs be kept away from the bees four days and then be given back if not allowed to get too warm or too cold?

Keysville, Va., Aug. 18. S. H. CRYMES.

1. There is no particular time of the year that is more advantageous than another, except that it is wise to avoid very cold and extremely warm weather. The spring of the year, or early summer, is a good time, because the hives are light in stores and the weather is favorable. During July and August the weather is liable to be quite warm. The fall months are very good, but hives then are often heavy with stores. This increases the express rates and the liability of comb-breakage.

2. According to the Dzierzon theory, the drones reared from pure queens mated with black or hybrid drones would be pure. We did not know before that such drones would be darker in color than drones from a queen mated with a pure drone. We doubt if it is true.

3. It is not true, according to our experience and observation, that the "bees always wait until after the flow to supersede their queens." As a general thing, bees will start supersedure cells at any time of the year when queens begin to show signs of failure, or after a period when the queen has been doing extremely heavy work. It transpires, therefore, according to our observation and experience, that supersedure takes place during the honey-flow; but the fact does not become known to the apiarist until after the honey-flow. This possibly accounts for your mistake. Supersedure cells that are built during the honey-flow might be mistaken for natural swarming-cells. While both such cells are exactly alike, the cause that starts the one is different from the cause that starts the other. And, again, it is not essential to have a good flow of honey in order to rear good queens. Just as good or better queens can be reared under the impulse of *scientific* feeding. The amount of food given during feeding can be *controlled* to a nicety, while the amount of food that comes in from a natural honey-flow can not. A heavy honey-flow always stops queen-rearing, while a light one, *if continuous*, will give just as good results as scientific feeding.

4. We don't know that we can answer this question, as so much depends upon conditions. Generally speaking, convenience would favor the second plan, as it could be more easily carried out.

5. Yes.

6. There is a difference of opinion on this point. We don't think that the shape of the queen's body, or abdomen, has so much to do with her egg-laying as the *size* of it. Eastern races of bees have queens with long slender slate-pencil-like bodies. Nearly all of these queens are very prolific. Another thing, up-to-date methods of queen-rearing have very little to do with the *shape* of queens' bodies. The strain of bees used—or, rather, the breeder used—is the real factor that decides this.

7. While the bees of a pure Italian queen may be uniformly marked, the queens and drones from such queens may vary considerably. Some queens, however, will rear uniformly marked queens, as well as uniformly marked bees; but yet such queens are no better nor purer than the other type just mentioned. But queen-breeders as a general thing prefer queens that rear uniformly marked daughters—not because they are purer, but because the public demands the yellow-all-over queens.

8. Yes. It has been done a good many times. Fresh eggs have often been sent by mail some three or four hundred miles, and, when grafted into cells at the end of destination, rear good queens. Some breeders, quite a number of years ago, used to do quite a little business in selling fresh eggs in little patches of combs. The practice has been generally abandoned because of so many failures.—ED.]

The Heddon Method of Transferring; Questions Concerning Eight v. Ten Frame Hives.

Is there any new method of transferring better than the Heddon?

Is there any better way to requeen a colony that has been queenless for some time, and will not unite with nuclei, than to give them a frame of brood and eggs to raise one, shaking out bees and queen from a box hive on to full sheets of wired foundation, putting the box on top of the hive, with a queen-excluder between? Will the bees uncap the honey and put it below where the queen is, or will they require feeding until brood is hatched out in the box hive? There is very little coming in now. Goldenrod and buckwheat will soon be in bloom here. Clover and basswood are not half a crop here, on account of drouth.

What hive do you consider best for comb honey—the eight or ten frame? Does it pay as well as extracted?

In buying Italian queens would you advise getting tested or untested?

Aylmer, Ont., Aug. 4. R. H. LINDSAY.

[We know of no better method for transferring than the Heddon. Late in the fall or early in the spring it is advisable to cut out the combs and insert them in the frames by the directions given in our standard text books.

Under the conditions named we would advise giving the colony a ripe cell if you can find one. If none are to be had, give the bees a frame of young larvæ and let them rear a queen of their own.

The bees probably would not carry the honey from the box hive down into the lower one. They might do so, however, if you could uncap the combs; but when they are in a box hive, of course you can not do that. As soon as the brood hatches out we would advise cutting combs out, extract them piece by piece, or mash them up and squeeze out the honey, and then feed the honey to the bees in the lower hive, with frames of foundation, until some of the combs are drawn out and brood started.

As a general thing we recommend ten-frame hives in place of the eight-frame. It is much better for your climate, and sometimes will produce more comb honey than the eight-frame. For extracted honey it is certainly ahead of the eight-frame hive.

As a matter of economy, it is cheaper to buy untested Italian queens of some standard breeder, for probably 95 per cent of the untested will prove to be purely mated. For this time of the year (August), a young queen is far better than a tested one that is probably a year old.—ED.]

Ants, while Not Troubling the Bees, are a Nuisance to the Bee-keeper.

I am annoyed by tiny black ants congregating with their cocoons under the covers of some of my hives. I have a painted cloth between the frames and the cover, and the ants are on top of the cloth. They do not go into the hives; but as soon as I raise the cover they run all over my hands. I have used fine salt, sprinkled on the cloth, which often drives them away, but not always. They are particularly bad this year. Can you tell me whether "Avenarius carbolineum" would be objectionable

to the bees, or whether it would be likely to impart an offensive odor to the sections under the cloth? If there is nothing objectionable about it I have thought I would put a sheet of thin cloth or heavy paper, painted with this substance, between the regular hive-cloth and the cover. In the advertisement in GLEANINGS it is claimed that it will drive ants away.

I am very much pleased with the German bee-brush. It is the best thing I ever had for brushing either bees or ants. WM. MUTH-RASMUSSEN.

Independence, Cal., June 27.

[We would advise you to collect a few samples of ants, put them in a small glass bottle, and mail them to your State entomologist. He could give you some formula or some preparation that you could spray on the back of your hive-cloths that would keep the ants out. We have never had any experience with the Avenarius carbolineum, but would think that a spray of that preparation applied to your hive-cloth and to the cover of the hive would keep the ants out. Possibly it might be cheaper to spray on top of the hive-cloth some sort of insect-powder. Spraying a little carbolic acid — that is, a very weak solution of it — might answer an equally good purpose and cost far less. It is our opinion that Avenarius carbolineum or even the carbolic-acid solution sprayed on top of the hive-cloth would not cause any trouble on the part of the bees. It would be necessary, however, to see that the hive-cloth is tucked down very closely so that the odor of the other substances will not drive the bees down into the brood-nest.

A very thin sheet of tarred paper placed on top of the hive-cloth and under the hive-cover might answer just as good a purpose as any thing you could use.—ED.]

Is Foundation from Foul-broody Combs Safe? Bees in a Vegetable-cellar.

1. If beeswax is melted in a copper or galvanized-iron boiler, will it hurt the quality of the wax for foundation?

2. If combs containing foul brood are melted in a boiler, and rendered with an unheated press, will the wax be safe for foundation?

3. Which is better for shade — a shade-board or a grapevine trained to grow upon a post by the hive?

4. Would it be safe to winter two colonies of bees in a cellar containing apples, potatoes, etc.?

Cedaredge, Colo. L. RINEHART,

1. When you melt beeswax you should put water in the bottom of the vessel first. Wax melted dry in a metal vessel is almost sure to be discolored. Copper should always be avoided, for the high temperature causes the wax to act upon the copper to a certain extent, so as to give a green tinge instead of the desirable lemon-yellow color. Galvanized iron is better, but not nearly as good as bright tin or clean black iron. Rusty iron of any kind will discolor wax.

2. When rendering wax, if the combs are put into a boiler containing three or four inches of water, and this water is boiled until the contents have a mushy appearance, all the hard lumps being broken up by the long-continued boiling of the water, we do not think there is very much danger of transmitting disease if such wax is used at once for making comb foundation. The great trouble with the average person is that, in order to save time, the combs are either not left in the boiler long enough, or else they are not thoroughly stirred. The result is that the whole mass does not reach the boiling-point of water. This not only makes it very difficult to get all the wax out of the combs, but certainly fails to kill foul brood if present. In any foundation-factory, however, the boiling is so thoroughly done that no bad results can follow.

3. It depends a good deal upon your own personal preference which you should use for shade — a grapevine or a shade-board. If you have a permanent location for an apiary, and you are sure that you will not want to move the colonies to some other place, the grapevine makes a very pretty and effective shade; but, of course, the vines need more or less trimming every year; and, take it all in all, unless you have a permanent location, and want the grapes, the shade-board is probably the cheaper and more practical means of partially shading a hive.

4. Ordinarily a cellar that is ideal for the bees is good for the vegetables also. The mere fact that apples, potatoes, etc., keep well in a cellar, however, would not show that such cellar was also well adapted for wintering bees, for it might be too damp, or the temperature might fluctuate too much. A low temperature, combined with a moist atmosphere, makes a very bad place for bees. For the best results the temperature should be kept pretty uniform — from 40 to 45 degrees — and there should be a good circulation of pure air.—ED.]

Can Granulated Sugar be Used for Feeding that has Kerosene in it?

I have an opportunity to buy several sacks of granulated sugar that has been soaked with kerosene oil; and as my bees need feeding very badly, I should like to have you advise me whether the sugar would cause any trouble, in case I get it to feed them, on account of the oil.

Morral, Ohio, Sept. 29. O. T. PIERMAN.

[If the sugar has been soaked clear through by a considerable quantity of kerosene, we doubt if it would be safe for you to use it for the bees, even if they take it down; but if there is only just enough to spoil it for domestic use, we would say that you could use it. It might be well to try one sack first, to see how well the bees take it. If you melt it up and can eat any quantity of it yourself, it probably would not hurt the bees.—ED.]

Brown Sugar for Bees.

I notice that granulated sugar is usually recommended for making syrup. While it may be a little better, as a rule, I have failed to find any difference so far, and I have had considerable experience. I have used all kinds of sugar with good results — even the cheapest grades of brown sugar. I have also failed to see any difference in the effect of feeding thick or thin syrup; but I generally use a slightly larger weight of sugar than of water. The thin syrup, of course, would cause the bees to do some more work in evaporating the excess of water which it contains; but I have never noticed that this made any difference in the long run. As the climate is much more mild here than in the North, the question of winter feed is not very important, as the bees seem to winter on honey-dew just as well as on any kind of honey. While we sometimes have a very cold snap, it rarely lasts long, as it is very uncommon for the bees to be kept in the hives by cold weather for more than a week or ten days.

Stonecoal, W. Va., March 23. W. C. MOLLETT.

Slow Feeding in a Super from a Mason Jar.

Replying to your article, Aug. 15, page 483, regarding feeding for increase and stimulation, and feeding slowly, I would say I have practiced feeding slowly for quite a while. This is the way I do it:

I take a two-quart Mason jar; make a syrup, three parts of water to one of sugar; remove the porcelain part of the cover of the jar, after which I punch a hole large enough for a cabbage seed to pass through. In a piece of two-inch plank I cut about a three-inch hole; set the plank over the hole in the super-cover made for the Porter bee-escape, and invert the jar with the syrup. The hole in the piece of plank holds it. I then put on a super-body and close the whole with bags or carpeting to retain the heat. It is astonishing how quietly the bees will empty the jar, and how fast they will build up.

Vernon, Ct. J. G. FRENCH.

Carbolic Cloths Satisfactory.

I have noticed that one or two of your correspondents have written about carbolic cloths. I myself have used carbolic acid a great deal in this way, and have found it very handy and useful. I used to have a bottle with three parts of water to one of carbolic acid—"Calvert's No. 5" it was called. I might say here that, when away from home, I bought another sort of carbolic acid, but it was quite useless for my purpose. If a few drops are shaken on a piece of soft calico or linen, and then this piece rolled up tightly, and put in a small tin, like a ten-cent tobacco-box, they are ready when wanted, and can be drawn slowly over the frames or sections. The bees soon get out of the way. If used too strong, or left on top of the frames, one would soon see the bees in front of the hive.

Wellesley, Mass., Aug. 1. W. H. SCOTT.

Wasps Making Trouble in Montana.

We have been having a great deal of trouble here from the wasps and yellow-jackets that are robbing and destroying our bees. I lost eight or nine colonies in that way last fall, and they are at the bees again this fall. My bees are Italians, but the wasps simply come in from somewhere and rob and kill them. They do not build any nests inside the hive; but early in the summer they started some between the inside and outside cover. There are some hornets here also, but they have not been bothering very much as yet. The wasps seem to work earlier and also later than the bees. I have sat for an hour at a time in front of a hive and destroyed about a hundred wasps; and while I was killing one, perhaps five or six more escaped, so they are pretty thick. I have been told that the only remedy is to find the nests and destroy them; but that is not an easy matter, as we live in a place surrounded by cottonwood, willows, and wild-rose brush.

When the wasps start robbing a strong colony, the bees are thick in front at first, and try to fight them; but later the wasps win. They dart back and forth so quickly that the bees are confused.

My wax-extractor lid became a little warped so that it did not fit just right, and at one time I found a number of wasps inside on the wax. It occurred to me to put poison in the extractor, since the bees could not get through the crack, and I first tried a yeast cake mixed in a cake of honey. It attracted them all right, but I could see no dead ones. Later I used a sheet of poison fly-paper that had been soaked in a little water; and although the wasps seem to be getting fewer in numbers, I can find no dead ones. So far no bees have got in; but I am afraid that the lid may fly down some time and allow the bees to get at the poison.

Rancher, Montana. C. ISAAC.

[We have had a number of reports from Montana and some of the other western States in regard to the depredations by wasps and hornets, and they are apparently more serious pests than most beekeepers realize—at least in some localities. It hardly seems to us that the few that could be poisoned would make much difference. We believe that it would be better to make sure that all colonies are powerful and pure Italians, then have all the entrances contracted during the time when the wasps are so thick.—ED.]

Amount of Wax in Old Combs; Two Queens Wintered in One Hive.

How many pounds of wax should I get from 100 lbs. of the average old comb, a Hatch press to be used? Last fall I united two weak colonies, leaving both queens with the united colony. Last April, on opening the hive I was surprised to find both queens living and laying. As there was no division of any kind, both queens having access to any part of the hive, I considered it remarkable.

Everett, Mass. T. J. HAWKINS.

[It depends entirely upon whether these old combs contain honey or whether they are dry; also whether there is much pollen in the cells. We have sometimes obtained 50 per cent of wax by weight; but as a rule it runs a little less than this, owing to the fact that there is usually a little honey or pollen in the combs. Of course it depends, too, upon the age of the combs, as new combs yield a much larger proportion of wax by weight than old combs.

Two queens, if they are found together in a hive during the summer, almost invariably fail to keep up friendly relations or else the bees do not tolerate both queens, for one is usually all that can be found in the spring or even in the late fall. If you could duplicate this experiment you would have something valuable; but we presume that it is just by accident that the two queens lived through the winter. It would certainly be very convenient if a surplus of queens could be wintered over in this way, to be used the following spring for requeening, etc.—ED.]

The Queen-finding Sieve a Success.

As the weather was cool and cloudy when I was ready to introduce a lot of queens that I ordered, I thought I would try the plan given by J. E. Crane, page 451, Aug. 1. Accordingly I made a box with short legs, with wood at two sides, and queen-excluders similar to those I use on my twelve-frame L. hives for the two other sides and the bottom. I am well pleased with the plan, for I could easily find the queens after the bees were nearly all in. Of course I found a few queens when I was lifting out the combs, for I was careful not to use so much smoke that the queens would not run off on the hive. I removed all the combs that were above the excluder in other hives first, then those in the lower story by themselves, before I began to shake.

Low Banks, Ont., Sept. 11. ILA MICHENER.

Bees Injuring Alfalfa.

Some of the ranchers here are circulating the report that there are so many bees here that they can't fatten cattle on their alfalfa hay. They assert that the bees take its strength. I am satisfied that the bees do not hurt the feeding value of the alfalfa. Some even blame the bees because they can't raise alfalfa seed. What do you think of such people?

New Castle, Colo. S. R. STEWART.

[We have heard the same story before; but how any sensible man can blame the bees for alfalfa failures is more than we can see. The bees have about as much connection with the failure as the tree had in the case of the elephant. A little boy heard his elders telling conundrums, and so he proposed one himself, not knowing it had to have a "point." He asked why an elephant did not like mince pie; and when no one could answer he said it was because the elephant could not climb a tree!

We suppose these ranchmen have the idea that the bees take up all the moisture of the alfalfa plants, causing them to dry up and die. The pity of it all is that the bees are these ranchers' best friends.—ED.]

Colonies Packed in a Box.

I have a plan for wintering my two colonies of bees, and wish to ask your advice in the matter. I have thought of taking a large box, and, after guarding against its leaking, place the hives in it, surrounding them with chaff, then putting on the cover. Would it be better to leave the entrance so they could go in and out as they wish to all winter? or do you think that plan would not work?

Ithaca, Mich., Sept. 11. GEO. STIVERS.

[Your plan of packing your colonies in a large box in the manner you describe will be all right; but you must be sure to have the entrances so arranged that the bees can have a free passageway to the outside at all times. If you shut them in, the result will be very disastrous.—ED.]

Rearing a Queen in the Super, etc.

I am very much interested in Florida, as I hope to go there some day. I wish to say that the series of articles by Mr. E. G. Baldwin, on bee-keeping in Florida was worth a year's subscription. I am only a beginner, starting last year with one colony. My son and myself bought six more this spring. I let two queens lay in the supers, and thereby had two strong colonies. One of these I divided and got two good colonies, the mother colony giving me 25 lbs. of honey. The other strong colony I let alone, and that gave me 35 lbs. I had one swarm; and in trying to introduce pure Italian queens three were killed.

This has been a poor year about here. We got about 140 lbs. of honey from seven colonies, and shall have to feed some syrup.

New Bedford, Mass. I. ELLIOTT.

Will Unsealed Honey Sour?

I should like to know if honey would sour if kept in unsealed combs.

Chicago, Ill. R. K.

[If unsealed honey is kept in a warm dry place we do not think there will be any danger that it will sour; but usually, since it has not been thoroughly ripened when it is still unsealed, it is a little harder to keep than sealed honey. Any honey, if kept in a cool damp place, will absorb moisture from the air, and, after becoming very thin, will sour very quickly.—ED.]

Our Homes

A. I. Root

Be not forgetful to entertain strangers; for thereby some have entertained angels unawares.—Heb. 13:3.

Our stenographer just reminds me, after I had chosen this talk to-day, that this verse has reference to Abraham when he entertained the three angels who came to his tent in the heat of the day. Now, you may smile a little at my application of this beautiful text; and you may think that what I say should come under the head of high-pressure gardening or the poultry department. Well, let us get a start.

Some of you older ones may remember the time when tomatoes were not considered edible. They were called "love-apples," and were grown in the garden for ornament. Finally somebody discovered that they were "good to eat," and not *poison*, after all. We had been entertaining angels and did not know it. May be you think this a pretty big stretch of the imagination; but at the present time there is scarcely a canned vegetable in the whole wide world that is put up carload after carload as is the humble tomato. It is true that somebody started the scare, some years ago, that the use of tomatoes will produce cancer; but our expert doctors and experiment stations, after making careful tests, have brought in a verdict in favor of the tomato—not guilty. Eating *too many* tomatoes or too much of any thing else, especially without thorough mastication, may induce cancer; but the tomato is certainly a most precious gift from the all-wise and loving Father; and yet for ages we held it off at arm's length, and did not recognize one of our best friends.

It is much the same way with sweet clover. Just think of the racket we have had about sweet clover being a noxious weed! and the story even got into some agricultural papers that ought to be ashamed of themselves. Sweet clover to-day is one of our most valuable legumes, and in many places it is called the *most* valuable. It will grow where nothing else will, and, in fact, it seems to prefer the hardest and most unpromising clay or gravelly soil; and after it has pushed its roots away down and pumped up water and fertility, it makes a poor ground fertile to grow other crops. Even in the alkali lands, where almost nothing will grow, the voracious sweet clover makes the soil sweet, and finally assists in making the desert lands "blossom as the rose."

Well, just at the present time many folks are complaining of the humble dandelion. A "spud" has been invented to dig them out, root and branch; and some of the papers are telling us to go around with a coal-oil can and drop a little oil on the crown. A year or two ago I wrote up the dandelion cow (1907, pages 840, 841, and 842), and gave a picture of our orchard where the dandelions stood knee-deep. We proved, too, that the dandelion gave the richest milk and the largest quantity of cream, and it comes out in the spring ahead of clover. After that, other agricultural papers took it up, and people are just beginning to catch on to the fact that in the early spring the dandelion is one of the best plants in the world for the dairyman.

And this brings me to another *great discovery* that I have just made. Our orchard of about half an acre was heavily manured some years ago when potato-growing was my hobby. I think our last crop of potatoes was grown under straw. The whole orchard was covered with straw a foot deep, and we fondly hoped it would choke out the dandelions. Not so. The dandelions evidently considered the straw mulching was for their special benefit, and they crept up through it earlier in the spring than ever before, with great healthy blanched stalks and leaves that made magnificent greens. I suppose most of you know that down east the market-gardeners grow dandelions expressly for human food; and nice crisp dandelion greens early in the spring bring a big price in the market. Of course, there are people all over our land who have discovered that the dandelions are not only healthful but delicious, and they are out with their sharp knives hunting rich stalks, to get the first early dandelions. Now, everybody knew (or ought to have known) that dandelions are good healthful food for human beings; and after the way we wrote it up they ought to have seen they were good for the cow. But my discovery is that they are good for chickens, especially certain breeds of them. This half-acre orchard I have mentioned is, at the present time, my poultry-yard. It is surrounded by a fence of netting four feet high, and another fence runs across the middle, dividing it into two parts, and still another through one of the halves, making two small yards and one large one. My daughter, Mrs. Boyden (formerly Blue Eyes) has caught the chicken fever, and she has a yard adjoining my orchard, in which she keeps White Wyandottes. Well, after I returned from Florida I noticed there was not a green thing in her yard—not even a dandelion; so I made an opening in my fence and let her chickens, big and little, get into one of the small yards in the orchard. Of course, they went for the dandelions and other green stuff with avidity.

A few days ago, when we were gathering the apples down in this yard, all at once I noticed there was scarcely a dandelion visible. There was a good growth of grass and some clover; but the Wyandottes had snapped up every dandelion as soon as it showed a bit of green. Now, I do not know whether *all* Wyandottes are so greedy for dandelions or not; but I think most of the large breeds that subsist largely on green food where they can find it could be easily taught the trick of eating dandelions. The other yards,

where my Leghorns are, were full of dandelions almost knee-high. The Leghorns either did not care for them or else there were not enough Leghorns to gather the crop; and my discovery embraces the fact that, even if it does cost more to feed the large breeds, they can be taught to subsist largely on greens, and perhaps other plants as well as dandelions. When I observed their strong preference I swung the gate open and invited my daughter's whole flock to come over and "be happy" like the traditional "pigs in clover" you have heard about. Why, it was just fun to see the beautiful plump white pullets and long gawky cockerels wade into the dandelions. They were so crazy for the greens that they did not mind my presence at all as the Leghorns do. And this is another thing in favor of the Wyandottes. They are so exceedingly gentle and kind that it almost seems wicked to kill the little chaps; and I for one seldom or never kill a pullet for anybody.

I suppose you have all heard of nice "corn-fed beef." It certainly is very much superior to beef fed on any thing else. Now I am going to introduce to the world "dandelion-fed" chickens. I think that down east they have already acquired a reputation for *milk-fed* chickens. They all say they are greatly superior. But it is *my* pleasure to introduce to the great wide world *dandelion-fed* chickens.

Yesterday was the anniversary of our golden wedding. The children and grandchildren were all assembled. It took five Wyandotte cockerels to furnish the dinner; and, if I am a competent judge, I should say a dandelion-fed Wyandotte cockerel makes better fried chicken than any other "fried chicken" in the world. My brother-in-law, J. G. Gray, in closing his remarks, said it was characteristic of A. I. Root to want to share with the rest of humanity every thing he discovers or comes across that he greatly enjoys. Very likely he gave me more credit (as is customary on such occasions) than I deserve; but if he is right about it, I hereby take great pleasure in introducing to your notice the humble dandelion and the dandelion-fed fried Wyandotte chicken. I told you there were toasts from different ones present. One of the toasts was a little poem by one of my very good friends; and I thought best to submit the poem right here.

Just fifty years, my worthy friends,
If records rightly tell,
Since into Amos' loving care
A "blue-eyed Susan" fell.
And not one charm, in all these years,
Has that sweet flower lost,
And not one nip at autumn-tide
Of matrimonial frost.

As from these richly nourished Roots
Five little blue-eyeds sprang,
To God, from whom these blessings came,
Your humble praises rang.
And now, at this late autumn-tide,
All lands your praises sound.
For your long cord of love has reached
The whole wide world around.

May be you think I have forgotten all about the text at the head of this talk; but if you will be patient a little you will find that, when I get to the end of my story, it comes in after all.

Not quite forty years ago—perhaps 35—I started a mission Sunday-school in one of the worst beer-drinking spots in our county. It was about the time these Home papers were started. If you have the old numbers on file you can turn back and read about that Sunday-school. When the weather was pleasant I used to take Blue Eyes. She was then just learning to talk; but she used to stand up on the platform in the Sunday-school and sing—

I am Jesus' little lamb;
Happy all day long I am.
I am his and he is mine—
Oh! I'm his lamb.

Well, while the weather was good during summer the Sunday-school was a success. Sometimes the people deserted the brewery and the saloon (both of which were open all day Sunday and Sunday night in those days), and came to the Sunday-school until some days the country schoolhouse would hardly hold them all. Well, when winter came, everybody—or at least almost everybody—thought the school would have to be given up; and in discussing the matter I told them if it were given up it would be because of no scholars; and I announced I would be on hand, no matter what the weather; and if any person felt as I did about it I should be glad to have such person be on hand and back me up.

One day late in the fall the weather was so bad that our Medina liveryman said he could not consent to let any of his "rigs" go out in such weather. But he was not much in sympathy with Sunday-schools, you will notice. I went home and tried to make up my mind that I would not go that day; but when I thought it might be possible that some of those bright little faces would be on hand and find no teacher, I told Mrs. Root I could not stand it. I got some rubber boots and a big umbrella and waded through the mud four miles to that Sunday-school. One of my good friends, a deacon in our church, brought the subject up in prayer-meeting, and said he thought I was carrying things to an unwarrantable extreme. He said he had taken pains to investigate, and found I had traveled off down there to Abbeyville, through the mud and rain, and found *just two barefooted* boys present. I smilingly owned up that what Deacon Thompson had said was true; but I did not agree with his *decision* in regard to the matter. I was happy at every step I took on that four-mile tramp. And I think the two small boys went home happy also. I had a good square talk with them. I then learned that their mother was carrying a fearful load in caring for a pretty good-sized family while the poor father was a victim of that saloon and brewery. I wonder if my text comes in here anywhere—"entertaining angels unawares." If you had seen me with my unbrella and mud-bespattered rubber boots you would never have thought of call-

ing *me* an angel; and, if I remember correctly, those two small barefooted boys—that is, in the sight of the world—would be considered any thing but "angelic" in looks. But, dear friends, I am sure that God's angels were watching over us—that little trio in that humble country schoolhouse on that stormy day. The two boys are now grown-up men, and they both belong to the Lord Jesus. The oldest one is foreman of our shipping department, and has held that post for years. He has three beautiful children, and one of his boys is expert with the automobile. A few days ago, when we were both watching the boy as he managed a large fine machine with such skill, I said, "Jacob, do you remember that stormy Sunday when you and I first became *acquainted* down in that Abbeyville schoolhouse?"

"You bet I do, Mr. Root. I shall never forget that day."

"Well, Jacob, as we studied the lesson we had that day, little did you or I dream what God in his infinite love and kindness had in store for us. That day was probably a turning-point in the life of all three of us."

"Mr. Root, it certainly was a turning-point in my life; and I shall never forget the helping hand that was extended to me that Sunday afternoon."

Not many days after, the boy came to me for a job. He was so small I was tempted to laugh at the idea. I set him to helping the engineer. In a very few days he knew all about that engine and boiler. It is no wonder *his* boy caught on quick to automobiles. The boy was soon a favorite throughout the whole establishment. He carried the mail quicker, and attended to every errand with more skill and precision, than any one had ever done before. He went up and up, and finally married one of the most able girls in our office; and it was his good wife who wrote the beautiful little poem I have given you. Don't you think that all three of us "entertained angels" on that stormy Sunday afternoon? and would it be too great a stretch of the imagination to believe that invisible angels were present at that little school, and that they have been following in our footsteps and watching over us ever since that day, nearly forty years ago?

He shall give his angels charge over thee, to keep thee in all thy ways. They shall bear thee up in their hands, lest thou dash thy foot against a stone. —PSALM 111:11, 12.

CAN A MAN WITH A LARGE FAMILY, EARNING $2.00 A DAY, EVER BECOME A MILLIONAIRE?

Mr. A. I. Root:—Did you ever stop to think how long a poor honest man would have to labor, at $2.00 a day, to save $1,000,000? Only 1370 years. How much longer would it take if he had a large family to sustain? This would be hard to tell. Your ideas and sermons coincide so well with my way of thinking I can't help writing you and wishing you all good health and peace possible. I am 42 years old, and have been digging coal for the most of 20 years; and now on account of my health I shall likely have to quit mining. I have a large family, too—ten children at home. I am not ashamed to confess that it takes quite a lot to keep this family. I have kept out of debt so far; but if I can not work, then what? Mr. Root, do you think the "oil king" would read a letter if I could get one to him? The millionaires give organs, libraries, etc.; but did you ever know of their helping an honest, worthy individual? Mr. Root, I often wish these rich men could see and know how the poor have to live and where they live. It is sadly true that some could do a lot better if they would spend their hard-earned dollars for their families in place of drink; and there are good honest men all over the land struggling hard in this life, denying themselves and family of many things to keep out of debt, too honest to ask for help. God knows nothing would please me better than to have sufficient means to make a start with poultry; but I tell you honestly it takes all I can make to support my family, and I neither smoke nor chew tobacco nor drink whisky nor beer. Oh to be out in the beautiful pure air! If they only knew, Mr. Root! perhaps I have gone to extremes; but I do hope you will forgive me for this long letter; but my thoughts must cry out. May you be strengthened in your work to strike a blow at wickedness everywhere.

Three Springs, Pa. W. S. COHENOUR.

My good friend, I thank you for your kind and frank letter; and while I can not promise to show you how you can become a millionaire (and I am not sure I would try to, even if I could), I think I can tell you briefly how you can get ahead enough to get some chickens and live out in the country. Of course, $2.00 a day would not support a wife and ten children—that is, in very much luxury; but, my good friend, do you mean to tell us that those ten children, especially the older ones, can find nothing to do to help support the family? Can not some of the older boys help you in your work of digging coal? There is something wrong somewhere if you have not been able to lay up at least something for a rainy day. Are you and your family reading the papers, and keeping yourselves educated as to what is going on in this busy world of ours? There are steady and unfilled demands for good, honest, energetic men, and especially for young men and boys—the kind who have been trained, and who are training themselves for useful positions in life. I suppose you know, without my telling you, that most of our millionaires started with little or nothing. Edison, right near my home, was a poor newsboy, and he has made his way almost without assistance from any one. You suggest that a good-sized family may be a hindrance. My dear friend, when the little prattlers came trooping into our household until there were five, Mrs. Root and I felt worried and troubled; but those two sons and three sons-in-law have lifted the burden from my shoulders in a way that makes me thank God again and *again* for his great wisdom and love in sending them. In fact, were it not for the children I fear I might not now be living.

The great business world is now offering five and even ten dollars a day for men of education and ability; and the men and boys who comand these great salaries have nearly all come from humble homes where the parents could not afford to give them more than a common-school education. They are mostly "self-made" men.

Yes, you could send a letter to Mr. Rockefeller; but there are so many such letters

sent him already that he never thinks of reading them—in fact, he *could* not. A clerk, or a number of them, read these letters, and decide to the best of their ability where money will do good instead of harm; for it is true that money given without some sort of equivalent not only very often does harm, but it is almost *sure* to do so. In giving to libraries and to schools and colleges, the money usually does good because it *helps* the poor ambitious boys to get an education with but little effort on their part. In the same way money given for the spreading of the gospel and missionary enterprises also helps.

While I dictate this, there are men and boys wanted in hundreds of places. Farmers everywhere want help—that is, if they can get efficient and intelligent help at a reasonable price. If this is not the case in your locality, let some of your bright boys and girls push out into the world where they are wanted. I say girls, for girls are now getting almost if not quite as good pay as boys. But we want girls and boys who have been carefully brought up, who are capable and willing to work.

There is an item now going the rounds of the press telling about a man who lives on 25 cts. a week. When somebody said it was an impossibility I replied, "My friend, 25 cts. will buy a peck of good wholesome wheat; and if you grind it in a coffee-mill, and then cook it a good while in a farina-boiler, it will make not only a most wholesome food, but a most delicious one." Such a diet will make you well and keep you well; and it will not hurt you, but, on the contrary, it will do you *good* to go without a lot of things (as Terry does) that most people—yes, many poor people—think they *must* have three times a day or they will starve. May the Lord help you, dear brother, to get out of that coal-mine and out into the open air, and raise chickens, and set a good example before your family of ten children.

PARCELS POST! PARCELS POST!

We clip the following from the *Postal Progress*, published by the Postal Progress League, Boston:

1. Why does our Postoffice Department charge one thousand per cent more for carrying parcels than does the German government?
2. Would not the establishment of a parcels post throughout the whole country reduce the cost of living, and benefit every consumer and producer?
3. Why does the Government charge 16 cents a pound, and limit the weight to four pounds for packages destined to any postoffice in the United States, while it receives parcels weighing eleven pounds at the rate of 12 cents per pound for delivery to almost every other country in the world?
4. If you favor a parcels post, what are you doing to bring it about at this session of Congress?

Yes, sure enough. Why does our own postal department carry 11 lbs. clear over to Australia cheaper than it will carry it to our next-door neighbor? Is there any official connected with our postal department, from the Postmaster-General down, who dares undertake to give any sort of answer to this question?

BILLY SUNDAY; WHAT HE DOES WITH HIS MONEY.

Now, I do not know what he does with *all* his money; but I can tell you what he did with *some* of it. During his evangelistic work in Lima, Ohio, a banker, while looking over the pledges that had been handed in at the end of the meeting, made the remark that a pledge for $20.00 from a poor hard-working woman was more than she could afford, and that she should not be allowed to make such a contribution, especially as her little home was mortgaged, with very little hope that the mortgage would ever be lifted. Sunday agreed with the banker, and was anxious to know how she came to make such a free-will offering. Investigation brought out the fact that her husband was converted the night before, and publicly announced that he had started out to lead a new life; and his good wife, out of gratitude to her heavenly Father for having thus answered her prayers of many years, gave the twenty-dollar pledge. Mr. Sunday asked the banker to get the mortgage. It was for the sum of $800; whereupon Mr. Sunday paid off the mortgage, and sent it to the devoted praying woman, telling her that he did not mean to be outdone in gratitude to *his* heavenly Father by a poor woman who had heretofore been the wife of a drunken husband. See page 610 of our last issue.

APPLES FOR SUPPER; OR, ONE MEAL ENTIRELY OF FRUIT.

Dr. Miller, in his Straws in this issue, tells us he has pears for breakfast instead of apples for supper as I do; and I suppose it does not make very much difference which one of the three meals during the day is entirely of fruit. President Taft has his fruit—apples, if I am correct—in place of his regular dinner. Well, I want to tell you that for some time of late I have been having my apple supper at four o'clock instead of five. Then nothing goes into my mouth after this apple supper except water, until bedtime. I sleep very much better at night, and feel better and fresher in the morning, by having the process of digestion finished and out of the way as much as possible when I go to bed at nine or ten. Another thing, years ago Dr. Salisbury told me to be sure to have my nap during the day *before* dinner instead of after it. Dr. Kellogg, of Battle Creek, recently gave me substantially the same instructions. Now, we hear a great deal about an after-dinner nap; but it does not work at all with me. A nap before dinner rests and refreshes me; but when something prevents a nap before the meal, and I take a nap after dinner, I feel distressed, my mouth tastes bad, etc. The point that both doctors make is this: One should be thoroughly *rested* and *refreshed* before sitting down to *any* meal; and the process of digestion seems to go on very much better, especially in my case, while I am moving about and doing actual work.

POULTRY DEPARTMENT

A. I. ROOT

DRUGS AND "DOPES" FOR CHICKENS AND —FOR "HUMANS."

Prof. A. W. Bigham, one of our best authorities on poultry, of Brookings, So. Dakota, gives us the following in the October number of the *Western Poultry Journal:*

It is simply silly to allow conditions to exist which invite disease, and, when the scourge arrives, resort to the use of drugs. I wonder how many cases have been reported to me this year in which the poultry-keeper used, in the drinking-water for his fowls, carbolic acid, permanganate of potassium, sulphate of iron, and patent poisons galore. The digestive system of the bird is adapted to taking in pure water to mix with the solid food to a reasonable extent. Certain juices and secretions are supplied in the food tube by glands to help digest the food. What is the effect of the poisons added to the drinking-water? Usually digestive disorder is increased, because these drugs are not adapted to aid in the digestive processes. They upset the natural plan, and disarrange the digestive system. Try a little kerosene or carbolic acid in your own drinking-water, or add a little permanganate to your coffee some morning, and note what a pleasant, exhilarating, super-digestive influence results.

VALUABLE VENTILATION.

Again, how often the mistake is made of gathering in the beautiful healthy pullets from colony houses on free range and placing them in closed houses! Perhaps the house is a new one, all so clean and nice, but not completely dried out. Very quickly the confined birds catch cold, and probably roup results. Then comes the dosing with "roup cures." Write it down, please, in your Bible among the records of the family births and deaths that pure fresh air and sunshine are better for fowls (and humans too) than all the medicines listed in the pharmacopœia. Ventilation has a value, because, when correctly provided, it prevents illness and contributes to the health and proper productiveness of poultry.

Amen and amen to the above sentiments. We make our chickens sick (and people too) by shutting them up in close rooms, cutting them off from God's free air, and then try to cure them by dosing them with poisonous drugs—drugs that have about as much to do with the disease in question as the absurd remedies among the heathen doctors. In many of our poultry-journals you will see a long list of remedies (one for each "disease," real or imaginary) for chickens—50 cents a box—when the real cost of the ingredients in the box (if the stuff really *was* needed), is probably less than 5 cents. Of course the chickens often get well in *spite* of the drugging; but the medicine has no more to do with the recovery than does the horseshoe nailed above the door to bring "good luck" and ward off disease.

INDIAN RUNNER DUCKS.

We clip the following from *The Farmer's Guide:*

Indian Runner ducks will grow and mature three times as fast as any variety of chicken or any other animal that wears feathers. We have a bunch of them, just five weeks old yesterday, that are now half grown and nearly feathered. When full-feathered they will be ready for market—and that is where all culls should go. One breeder of Runners, living near a good-sized town, has a contract with a large hotel to supply young ducks at fifty cents per head, and nice fresh eggs at quite an advance over the usual market price. This provides an outlet for all surplus stock and eggs. Those making a business of rearing Pekin ducks for market dispose of them at nine weeks of age. Runners could easily be made ready for market at *eight* weeks of age.

Of course, these ducks had good care and a plentiful supply of correctly balanced food. One would not expect them to grow bones, muscles, feathers, eggs, etc., on thin air and water, fond as they naturally are of the latter.

Their vitality is extremely strong. For example: We had a colony of seven hens hatching ducklings. After we supposed they were through, the few unhatched eggs were gathered into a basket, out of the way of the young ducklings. Later in the day we went out and found in the basket a duckling. It had insisted on coming into the world, even if he had to do it alone and unheated except by the warmth of the sun whose intense rays were veiled by clouds. We gave him into the care of one of the good motherly hens, and he is still alive.

Another great point in their favor is their immunity from the little ills that carry away so many young chicks. Poultry-raisers know, to their sorrow, how difficult it is to rear chicks upon the same ground year after year. Now, while it is vastly better to renovate the ground for any kind of fowls by growing some kind of crop on it after having "chicken-cropped" it for several years, we have started young ducks in coops right at the back door, where chicks have been reared ever since the red men roamed the wilds, and where chicks developed gapes and runtiness whenever permitted to roam there; but the ducks did not mind it at all. They grew and thrived, and soon got so saucy that they had, perforce, to be taken to their little wire runs where they could be kept under surveillance.

Our neighbor passing by the other day, and noting our growing ducklings, remarked that she was sorry she had not arranged to rear more of them, "for," said she, "you can keep them where you want them." This lady has been quite unfortunate in having her chickens taken by crows, hawks, etc. It is true, the ducklings are easily restrained. An eighteen-inch-high one-inch-mesh wire fence will do it, and they soon become accustomed to their narrow limitations, and are happy, busy, and *hungry.*

MRS. J. B. HOWE.

INDIAN RUNNER DUCKLINGS; ANOTHER SIDE OF THE QUESTION.

The next time "A. I." writes about Indian Runner ducks, please have him tell us how to feed and care for the small ducks. I find them very hard to raise here. They have fits, and get weak in the legs, crawl around a few days, and die at the age of about three or four weeks. I can not get them to live at all. They get out in the sun, and are too weak in the legs to get back, and just lie in the sun and die. I keep plenty of water by them all the time; feed two parts bran, one part shorts, one part corn meal, all they will eat, moistened. If he will tell us how to produce the desired results it will be of much greater value to us than all of these big reports, which are of no account to us, unless he will show us how to produce such results.

Boyd, Ky. H. C. CLEMONS.

My good friend, I have had no such trouble at all as you mention. My ducklings were hatched under hens. Their first food was bread and milk, but they were permitted to run out over the grassy lawn whenever they felt inclined. After they were about a week old I gave them bran and shorts mixed with water, just as you did, except that I did not use any corn meal. It may be something in the locality, or possibly something in the strain of ducks. I fed mine whenever they seemed hungry, and most of the time they had bran mash where they could get it whenever they wanted it. Whenever the sunshine was too hot they had easy access to shade.

Temperance

OWENS VALLEY, CAL., WET, 35 PRISONERS IN JAIL; DRY, JAIL EMPTY.

The *Rural Californian*, in writing up Owens Valley as a fruit region, mentions incidentally the following:

It appears that Owens Valley a year ago was voted dry. At that time their county jail contained thirty-five prisoners; to-day that jail is empty, and there is not one criminal case before the court. A recent election on local option upheld the present policy that Owens Valley would continue dry for two years at least.

Now, then, with the above facts facing us (and there are hundreds of similar ones coming up every day), how can any man who pretends to be a good citizen, to say nothing about being a professing Christian, or how can any man of good common sense, vote wet?

THE DRINK HABIT—BY ONE WHO KNOWS WHAT HE IS TALKING ABOUT.

Josh Billings once said, "It is a bad plan to tell lies," and added that he knew by "experience." Now right here our long-time friend Chip Henderson, of Murfreesboro, Tenn., sends us a newspaper clipping in regard to the evils of the saloon traffic; and the man who gives us this evidence is one who *knows* by sad "experience" what he is talking about.

MANKATO, MINN., Sept. 30.—Ben F. Parker, who once owned 38 saloons in Des Moines, Ia., is trying to make restitution for the past by working for temperance as hard as he used to work for intemperance. He has been lecturing here, and will lecture in other parts of Minnesota. Later he will go to Iowa, and eventually to Des Moines.

With all the authority that belongs to a brand plucked from the burning he lambasts the business in which he was formerly engaged. "The curse of mankind," he said in a lecture at the Congregational church here, "is the liquor-drinking habit. I have owned and controlled 38 branches of the devil's sin-producing gin-shops. I want you to realize that you are listening to a former practical dealer in the wages of sin, and not to the vaporings of an on-looker.

"I was the acknowledged champion extra heavyweight dispenser of the heaviest of all woes: and when I tell you that the liquor business is the curse of the human race I am talking from the standpoint of one who has witnessed the results every day in the year from 38 angles, and not through the bell end of a funnel.

"I defy any man to present a single argument that will stand the acid of criticism in favor of the liquor game. I have seen the working man spend the money for drink that ought to have bought shoes for his children. I have watched the business man spend money over the saloon bar that belonged to other persons; and I have been *particeps criminis* to more woe than the bubonic plague ever spread in its most aggravated form.

"I tell you that the drunkard is more to be pitied than censured. He is a helpless weak-brained idiot, and is fostered in his prostration by the evils of his surroundings. If all men were determined that way, the saloon would soon go out of business; but, unfortunately, most men are weaker than their environments, and fall by the allurements of vice. It is the absolute removal of these surroundings that will assure the betterment of society; and the stamping-out of the saloon, the brewery, and the distillery is the only practical means by which the evil can be exterminated."

Parker was for many years one of the noted characters of Des Moines. Backed by brewery interests he established a chain of saloons, more than double the number owned by the biggest saloon trust in Chicago. The evils of the business finally became unbearable to him and he gave it up.

He has for some time been announcing his intention of going on the temperance platform and attacking the business in which he was formerly engaged on such a large scale. In person he is as unusual as his career has been. He weighs about three hundred pounds, is forceful in demeanor and impressive in his makeup. His temperance lectures are attracting wide attention.

OFF FOR FLORIDA ONCE MORE.

On Nov. 7, after casting my vote, Mrs. Root and I expect to start for our Florida home; therefore all communications, after Nov. 1st, for A. I. Root, should be directed to Bradentown, Fla., instead of Medina, O. Now let me give you, in a friendly way, a caution. During the past summer, with two or three stenographers right at my elbow I have been able to answer letters promptly, and sometimes dictate good long ones. But down in my Florida home, without a stenographer, I can not keep this up. If you will, however, inclose an addressed postal card, I will try to pencil a brief answer of some kind to you. I can often do this without looking or thinking about the address of the writer; and I hope you will excuse me for saying that nothing wears on my "threadbare" nerves like trying to decipher addresses. You may think that inclosing an addressed envelope will do as well. Now, next to deciphering addresses, folding and unfolding sheets of paper has worn me out. I am trying to keep young, even if I am 72 years old; but I shall not be able to keep young if I try to keep up the voluminous correspondence that I have been keeping up during the past summer. You may ask why I do not have a stenographer in Florida. Because keeping her busy and caring for her out in the country would be an additional care and worry, especially as I go to Florida to play with my ducks and chickens, and take a big long rest and keep out of doors.

Now, after this explanation you can send me as many letters as you please; but as a rule I wish you would not make them very long; and I hope you will not feel hurt, some of you, if I ask you to use white paper; and if you *must* use a pencil, get one that is nicely sharpened and will make a *black mark*. My mental energy has been sometimes almost used up in trying to read a long letter written with a pencil, and so crowded together that it took the strongest light of day and spectacles of strong power to make out what it was all about. I know I ought to feel happy, and I do feel happy, to know that I have so many devoted friends, some of them in the humblest walks of life. Quite a few of the friends last winter would add; "Mr. Root, do not bother yourself to try to answer me. I do not expect any answer, and my letter does not require it." When you write that way, I do not care how many letters you send. I like to carry home from the postoffice a big pile of mail; and kind words, especially suggestions in regard to the ducks and chickens, are always gladly welcomed.

Gleanings in Bee Culture

Published by The A. I. Root Company, Medina, Ohio

H. H. ROOT, Assistant Editor
A. I. ROOT, Editor Home Department
E. R. ROOT, Editor
A. L. BOYDEN, Advertising Manager
J. T. CALVERT, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX NOVEMBER 1, 1911 NO. 21

Editorial

A PECULIAR FALL; CLOVER TAKING A NEW START.

LAST spring was excessively hot and dry, and many of us expected an early frost; but up to this date, Oct. 28, no severe frost has occurred in our locality. On the other hand, we have had rain, rain, rain, almost every other day. Farmers are complaining that they can not get their crops from the fields nor get in their wheat. But what is tough on our friends the farmers is good for bee-keepers. The clovers are making a wonderful growth. The setback they received during the spring and summer will be more than made up by favorable conditions this fall.

BEES AT THE CALIFORNIA APPLE SHOW; BEES AND FRUIT.

AT the California apple show we understand that the bee-keeping industry was well represented. This combination is as it should be, because bee-keeping and fruit-growing go well together. The fact is, they are almost inseparable. The time was when there was antagonism between the fruit-growers and the bee-keepers of California; this was markedly so in the case of the pear-growers and the bee-keepers. That sort of antagonism has now given way to a feeling of co-operation, and the acknowledgment has repeatedly been made by the most progressive fruit-growers of the country that the bees are their best friends.

MARIAN HARLAND ON HONEY.

IF Marian Harland derives any pleasure in "knocking honey" as she is doing in some large full-page advertisements of another food product, it is her privilege and right we suppose; but will not thousands have less confidence in her opinion on cookery and food products than formerly? If her statements that honey is "distasteful" and has a "cloying quality" were true we could accept them with some complacency. If by "cloy" she means that honey leaves a strong aromatic flavor in the throat, that may be true of some honey. That is what most people like. If she means that it stops up the system she is clearly wrong. Honey certainly does not "clog" nor "stop up" the system. It has the opposite effect. It is often taken and recommended as a mild laxative. As to its being "distasteful," ask the dear people of this country who annually consume twenty million dollars worth every season. Why is honey always used as a basis of comparison when the sweetness of other food products are mentioned? It is the finest and most wholesome sweet in the world, and has been so recognized for centuries. Some leading physicians are recommending honey for sick people and invalids. See what is said on this subject in another column.

DEATH OF R. W. HERLONG, OF FORT WHITE, FLA., ONE OF THE MOST EXTENSIVE BEE-KEEPERS OF THE UNITED STATES.

WE regret to receive the following letter from our correspondent, Mr. J. J. Wilder, of Cordele, Ga., announcing the death of Mr. R. W. Herlong, of Fort White, Fla.

Mr. R. W. Herlong, of Fort White, Fla., died Oct. 11. As you know, he was the leading and most extensive bee-keeper in Florida, and well known to the bee-keeping world. We feel sad over the loss of one of the best in our ranks. He was sick only six days.

We will try to get you more particulars, as we know you will be glad to make mention of his death.

Cordele, Fla., Oct. 14. J. J. WILDER.

It will be remembered that our special correspondent, Mr. E. G. Baldwin, who has been writing a series of articles on Florida, wrote up Mr. Herlong in our issue for Aug. 1, this year. It seems that the deceased started eleven years ago with only three colonies of bees. From that modest beginning he increased until he had 900 colonies in 13 apiaries, ranging from 2½ to 10 miles apart. He operated in a section where practically all his marketable honey came from ene source—the partridge pea. While most of the bee-keepers of Florida produce extracted honey our friend ran almost exclusively for comb.

It is not often that a bee-keeper can make such a record as this in so short a time as eleven years, and we should be pleased to get further facts in regard to his life.

THE IMPORTANCE OF SELLING HONEY EARLY; THE WESTERN HONEY MARKET BEGINNING TO SAG.

OUR readers will remember that we have preached the doctrine of selling honey early, and selling before the holidays. Sometimes

it would be better to have the crop all cleaned up by Oct. 1.

In our Honey Column in this issue it will be noticed that Manager Frank Rauchfuss, of the Colorado Honey-producers' Association, writes that "warm weather and an abundance of fruit has had a depressing influence on the local honey market, and, for that matter, on the carload business." He then proceeds to quote lower prices than were named in his earlier quotations. Compare his quotations in Honey Column for Sept. 15 and in this issue.

When the Colorado market sags, it has a tendency to affect the *general* market. While the milk has been spilled for this year, it will serve as a lesson for the coming season. There are too many bee-keepers who hold back their crops until the last minute; then, discovering that the price does not advance but shows a weakness, they get into a panic and proceed to unload, *usually all at once*, with the inevitable result that the market begins to go to pieces.

This year of *all* years, when honey is so scarce, the policy of holding back for better prices was most unfortunate. If the large producers would not wait until they encounter the competition of large shipments of fruit, the honey market, this time of the year, would be more stable.

CAN YOU FIND THE QUEEN?

OUR cover for this issue presents an interesting view of a comb of bees in the early fall, after the queen had begun to slacken up on egg-laying, but had been stimulated to further efforts by feeding.

The workers in the immediate vicinity of the queen have turned toward her in their customary manner when she stops for an instant—at least eight of them having noticed her, as shown. It must be remembered that these bees were in a state of great activity, running rapidly over the comb, and behaving as bees generally do in strong sunlight. This fact is shown by the positions of the various bees. For instance, the wings of some of them are stretched out while others are folded back in place. The strong sunlight was reflected from the shining wings, thus causing the unduly white appearance in some instances.

In at least one case a couple of bees have their "heads together," comparing notes or making an investigation, possibly. Others have their heads in the cells, probably feeding larvæ.

In the cells are eggs and larvæ in all stages of growth—one larva in particular, just behind the queen, having nearly reached the age when it will straighten out in the cell and be capped over. This particular comb, or, rather, the section of it shown, contains no honey. The oval-shaped white spot shown in a number of places is the reflection of the sunlight on the polished bottom of the cell.

This picture as it appears is slightly larger than the natural size. It will be noticed that the comb measures about four cells to the inch—about the size of drone comb—whereas it should measure, being worker comb, five cells to the inch.

A VISIT FROM AN EXTENSIVE BEE-KEEPER OF UTAH; HONEY AS A FOOD AND MEDICINE.

A FEW days ago we were favored with a visit from Mr. A. G. Anderson, of Ferron, Utah, one of the most extensive bee-keepers of Utah, and one who measures his crops by the carload. We found Mr. Anderson not only a producer of honey but an ardent champion of its value as a food and medicine. In the course of our conversation we gleaned some facts that are worth recording. Among other things, he said that Dr. Nuttall, a physician of the Pacific Medical Institute, 230½ Main St., Los Angeles, California, recommends honey to his patients, especially to those suffering from impaired digestion.

Mr. Anderson also mentioned the fact that Dr. Talmadge, of Salt Lake City, recommended honey for the treatment of typhoid cases. If we are correctly informed, Dr. Talmadge furnishes honey in limited quantities to convalescent typhoid patients.

Mr. Anderson has already had some experience along that line. One child of his was stricken with the fever; but as the child was very sick he did not dare to give honey, although it had been favorably recommended. Subsequently another child came down with early symptoms of typhoid, and he immediately began giving honey. This second child had a very light attack, and soon recovered. Mr. Anderson remarked that typhoid is a terribly wasting disease. If a food can be given that will keep up the strength of the patient he will be able to throw the disease off. We understand that both Dr. Nuttall and Dr. Talmadge recommend honey as a nutritious food, and remarkably easy of assimilation.

One of these physicians, we do not remember which, has used honey by injecting it into the rectum, with excellent results, in cases where the patients were so nearly gone that it was impossible to take food through the mouth.

These facts are exceedingly interesting and valuable, especially as they confirm the statements of other physicians and food experts, Marian Harland to the contrary notwithstanding.

LOOKING FOR SOME ONE TO TEST A NEW UNCAPPING-MACHINE.

MR. L. R. FERGUSON, of Harvey, Ill., has recently made some important improvements on his uncapping-machine. He desires to get in touch with some person or persons who will have considerable honey to extract, not less than 10,000 lbs., so that the machine as now improved may be tested. Mr. Ferguson has built a number of machines, each one better than the one preceding, and he wishes now to determine whether the last one built is enough of a

success so that it can be put on the market. Interested parties may write to Mr. Ferguson direct, or to us. In writing, please state the kind of frames, whether regulation shallow top-bars, or wide ones; whether Hoffman or unspaced frames. Should there be a number of responses, Mr. Ferguson would have to send the machine to the nearest person who could test it.

IMPROVEMENTS IN CAPPING-MELTERS AND WAX-SEPARATORS.

We have on hand a series of three articles from Mr. F. J. Severin, San Diego, Cal., describing his new capping-melter and wax-separator, the latter especially being such an improvement over other separators that one of the most extensive bee-keepers in the United States, Mr. J. W. George, of Imperial, Cal., for whom Mr. Severin has been working, has decided to make nine of them, one for each outyard. Mr. Severin has had practical experience in the yards of some of the largest producers of the West, and on this account he is especially qualified to know just what is required of a capping-melter and wax-separator. We shall use these articles in the near future, and are sure our readers can not fail to be interested in some of these solutions of troublesome extracting-house problems.

THE L. W. AVANT PLAN FOR SUCKING HONEY OUT OF THE COMBS WITHOUT OPENING A HIVE.

Some days ago we received a letter from Dr. E. F. Phillips, of the Bureau of Entomology, Washington, referring us to an article by Mr. James Heddon, published in Gleanings for August, 1875, page 97. As this article describes a process for taking honey out of the combs exactly the same as that which has recently been made the subject of a patent by L. W. Avant, of Atascosa, Texas, we are placing it before our readers as another evidence that "there is nothing new under the sun." Dr. Phillips said he thought that, when Mr. Avant brought out the process of taking honey from the combs without opening the hives, he (Mr. Avant) had certainly struck something new, and we thought so too. But read this:

I am *very, very* sorry to fell your "air castle" to the ground, almost before you have got it built; but I have devised something so far in advance of it that I think you will tender me a vote of thanks. Believing that you are anxious for the *point*, I will proceed. First, you must build a tank (anywhere in your apiary or thereabout), elevated upon posts or any suitable foundation; next, you must use my new artificial comb. Now, as all which I am about to explain is covered by heavy letters patent, both in this and other countries, I will without fear go on. My combs are built by the bees upon comb foundations similar to the late Samuel Wagner's, only that I use *two* foundations for each comb in the following manner: My foundations are of light sheet iron (galvanized), and are placed ¼ inch apart, and closed all around, top, bottom, and sides, so as to form a vacuum between them. Now, the bees will build their "*sells*" outward from each of these foundations. I forgot to say that I have a fine hole through the foundation at the back of each "*sell*," also a ¼-inch hole at the back end of each comb. I also have an inch hole in the back end of each hive. I now lay "*gass*" pipes just a little way under ground, all in connection with a large one that runs to the top of the aforesaid tank. Each of the underground inch pipes enters from the large tank pipe, to the back end of each hive. You will now see that all I have to do is to attach a force pump to the tank end of the large "*gass*" pipe, and pump all the honey from all the supers at once. I also have a 2-inch pipe running from my *elevated* tank to each of our 14 grocery stores, with a faucet at the grocery end of the pipe, from which they draw the honey as from a barrel. The tank holds about 250 barrels, and, being elevated, the faucets at the grocery stores are always full.

The above is substantially the same as my specifications. What I claim as my invention, and desire to secure to secure by letters patent, is: First, the double-comb foundations, when used together, in the manner and for the purposes described.

Second, the hollow or vacuum between the walls, or comb foundations, in combination with the said walls or their equivalent, substanially in the manner, and for any or all the purposes set forth.

Third, the elevated tank in combination with the store-keeper or his clerks, or their equivalent, for any or all of the purposes set forth.

I will here omit the succeeding claims, and give your readers the 21st and last claim, which is, the "*gass*" pipes D, D, R, R, V, V, and the rubber pipes S, S, in combination with the hives, queens, tank, grocery stores, and my hired man who does the pumping on the tank, substantially in the manner, and for any of the purposes I have or may, or anybody else, may hereinafter for all time to come set forth.

I will close by saying that I shall prosecute to the fullest extent of the law any persons or persons who make, use, "*sell*," or *think*, or cause his or their neighbor or neighbors to think of using, making, or "*sell*"-ing anybody with my invention.

Dowagiac, Mich., July 5, 1875. James Heddon.

This article by Mr. Heddon was evidently penned as a joke, and was so considered by our Mr. A. I. Root in his foootnote away back in those early days. If Mr. Heddon had at the time made a formal application for a patent embodying the claims that he provisionally drew up, and had the patent allowed, he would have barred our friend Avant from covering the same idea.

Mr. Heddon, be it known, is an all-round inventor and a genius. Some fifteen or twenty years ago his contributions were frequently seen in all the bee-journals, and we suppose there was no hive that provoked more discussion, pro and con, than the Heddon divisible-brood-chamber hive, still used by a few enthusiastic admirers of it. While he has dropped out of the bee-keeping world during the last few years, his early contribution will be read with exceeding interest. While he evidently regarded the idea as a joke, there are many who consider Mr. Avant's invention no less a joke. We may say, however, that we recently heard from Mr. Avant, and he appears to have the utmost confidence in the final success of his invention. He has, he says, eliminated some of the difficulties, and hopes ere long to have his machine perfected.

We may say further, in defense of the Avant patent, that Mr. Heddon's early conception of this same idea does not invalidate Mr. Avant's claims, for the reason that Mr. Heddon did not *develop* the idea. If we understand patent law correctly, an inventor must not only have prior conception of a thing, but he must put it into successful use in order to prevent the other fellow, who later patented it, from enjoying the legal protection afforded by Uncle Sam.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

SPEAKING of the shape of queens, p. 634, in this locality queens with slender abdomens are decidedly preferred.

C. ISAAC, p. 636, perhaps you will do better in poisoning wasps if you give the poison very weak—so weak that they will carry it home and gradually poison the whole household.

SWITZERLAND, not half as big as Ohio, and with about two-thirds its population, has a bee-keepers' association of 8463 members. We might learn something from those Swiss. [You are right, doctor.—ED.]

THE QUESTION is asked, p. 582, whether any one prefers the wider (three-inch) glass in single-tier cases. Yes, I do. Don't lots of people? Don't you sell lots of single-tier cases with three-inch glass? [Nowhere near as many as we do of the two-inch.—ED.]

WHEN RAIN came after the great drouth, the dandelions seemed to think it was spring, and came out just as in spring about September 15; and October 17 they are still in full bloom. But I don't think the bees have got much good from them—out of season, likely.

TO DRIVE ANTS away, sprinkle the earth about the hives, and the places infested by the ants, with a mixture of muriatic acid and water, having the mixture so strong that, when it dries on the ground, it will have a sparkling appearance. Repeat if necessary.—*Schweiz. Bztg.*, 397.

BROWN SUGAR may winter W. C. Mollett's bees safely where they fly every ten days, but better not try it further north where bees don't fly once a month. [From some experiments we made, we concluded that brown sugar would not go as far, dollar for dollar, as the best quality of granulated. While brown sugar may be a little better for stimulating brood-rearing, it does not compare with white sugar for wintering purposes.—ED.]

F. L. POLLOCK, p. 604, your case of swarming differs a little from the one in question. You know that cells in the brood-chamber may induce swarming. I don't think they would, or did, in that super so far above. But when a virgin hatched above, and another quahked in the cell, swarming was started above, and the swarming bees made trouble below. Of course, cells above will in time be followed by virgins; but once killing the cells will prevent that, while one can not prevent the starting of cells.

DR. BRUENNICH says, *Bienenvater*, 218, it is much easier to introduce an old queen than one that has just begun laying; also the important item that it is easier to introduce a strange queen to a colony that has a queen which has not been laying long. He says an Australian had to come to America to tell us that, but I think the doctor has things a little mixed. Mr. Beuhne told us that a young queen could be reared and fertilized in a hive with a very old queen, which is different.

O. B. METCALFE, your article, page 557—and a good article too—started me down to the apiary. Without a veil I hunkered down in front of a hive, and with a stick mashed a bee on the alighting-board. Every ten seconds I mashed another till eleven lay dead. The other bees paid little attention to the dead bees, and I could not see that they gave the slightest intimation of irritation. Certainly the bees didn't resent the mashing *that time*. Whether poison on a stick or other object would irritate them is a separate question.

TO UNITE without having bees return to old stand, put a newspaper over one hive and set the other over it. The imprisonment before the paper is gnawed away, and their getting down one at a time, not only makes them unite peaceably, but makes them stay where put. Pure Italians don't need the paper to keep them from fighting, but they do need it to make them stay where put. Besides, nine-tenths of the bees to be united are not pure Italians. Is there any easier way to unite? [We have never tried the plan, but we have had favorable reports of it.—ED.]

WHEN YOU SAY, Mr. Editor, p. 581, that young queens usually hatch about the day the swarm is cast, are you not talking about after-swarms? But were we not talking about prime swarms? For the question, p. 537, was about how soon the young queens hatch *after* the swarm issues. Surely you do not mean to insist that the young queens hatch before or at the same time the *prime* swarm issues. Even if you mean after-swarms, doesn't the free virgin always pipe an evening or two before swarming? [No, we were talking about prime swarms. Is it possible we are all wrong? If so, we are willing to be shown.—ED.]

"IT IS GENERALLY supposed that freezing or fumigating with sulphur will kill" moth-eggs, p. 582. Freezing will, but no amount of sulphur I ever used would kill eggs or the very big worms. You are right, Mr. Editor, in saying that combs once frozen would be safe from moth if left in such a room as S. D. House or I would store sections in, but not to "leave them anywhere." I never had a moth-tight honey-room, but I don't think a moth ever entered it from the outside. Even a comb lying in the apiary is rarely touched by moths here. South it's different, likely. [One of the things that A. I. R. used to tell us boys years ago was that, after we had fumigated the combs, they must thereafter be kept in bee-tight or moth-tight boxes or hives. We know he always made it a rule to keep the combs, after freezing, in hives insect-proof.—ED.]

Bee-keeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

BEES AND FLY-TRAPS.

On the main street of Rocky Ford two fly-traps containing a gallon or more of flies were found, and among them were great numbers ot dead or dying bees, composing between one-third and one-fourth of the mass. The waging of war on the fly may need watching, so that bees may not be trapped in too great numbers.

SUGAR-BEET SPRAY KILLING BEES.

Several large apiaries near Rocky Ford were almost totally destroyed last July through a beet-spraying experiment conducted by the sugar-factory. A louse had been infesting the beets, so a mixture composed of Paris green and syrup (the latter to increase the sticking property) was used on the leaves. Bees were found dead in large numbers in the beet-fields that had been sprayed with this mixture. The experiment was an expensive one for the beemen, and was not successful any way, for the syrup killed the leaves. The experiment will probably not be repeated, as soapwater answers the purpose better, and does not injure the leaves of the beets nor attract the bees to the poison.

BAPTIZING QUEENS.

Did you ever hear of baptism by sprinkling for bees, and baptism by immersion for the queens? Well, such are the rites administered by Mr. E. J. Wallinger when introducing queens. He uses a pan of water that has been warmed in the sun, and sprinkles the cluster of bees at the time the old queen is killed. Then he immerses the new queen, cage and all, in the water, and after a moment releases her among the sprinkled bees. By the time the bees in the hive are dry they all smell alike, and so are of one accord. Mr. Wallinger says this is the most satisfactory method of introduction he has yet found. He operates between 600 and 700 colonies of bees; is a farmer, assessor of Bent County, secretary of a new irrigation district to water 20,000 acres of land, and is secretary of the Bent Co. Melon-growers' Association.

WIDTH OF GLASS IN SHIPPING-CASES.

Possibly I have said enough about the width of glass in shipping-cases. Dr. Miller, however, asks if I am not guessing when I say that front strips one inch wide are not strong enough. So far I have failed to see any shipping-case for comb honey strong enough to withstand the treatment accorded to local shipments of honey. So far as appearance is concerned, my reason for preference of a narrow glass to a wide one, such as three-inch, is that the wide glass shows the unsealed cells and pop-holes too prominently. The twentieth-century shipping-case with the circular hole in the cardboard is still another advance. It is unnecessary to display as much of the goods in a double tier as in a single tier, any way; and then people can use their imagination a little if they can not see all the comb that they are buying. Before I try to answer Dr. Miller's inquiry as to why any prefer the wider glass in single-tier cases, I shall wait to find out whether they do.

DO THRIPS DESTROY THE NECTARIES OF THE FLOWERS?

Several years ago the alfalfa was blooming beautifully down in the Arkansas Valley of Colorado, but the bees were getting no honey. Some of the bee-keepers asked an Agricultural College man who was in the valley at the time what the trouble was. He answered by plucking a few heads of alfalfa and jarring them over his opened palm. Twenty or thirty little mites, dark in color and lively in movement, fell out. These are *thrips*, of which there are many kinds. They are so numerous that I have been unable to find a single bloom in our garden that did not have from one to half a dozen of these little creatures within it. The dandelions are the most densely populated of the blooms that I inspected, no doubt because the thrips are very fond of pollen. I wrote to the Agricultural College, and Prof. S. Arthur Johnson replied as follows in regard to the thrips:

> The thrips live upon vegetable matter of various kinds, usually living vegetable matter. They appear to be very fond of pollen and the tender parts of flowers. It is believed that they are sometimes responsible for reduction in the production of alfalfa and onion seeds by injuring the stigma of the flowers and preventing proper fertilization. The onion-thrips, often called onion-lice by growers, do serious injury frequently, by chewing the epidermis of the stems of the plants. In my garden I have noted that thrips for the past two years have injured the buds of cosmos and sometimes pinks in such a way that the flowers failed to be fertile. They are very hard insects to combat, because they are so minute when they hide in the crevices and folded parts of the plants in such a way that it is almost impossible to reach them with any kind of treatment. Greenhouse thrips are often controlled by means of fumigation.

This letter indicates, that when the thrips become numerous enough, they not only eat the pollen in the flower but consume some of the delicate parts of the flower. This destruction carried far enough would destroy the secretion of nectar, even though the thrips ate none of the nectar. The thrips are thickest when other insects abound; and if we had only had a species of grasshopper that ate nothing but thrips we might have had a fine honey crop. But the thrips did the fine-tooth work, and then along came the grasshoppers and ate the whole blossom, leaves, stem, and all.

NOTES FROM CANADA

J. L. Byer, Mt. Joy, Ont.

On page 583, Oct. 1, I mentioned having found on the front of the hive an old clipped queen with a small cluster of bees. Investigation a few days later showed that a young queen was laying nicely. It looks as if the poor old mother had been driven ruthlessly from the hive. Clearly, bees with all their good qualities have no understanding of the sense that we would call "pity."

In the notice sent out to members by the Crop Committee of the Ontario Association, regarding the crop of buckwheat honey, we are told that 100 per cent of the members report that the recommended prices for white honey were obtained. Score another for the good work of this committee which indirectly, since it was appointed a few years ago, has put thousands of dollars into the pockets of Ontario bee-keepers.

Regarding bees moving eggs, the editor of the *Australian Bee Bulletin* had better write a certain queen-breeder in California before he is too sure that *man* can not move the eggs without injuring them, as the breeder in question uses eggs instead of larvæ exclusively in all his queen-rearing operations. Then, even if a man could not do the trick successfully, surely that gives no license for saying that the *bees* can not do it—page 516, Sept. 1.

Yes, we have had fine rains since the last batch of notes was sent to Gleanings (page 583). Nature is again looking more like her wonted self, and the grass is quite green, even if the season is late. While the rains were of little practical value to the bee-keeper, yet they have helped what little clover there is in the country. It is indeed *very little* of this plant that is surviving in our section. Quite a number of dandelions have come into bloom since the rains; and to-day, Oct. 10, the bees are carrying considerable pollen from this source.

Relative to the high price of sugar (page 582, Oct. 1), one extensive bee-keeper here in Ontario actually profited by the unprecedented rise in the price of this article. Quite early he bought several thousand pounds of sugar, thinking he would have a heavy feeding bill. It turned out later that very little feeding was necessary, and as a result he had about 4000 pounds of sugar left after his bees were in shape for winter. As he had bought the sugar at $5.05, and it is now just about a dollar a hundred higher than that figure, wholesale, needless to say the sugar was not a burden on his hands. By the way, I notice Dr. Miller says that sugar is 8 cts. a pound over there. I had an idea that sugar was always higher in Canada than in the United States; but that does not look like it, as I believe the highest mark reached here was $6.05 for best granulated in a wholesale way.

The latter half of September and the first week of October were cold and wet, with the result that those who were feeding bees at that time made very poor progress. I never knew feed to be taken so slowly. Lately we have been having fine weather; but as all my feeding was done before the change, it made little difference to me. When bees are heavy with honey, and require but little feeding, I have noticed that they do not come up over sealed stores to go to syrup as readily as when they have an empty brood-nest. This probably made the feeding go more slowly than it would have done in ordinary circumstances when the weather was cold. I think our bees will go into winter quarters this season the heaviest in all my experience.

L. C. Wheeler, in the *Review*, says that lighting a smoker with coal oil, as advocated by the late Mr. Hutchinson, causes the smoker to smell badly afterward, and will even taint the honey after being so treated. I have never tried the plan; but while on inspection work I came across different men who had tried it—some pretty good bee-keepers too, and they never reported any trouble along the line mentioned by friend Wheeler. The plan *looked* good to me, and I had often thought of having a small oil-can in each yard, loaded with coal oil; but according to what Mr. Wheeler says it might be well to do a bit of experimenting.

Editor Tyrrell, when through using a smoker, does not empty out the unburned fuel, but plugs up the nozzle with green grass (he would have some fun finding any here just now), thus extinguishing the fire, and then when relighting he uses the charcoal that will be left in the smoker. One objection to leaving a smoker in this condition is that the creosote will glue the nozzle fast to the barrel, and then it is quite a job sometimes to break connections, and possibly the hinges will break. Of course, if *dry* fuel is used there will be little if any creosote; but with us that is not always to be had—indeed, I like the fuel damp, as better results are obtained.

D. M. Macdonald says, in the *British Bee Journal*, in speaking of the queen-excluder, "My dislike of this appliance has been recorded in the past," and then proceeds to quote three authorities agreeing with his view of the question. Messrs. Scholl and Chambers, of Texas, and the editor of the *Australian Bee-keeper* comprise the trio.

With all due respect to the opinions of the men mentioned, it occurred to the writer that, if one attempted to quote the names of extensive bee-keepers on this continent who are in favor of using queen-excluders it would take several issues of the *British Bee Journal* to provide space for the list. More than that, the great majority of extracted-honey producers would not do without these useful appliances, as they are regarded as an absolute necessity. Again, I believe that most of these bee-keepers have proved to their entire satisfaction that queen-excluders are not "honey-excluders," as is claimed by Mr. Scholl and a few others. Personally I am free to confess that, if I attempted to produce extracted honey with full-depth supers, without queen-excluders, I certainly would soon throw up the job, as the "honey-excluding" propensity spoken of is sure to manifest itself very prominently if I happen to run short of excluders, leaving a few colonies without that convenience for separating the brood-nest from the surplus compartment.

On page 519, Sept. 1. Mr. Doolittle says that bees emerging from their cells in September may survive the winter and live until May or June. If the inference is that only bees reared after Sept. 1 thus survive the winter, certainly there will be a heavy loss in bees in the yards of a York Co. bee-keeper this coming winter. For some reason the brood-nests are packed with honey to a greater extent than I ever knew before, and wintering results will be awaited with interest. For the past week or two I have been doing some requeening, and in many cases during the first week of September I found the combs solid with honey with the exception of two to four combs in the center having not more brood in each than the size of the palms. These colonies are all strong with bees; but surely if only September-reared bees survive the winter, the colonies will be in a depleted state by spring. However, I am not worrying about the matter, as I anticipate that they will survive all right. It is an unusual experience in this locality, and I can explain it only by reason of the slow flow from the buckwheat late, when the nights were cool and the bees loath to go into the supers.

There seemed to be no difference between colonies having old or young queens; but there was a decided difference in one respect —that the pure Italians were the worst sinners in the matter of packing the brood-nests with honey.

Reciprocity discussion is over for the time, and I trust I may be pardoned for referring to a rather amusing side of the question so far as it concerns honey-dealers. Of course, honey is very scarce here this year as well as in the United States, and that fact may have something to do with the circumstance I am about to relate. Some time before the elections, when the trade question was just a matter of guessing as to how the thing would go, a well-known firm in Ontario sent out circulars saying that honey would be much cheaper after reciprocity came into force, and they strongly advised bee-keepers to sell early, as they would be sure to get better prices than later in the season. Since the election another well-known firm sent out circulars saying that since reciprocity is settled they would be able to quote prices on honey. A few weeks before this I had shipped this firm the buckwheat honey from my east yard; and now, in response to their circular, I wrote them saying that I had a certain amount of buckwheat honey for sale here in York Co., and I asked them to quote best prices. They wrote me at once and offered me less than they had paid me for the former lot. In acknowledging their communication I suggested that, after all, the defeat of reciprocity must have been a bad thing for the honey industry in Canada; but to date I have not received a reply, so I do not know what their explanation will be. The whole incident shows how the game of *working* a producer can be played, and I have no doubt that a number bit at the circular sent out before the elections.

The annual meeting of the Ontario Bee-keepers' Association will be held in Toronto, Nov. 15, 16, 17. Mr. Pettit, in writing me, says it is expected that this year's convention will eclipse all former ones, both in attendance and every other respect. This is a high ideal; but judging from what I already know of the proposed program I have an idea that Mr. Pettit will prove to be a sure prophet. The attendance of a number of our well-known bee-keepers from over the line is promised, among them being Mr. Tyrrell, Secretary of the National; Dr. Phillips, of Washington, and Chas. Stewart, one of New York State's well-known inspectors. All of these men have been given a place on the program, and no doubt one of the interesting features of the meeting will be the thorough discussion and investigation of the foul-brood situation. In this connection Dr. Phillips will give an illustrated lecture, using his splendid set of lantern views, some of which show the natural color of diseased brood.

Dr. Phillips will also give his popular illustrated lecture on the behavior of the bee. As notices giving full particulars will probably appear in the journals, it will not be necessary to take much space here; but I can not refrain from giving a hearty invitation to all American bee-keepers, as well as others, to be with us and have a good time. In doing this I feel assured that I am simply voicing the sentiments of all the bee-keepers on this side of the line, and especially of those who are members of the O. B. K. A. The horticultural show will be open at the time of the meeting, and this alone is well worth a visit to Toronto, the queen city of Canada. No doubt the railway rates will be as in past years—single fare from all points in Ontario.

Conversations with Doolittle

At Borodino, New York

"I am a beginner, and want you to tell me how to use smoke, when working with my bees, so as to secure the best results."

"Undoubtedly we old fellows do not sympathize with beginners in bee-keeping as we ought, inasmuch as forty odd years have carried us so far from the beginning that some of the troubles we had when we commenced have been forgotten. But I *can* remember the time when a Doo-little fellow first looked into a hive containing a colony of live bees. I see him now with the sleeves of his coat tied at the wrists, mittens with long wrists tied in the same way, trousers fastened at the bottom, and hat with a veil that reached to the waist (the veil also tied down). With the mercury up to 85° in the shade, this bundled-up lad stood in the sun, and used all of his lung power to blow, in the direction of the bees, the smoke arising from some chips scattered over a pan of live coals. Even a beginner in the year 1911 may see the advantages he has now over those of fifty years ago. Surely, in the line of smoke for bees 'the world do move;' and I will add that, bundled up as he was, the boy got stung.

"I soon learned to take off my coat, then the mittens, to use a veil which came only to the shoulders, and bicycle-clips instead of strings at the bottom of the trousers. Some bee-keepers throw away the veil and clips; but I advise the beginner to use them and also a smoker. The practical apiarist who handles colonies of bees every day can tell, before he goes to work, about the quantity of smoke the bees will need. I do not smoke one colony in twenty, other than over the frames as the cover is raised.

"Some apiarists, whom the bees do not sting much, use no smoke at all; and one man thinks it strange that I always carry a smoker with me. I went to his apiary years ago, with two other bee-keepers; and as soon as he opened the first hive no bees seemed to hover about him; but half a dozen started toward me at once; and as I had no veil with me I beat a hasty retreat, only to be laughed at. But a moment or two afterward the other two were seen leaving also, to the amusement of the bee-keeper, whom bees rarely stung. There are a few men in the world who, for unaccountable reasons, seem to be sting-proof. Others can not come near bees without being stung.

"An old neighbor of ours, who kept bees when I was a little boy, boasted that he was never stung by bees, and I could hardly believe him. When I had been in the business four or five years he came into the apiary as I was taking off box honey just after the basswood bloom, at a time when bees are generally inclined to resent being molested. The man who worked the farm was with me, well bundled up. This sting-proof neighbor was then over 80 years old; and as he came walking in among the hives this man shouted to him that the bees would sting him. The old man said, as I had heard him many times before, 'Bees never sting me.' Just about the time he came near us I happened (?) to drop a wide frame of sections on the frames below, and did not resort to the smoker. A cloud of angry bees arose in the air, and soon the bundled-up man was beating a hasty retreat, which caused the old man to laugh. I would willingly have followed, but I wished to put my neighbor to a test. As I saw no bees looking at him, I requested him to hold a frame of partly filled sections while I did some reaching down into the hive. In doing this I drew the next wide frame of sections up past another which was covered with bees so as to mangle and kill scores of the little fellows, making the air so full of vicious bees that I was getting a most unmerciful stinging on my hands and through my clothing. I now looked at him, standing there bolt upright, holding that wide frame of sections, with not a bee even hovering about him, any more than they were about a fence-post standing near. I now took the sections from him and closed the hive about as quickly as possible, but not on his account. As we walked out of the apiary my clothes were full of hissing bees, with a swarm of angry ones about my head, while not a bee had looked at him.

"Now, the beginner who is sting-proof needs little advice about how to smoke bees; but for such as I was it will not be out of place. Before opening a hive containing a full colony, blow a little smoke in at the entrance—enough so that a little murmur is heard from the colony within. Then, as the cover is carefully raised, blow a little over the tops of the frames, causing most of the bees to retreat down between the combs out of sight, when, if the frames are handled with care, all necessary operations can be performed without arousing the bees. However, if they begin to get nervous, and buzz about, use more smoke, blowing it over the frames as before.

"The old bees are generally the most vindictive when the hive is disturbed. When the weather is fine, most of these are in the fields, and at midday there is less need of smoke than at any other time. If the blossoms yield nectar the bees are so intent on honey-gathering that very little smoke is needed; and sometimes in the busy part of the day hives may be carefully handled, without the use of smoke. But in the morning or evening, when the old bees are all at home, it is never a good plan to open a hive without first smoking those that guard the entrance. Especially is this true when there is a sudden stoppage of nectar from any source from which the bees have been obtaining an abundance. Experience will soon dictate whether little or much smoke should be used.

General Correspondence

INBREEDING.

Some of its Possibilities; how we can Develop Desirable Characteristics in Bees; the Editor's Scheme to Mate Drones and Queens on an Island.

BY H. D. TENNENT.

Mr. Raleigh Thompson asserts, Nov. 15, 1910, p. 736, that the laying or individual reproduction of bees can not exist without swarming or colony reproduction. They certainly do not appear on the surface to be more closely connected than the laying and sitting of poultry and other associated functions of living things in which just as great variations occur. Since nothing else with which we have to do has the same complex system of reproduction we have nothing exactly analogous to the swarmless bee; but there is no lack of cases in which just as serious and fundamental variations have occurred.

The production of flowers and setting of seed are certainly closely related functions of plants, yet we have numerous ornamental plants which bloom profusely but produce no seed. The sole use of fruit to trees and plants is to secure distribution of their seed; yet there are varieties of oranges, pineapples, apples, pears, grapes, tomatoes, and persimmons, nearly or quite seedless. If animals could be propagated by division it would not be much trouble to form barren breeds. As plants, animals, and insects, so far as investigated, are (in the main) subject to the same laws of heredity, such comparisons are not so far amiss as might at first seem. In experiments with potatoes, constant selection of varieties which have devoted the most energy to the production of tubers has resulted in some which seldom or never produce seed, though themselves raised from seed-balls. It is quite probable that similar breeding from the colonies which produce the most honey would lead, in time, if widely practiced, to the inclusion of non-swarming strains if such are not already in existence.

The statement that the swarming instinct can not be eliminated by keeping bees for any length of time, under conditions unfavorable to its exercise, is quite in line with the results of modern investigation. It was formerly thought that the mere disuse of a part or function would in time lead to its being left out entirely; but it has since been shown that the complete removal of a part for many generations has no effect on its inheritance. Such changes must ordinarily come from sports or mutations affecting the germ, which occasionally occur, but the causes of which are as yet unknown and beyond the control of man.

If such a variation were once found to exist in transmissible form, its perpetuation, though involving considerable trouble, would certainly not be impossible. It is very rare that nature sets up any impassable barriers to the perpetuation of propagable variations. Except by the rare chance of another sport, a true sport can not revert back to the original type unless crossed with it or with some other strain derived from it, and, in the great majority of cases, is not destroyed by such crossing. This is the conclusion reached by modern investigators.

If unusual length of tongue, as mentiontioned by the editor, Dec. 1, p. 748, behaves as do hereditary characteristics in nearly all cases among other forms of life, its hybrids with the normal form will, if mated together, give a proportion having tongues just as long as in the original sport, and pure for the characteristic. If, in the heredity of bees, differences in tongue-length should happen to belong to the rare class of cases known as non-segregating, in which hybrids breed true to the intermediate or hybrid form, as with the long ears of the lop rabbit in its crosses with other breeds, then the quality might indeed be lost by continued crossing with the common form.

But proved cases of this kind are very rare. Such characteristics as the various combs of chickens, the taillessness of the Manx cat, and the rumpless or "bunty" fowl, separate perfectly from their hybrids, and may be combined with any unrelated characters of other breeds. The same is true, to some extent at least, with long and short hair among animals, as is also apparently the case with the less tangible qualities, such as the trotting and pacing gaits of horses and the sitting and non-sitting dispositions among poultry.

But in either case, if this queen, mentioned p. 748, Dec. 1, had been in some isolated locality, "long-tonguers" might now be selling at rates which would make an ordinary queen "look like thirty cents." The drones of the original queen might, of course, not carry the characteristic, in which case they would have to be left out, and the drones of her daughters and purely descended queens used for quickest results.

It seems to me that the stand taken by some concerning the possibilities in the modifying of bee nature is too conservative for these days of seedless fruit, thornless cacti, and white blackberries. The difficulties in the way of perpetuating unusual variations in bees may be discouraging to those ordinarily situated; but there are, no doubt, many readers of GLEANINGS located within reach of islands, or otherwise isolated places, who, by a little trouble, could absolutely control drone parentage, and so might secure valuable results in improvement.

Should inbreeding have any unavoidable injurious effects, ordinarily by occasional crossing with other breeds followed by suitable selection, the strain could be kept vigorous without losing its valuable qualities. If the characteristic should not separate from its hybrids, it might be necessary to

find enough unrelated sports of a similar nature to make an independent breed.

In the few apparently unsegregating cases which are known, the qualities take an intermediate form in the hybrid. At the very worst, then, it would seem that this first hybrid form could be perpetuated. But whether inbreeding is necessarily injurious to bees has yet to be proven.

With ordinary behavior the results of crossing such a sport with the normal form could easily lead to the belief that the peculiarity had deteriorated, or had been lost, when such was not the case. If the quality sought were completely recessive to the ordinary form it would not appear at all in direct crosses with it, and in only one-fourth of the offspring of its hybrids when mated together. Whether recessive or not, this second generation would contain all possible forms, just as second-generation hybrids of the black and Italian races of bees have all combinations of their various characteristics, and so the transmissibility of a quality could not be fairly judged thus far in any thing depending upon the behavior or performance of the entire colony. But of queens from such hybrid mothers mated with drones, pure or hybrid, for the desired quality some should give colonies pure for the characteristic.

The fact that a colony as a whole possesses any quality not dependent upon environment is in itself reasonable proof of its transmissibility; and in the case of any thing unusually valuable it ought to pay to take the trouble necessary for its perpetuation. Aside from this, the proportions of the different forms and combinations seen in second-generation hybrids, as of the black and Italian races, would seem to show that some, at least, of their characteristics follow Mendel's law in inheritance, and so could be quickly fixed in any desired combination by suitable crossing and selection, for there is every reason to believe that bees are just as susceptible to change and improvement as other forms of life if the right conditions are given; and as these conditions become better known there is no good reason to doubt that such changes will come.

Sports may be rare; but the existence of even non-swarming colonies would not of necessity be limited to the occurrence of sports. The fact that a colony is not able to swarm would not prevent its drones from fertilizing queens of other colonies, and so propagating its characteristic for a time in this way, just as barren stalks of corn are supposed to transmit their defect through the pollen. Injurious factors which are more or less dominated by the normal condition may also be transmitted for many generations by their hybrids, real or simulated, with it. Thus certain plants give a proportion of offspring without green coloring in their leaves, and which, consequently, can not live.

In the human species two hereditary conditions (hæmophilia and Gower's disease) are transmitted in a somewhat similar manner, though those in which it appears rarely live to maturity. Among peas it is not uncommon to find defective plants which, in nature, must usually be barren. When artificially fertilized they are found to transmit their defect in regular manner.

In many cases in plant and animal life, more fatal defects than would be the loss of the swarming instinct are produced as the result of crossing different races or species. Inheritance among bees has not been scientifically worked out yet, so that the exact nature and behavior of their various characteristics can not be positively stated. Scientists will see that this is done, whether bee-keepers do it or not; for which reason it is at present unsafe to undertake to say what may not be done in modifying their nature.

The difficulties in the way of certainly detecting and perpetuating such a variation are entirely sufficient to account for the failure to produce a non-swarming breed up to the present time, but can by no means be guaranteed to prevent it when such matters shall be taken up by scientific experts not dependent on the bees for their bread and butter.

McConnellsville, O.

[Our correspondent evidently knows this subject of inbreeding, and how to secure the development of desirable characteristics, better than the most of us. We may, therefore, well sit at his feet and learn.

In the mean time, one of the reasons why we made a trip to Florida was to find some island, at least ten miles from shore, where inbreeding of bees might be practiced. But on our last trip we did not find an island that afforded the proper conditions. While rearing queens in a *commercial* way is not altogether satisfactory on an island, owing to the loss in mating over the water,* we believe it would be possible to develop certain desirable characteristics. We shall see.

In the mean time we are glad to say that our correspondent will have something more to say on the question whether it is possible to develop a non-swarming or a long-tongued strain.—ED.]

THE ORIGIN AND USE OF PROPOLIS.

Dr. Kuestenmacher's Theory Attacked.

BY J. E. CRANE.

F. Greiner, Sept. 15, p. 568, gives a translation of Dr. M. Kuestenmacher's views on the origin and use of propolis. While it becomes us humbler folk to walk softly before those so far above us in scientific attainments, yet Dr. Kuestenmacher's statements appear so full of contradictions and absurdities that they can not escape notice. His theory is that each grain of pollen is cover-

*It appears that, after copulation takes place, many times both queen and drone drop to the water just as they do on land. The queen on dry ground will take wing again; but she appears unable to do so from the water, and hence is lost.

ed with a thin coat of balsam which the nurse bees can not digest, and that this rises to the top of the stomach, together with dead grains of pollen and the husks of other pollen grains, and the bees spit it out on the sides and in the crevices of the hives, but never on new combs. He states that propolis is the oil or balsam covering all pollen grains intermingled with other substances, as wax or old pollen, and that the use of this balsam is to protect the pollen from moisture, and assist it in sticking to insects to be carried thence to the stigma of some other blossom. The stigmas of flowers do not need this assistance, however, for at the proper time to receive pollen they throw out moisture for this purpose. He adds that these pollen grains will gobble up water like a sponge. Surely, then, this coating of balsam must be extremely thin or utterly fail. He says that it required five times as much water as pollen to moisten it in the stomach of nursing bees, and that for no other purpose do bees require water. I wonder if he has ever moved bees in hot weather.

According to his theory, the amount of balsam which is the base of propolis is produced by the nurse bees in exact proportion to the amount of pollen they consume. Further he says, "the emulsion is also passed out to younger and older bees, which process of passing it about purifies what we term the milk, and strains it, removing the pollen husks." Thus he makes the process of preparing food for the young bees merely the emulsion of pollen and separation of the balsam and pollen husks. No honey is required, according to his way of reasoning. The rapidity with which honey disappears from a hive when rapid brood-rearing is in progress would indicate that something besides an emulsion of pollen grains and water is required to feed the young bees.

Again, he states that a pollen grain under a microscope is perfectly solid. Prof. Asa Gray, a very good authority, says that a pollen grain has a cavity filled with a fluid in which minute specks often float.

Dr. Kuestenmacher thinks that grains of pollen that do not not absorb water rapidly are dead and of no special value to the bees, but that these grains rise and attach themselves to small drops of balsam at the upper surface of the stomach, and the shaking of the nurse bees hastens the process of separation, just as the agitation of cream separates the butter from the milk. But not all of the balsam and pollen husks are separated, for, being indigestible, traces of them are found in the intestines and excrements of bees.

His theory is that the bees do not besmear the combs with drops of balsam; yet one often finds new propolis in little pellets on new combs, and near the close of the season the bees try to seal unfinished combs with it, or with wax mixed with it.

If the color of fresh propolis is yellow to red, and the balsam penetrates the wax and gives it its color, why is olive-colored wax found in some sections of the country? Large quantities of wax and propolis melted together as he suggests, do not unite.

If it were true that *all* pollen grains are coated with balsam, and this balsam is produced just in proportion to the amount of pollen the nursing bees consume, propolis would be as abundant in May and June during brood-rearing, when the largest amount of pollen is consumed, as later in the season. Instead there is practically no new propolis until July, after which it abounds, whether the bees are using pollen or not.

I have never observed that a queenless hive, where no pollen was used, was free from propolis. Or is it a question of digestion, the nurse bees being able to digest the pollen grains, balsam, pollen husks, and all, up to the last of June, when their digestion rapidly fails them, and the propolis nuisance appears?

Is the digestion of some strains of bees, or breeds of bees, better than others, that there is so much less propolis in their hives?

Middlebury, Vt.

[This article is in line with statements by Arthur C. Miller on page 627.—ED.]

SOURED HONEY.

Should it be Fed to Bees in the Fall?

BY E. D. TOWNSEND.

Mr. E. D. Townsend:—What is your opinion in regard to feeding bees honey that started to ferment in the comb before extracting, although the combs were well sealed? Would such honey be good to feed bees for winter, or would it injure them in any way? Would it help it to boil it? I have several gallons of such honey. Although it does not affect the taste very much, would it not be likely to ferment still more? I shall not offer it for sale, but would like very much to feed it if I can safely do so.

Morenci, Mich., Sept. 18. ARTHUR RICE.

[Mr. Townsend replies:]

There is so much disease prevalent in Michigan that I would not recommend feeding honey to bees at any time. Sell your honey and buy granulated sugar, and make a syrup consisting of one part water and two parts granulated sugar, and you have a feed that is the equal of any, and very much superior to poor honey as a winter food for bees.

I would not offer this fermented honey for sale for table use, but bakers can often use it.

We have never had the trouble you mention, of honey fermenting on the hive, here in Mecosta or Charlevoix Co.; but when we had bees in Clinton Co., a few years ago, some few colonies nearly every year would have some of this thin watery honey. We have had honey, sealed up in good shape, that would be thin, and ferment, so that air-bubbles would be present, and the honey, when being uncapped, would run like water. Perhaps two or three colonies in a yard would be in this condition, while the others would have thick well-ripened honey. It was easy to keep this low grade of honey separate from the main crop, as one could tell the minute the uncapping-knife entered the comb, for it would slip through as if

greased. These were extracted by themselves, and kept separate. It was not the fault of the honey, but must have been a peculiar trait of certain colonies. Such bees might well be superseded with another strain.

If you must use this fermented honey for bees, use it next spring, then there will not be any danger of causing bowel trouble, as it might if fed in the fall. We will suppose your bees are wintered in a cellar, and in that case would consume, say, 10 lbs. of stores during winter. If in fairly good shape they will need something like 15 lbs. to carry them over the breeding season from early spring until the opening of the clover or raspberry season the following June. So my advice would be, use your fermented honey for these spring stores.

Remus, Mich.

BALLING OF QUEENS.

A Serious Trouble in the Tropics.

BY CH. NOEL EDDOWES.

On page 460, Aug. 15, your editorial note on my contribution to the discussion on the question "Why are the queens of natural swarms killed?" confines itself to the balling of introduced queens. My remarks referred to queens which had been born and reared in the hive, and were balled by their own bees when I lifted the cover to examine the hive. It is needless to say I destroyed the queens of such colonies.

I will give one very marked case that I observed three years ago. The bees of the colony balled and killed their own queen. I gave them a ripe queen-cell, and the virgin hatching from it failed to mate and was lost. The hive was, consequently, queenless and broodless. I then tried to introduce a queen by Doolittle's flat-cage system—the cage not being driven down to the midrib, under which circumstances the bees usually release the queen by cutting out the comb under the edge of the cage, within two or three days. The bees in this case cut out the queen in 12 hours, and killed each other by the dozen while attempting to ball the queen when she was in the cage, and killed her as soon as they liberated her.

I then attempted to introduce, by different well-known systems, three successive queens, which were all killed. After that I shook the bees into an empty box, and shut them up; and when they were in an uproar, on finding themselves queenless, broodless, and combless, I let a mated queen run in through a small entrance. On examining the hive the next day I found the queen dead on the floor, and the bees had built three pieces of comb, about three inches long and about the width of a man's thumb, composed entirely of queen-cell bases. I then threw the bees back on combs with brood from another colony, and on these started ten queen-cells, and I let them requeen themselves.

I can cite another instance which is very extraordinary, where an old queen belonging to the hive paid not the slightest attention to her bees, following her all over the combs; and each time she entered a cell to lay they formed a ball over her while she laid, from under which she crawled out and continued laying, leaving the bees to kill each other, under the impression that they had her in the ball. I have seen those bees on three distinct occasions do this at intervals of more than a week.

This old queen was not killed by her bees; but on each occasion of an attempt to ball, there were from 150 to 300 bees killed.

These are experiences we meet with in tropical bee-keeping which are rather puzzling to the man from the temperate zone. This balling has occurred at different times during a heavy honey-flow or in dearth; but it is more common in November and December, when the honey-flow commences.

But, as I have said in my former letter, by a process of selection I have nearly eliminated this trouble.

Half Way Tree, Jamaica.

SUPERSEDURE OF NEWLY INTRODUCED QUEENS.

How to Prevent it.

BY ARTHUR C. MILLER.

How very frequently the complaint is heard that the bees superseded some choice queen recently introduced! The trouble is generally laid to harm to the queen caused by mailing, or to some injury such as a lost leg, etc. In all these cases, with rarely an exception, the queens were introduced in cages and released by the eat-out plan. Man meddled and muddled as usual. Dequeening and immediate direct introduction of the new queen is rarely followed by attempted supersedure, even though the queen came from a distance. If, however, the queen was taken in the full tide of her laying, and caged with the ordinary quota of attendants, she may have received such a shock to her system that she will never again be good.

When the bees start to supersede a recently introduced queen, the trouble may be stopped by the following procedure: Remove the started cells, also two combs of capped and emerging brood, and in their place put from another colony two combs of hatching eggs and very young larvæ. That is all.

If the attempts at supersedure are resumed it can be stated with certainty that the queen is really failing. There is a rare exception when the bees continue attempts at supersedure after the transposition of brood when the queen is really good; so if the queen is particularly valuable it is well to remove started cells again and change another comb of capped brood for one of unsealed larvæ. By combs of capped brood or unsealed larvæ is meant where the greater part of the contained young are of the character specified. The foregoing procedure is based on fundamental laws of bee life.

Providence, R. I.



APIARY OF G. C. CHASE, ROBBINS, WISCONSIN.

OVER 200 LBS. OF HONEY FROM A THREE-FRAME NUCLEUS.

The Crop Depends Largely on the Queens; a Unique Method of Keeping the Record of a Queen Without Books.

BY G. C. CHASE.

[One of our readers, Mr. E. E. Colien, of Manawa, Wis., noticing the mention of the record made by G. C. Chase in some of the advertising of the late Geo. E. Hilton, became every much interested, and he wrote to Mr. Chase, asking for particulars. The letter which he received in reply he considered so valuable that he secured permission to send it to GLEANINGS for publication.—ED.]

Mr. E. E. Colien:—Replying to your letter of a recent date, asking me to state briefly how I managed a big surplus in the worst year on record, permit me to say that, while I do not consider I have been in the business long enough to pose as an expert, I at least have nothing to conceal, and will cheerfully tell you how I managed, as plainly as possible, and will feel amply repaid if, by so doing, I can help a fellow-laborer in the field of beedom.

The statement that I made to George E. Hilton was correct. I had a number of his nuclei that gave me more than 100 lbs. of surplus each, and one full colony from which I took seven frames of brood to strengthen some weak colonies that gave me one prime swarm and a little over 200 pounds of honey. My sixteen colonies and the thirty three-frame nuclei that I bought gave me in all over 4000 pounds of fine extracted honey.

I practice taking my bees out of the cellar early, and then protecting them well. Two years ago in the spring my bees had dysentery; and, if I had not put them out early, I would have lost many of them.

After trying several ways for increase I have adopted the following, as giving best results:

I build up my colonies as fast as possible; and when they are strong in bees, and have from seven to nine frames of brood, I treat each as follows: Beginning with the first colony I set the hive off the stand, replacing it with a hive filled with frames having full sheets of foundation. Then I look up the queen of the colony just taken from the stand, and take the frame of brood she is on with all adhering bees, and put it into the center of the new hives, having first taken out one or two frames of foundation to make room for the easy introduction of the frame of brood, bees, and queen. After replacing the frames of foundation I put on a queen-excluder, and set the old colony on top. Five days later I set the old (or top) hive on a new stand, and examine it for any queen-cells forming. These I at once cut out, and two days later I give them a laying queen. These colonies so divided and managed for increase, with proper feeding, will, when the harvest time comes, be ready in countless numbers to enter the field of sweets.

Now a word about feeding. Let me go back to the taking of the bees from the cellar in early spring. Having given them protection, as I said before, the first day the weather permits I open every hive to see if they have a queen and plenty of stores, when I leave them until they begin to bring



An apiary of 135 colonies that produced 15,000 lbs. of honey after the whole yard was treated for European foul brood.

in pollen. At this time I take out my Alexander feeders and proceed to feed every colony thin warm sugar syrup, regardless of how much honey they may have in store. I try, of course, to equalize stores, and, later on, to equalize brood, and, as far as possible, get them built up good and strong in bees and brood. I may find some building up too fast for the little honey coming in, and appear to lack brood room. From such I take away a frame or two of honey, and replace with empty combs. The queen will climb right into these combs as soon as cells are cleaned up, soon filling them with eggs that will hatch out an army of young bees just in time for the honey-flow.

The year I had the queen from which I had taken seven frames of brood early, for increase, I went out early one cold morning and counted 103 drones outside of her hive. Of course, that meant no stores. I opened the hive and found 9 frames of brood solid from top to bottom and end to end, and not four ounces of honey. Though it was cold, they had to be fed, and at once. There was bloom, but it was too cold for bees to gather, and it continued so for nearly a week; but my timely examination and feeding saved the brood for the near-by harvest.

The majority of bee-keepers, as a general thing, do not pay close enough attention to the needs of their bees and the quality of their queens. This latter feature surely deserves close watching, although I am well aware that many believe that "a queen is a queen," and when they know that there is one in the hive they feel satisfied, and believe the crop depends on the season.

Well, alongside of the queen I just spoke about I had another that I fooled with all summer, and failed to get a single pound of surplus, or any stores for winter. Just after the full flow of nectar I destroyed her, and gave to her colony a prolific queen. They built up at once, and got in good shape for winter on the late fall flow. Now note the difference in results, just because of the quality of these three queens. Had the prolific queen, early in the season, been given to the colony that failed to produce any honey, I would have been at least 100 lbs. of honey ahead. So much for queens.

I will now conclude my long and perhaps rambling letter by giving you my system for keeping track of queens without bookkeeping, but with absolute correctness. I use tin tags of three shapes—round, half round, and square. Beginning with the round ones I tack one on the lower left-hand corner of each hive. If a queen proves good I move the tag over to the center; if very good, higher up in the center; and if extra good, giving a big surplus, I move the tag to the top of the hive in the center; and when a queen proves poor I move the tag to the right-hand corner and "discharge" this queen as soon as I can get one to fill her place—the sooner the better.

The second year I take another shape of tag; so you see the shape of the tag tells the queen's age, while the place it occupies on the hive shows her quality.

Robbins, Wis.

EUROPEAN FOUL BROOD.

McEvoy Cure Proves Permanent only where Bees are Pure Italians; 15,000 Lbs. of Honey Produced the Same Season after All Colonies had been Treated.

BY WARRINGTON SCOTT.

In the spring of 1907 European foul brood broke out in my home apiary. Being without experience in treating it, I notified the Department of Agriculture, at Toronto, and they sent an inspector to examine my bees. He pronounced the disease European foul brood. It was a poor year for honey, and I

decided to try the Alexander treatment. I united the colonies, decreasing the number from 112 to 50, and requeened them with Italian queens of the leather-colored strain. This treatment was a failure. The disease returned in most of the colonies the same fall, and by the next June (1908) it was in nearly all the colonies.

I then decided to try the McEvoy treatment. This not only proved to be a cure but a permanent one, where the bees were pure Italians; but where there was partly black blood the disease returned. I reduced these 50 colonies to 23 while using the McEvoy treatment; but the disease reappeared in only one colony that season.

The next season, 1909, the disease broke out in eight colonies, these being partly black blood. The next season there were also eight colonies diseased. I am satisfied that the McEvoy treatment is a permanent one where the queens introduced produce pure Italians of a light color. This was my experience in my home apiary.



HAND BOTTOM-BOARD GIVEN A PRACTICAL TEST.
See A. I. Root's department.

The apiary shown in the cut on preceding page is owned jointly by Mr. J. W. Free and myself. We took all precaution possible to prevent European foul brood from getting in this apiary. Having inspected all surrounding apiaries in 1908 I had the nearest diseased apiary promptly treated, it being about two miles from the Free apiary.

In the spring of 1909 Mr. Free was watching carefully for signs of the disease. He reported, on May 31, that the brood did not appear healthy in some colonies. I examined the apiary, and found European foul brood in 40 colonies out of the 135 colonies. The tall hive at the left-hand corner of the picture produced 418 lbs. of extracted honey the previous year, and was the first colony to develop the disease in the last stage. It was a great temptation to attempt to patch up this apiary by treating only those colonies which showed disease, about two-thirds of the colonies being pure Italians of the golden strain, the rest being partly blacks; but we decided to treat the



APIARY OF J. ALLEN SMITH, LAWRENCEVILLE, GA., RUN FOR BULK COMB HONEY.

Nearly all the bees kept in this locality are in box hives or nail-kegs; but bee-keeping in Dixie is rapidly coming to the front, nevertheless. All we need is a few more men like J. J. Wilder. J. ALLEN SMITH.



ALDRICH'S TWO-STORY HONEY-HOUSE AND WORK-SHOP.

who'e apiary at once, fearing a delay might be dangerous.

As soon as the honey-flow opened we started the McEvoy treatment, beginning at the right-hand corner. The first hive was moved back of the house, and the next two colonies were shaken back in their hives and given five frames with starters about one inch deep, and their brood placed on top of the hive back of the house, which had its queen caged. We continued this treatment over the whole yard. We did not unite very many colonies, as the disease had not made much headway at the time of treatment. But it continued to spread. The weather being warm, the bees commenced to swarm out of the hives after being shaken, so we raised up the hives and placed an empty hive-body under them, which stopped the swarming-out. On the fourth day after shaking, the comb built was removed and full sheets of foundation given them; also Italian queens where the stock showed any black blood. In about twenty days the colonies back of the house were also shaken on starters and treated in the same way as the main yard.

The combs were moved to the honey-house, where they were rendered into wax. We had a large tin storage-can half filled with water, and procured the use of a steam thrashing-engine; and by connecting the steam-pipe into the storage-can the water was kept near the boiling-point. The combs and frames were thrown into this can, and the frames fished out as the combs melted. The frames being wired, a great many of the wires were unharmed and used again. Two men were kept busy pressing out wax with presses. The slumgum was removed from the presses and put in the fire-box of the engine, and burned.

This treatment has proved to be a permanent cure; 110 colonies were saved out of 135, and there has not been a single case of the disease in the yard since, and 15,000 lbs. of extracted honey was secured the same season of treatment.

Wooler, Ont., Can.

A CONVENIENT AND INEXPENSIVE WORK-SHOP.

BY CLAYTON ALDRICH.

Every farmer, especially if he is in the bee business to any extent, needs a work-shop, for the barn is no place to scrape honey, on account of the dust; and the kitchen of the dwelling-house is usually being used for other purposes. Our shop is built on a solid concrete wall 18 inches high, 14 inches wide at the base, and 8 inches at the top, where the sills rest. The building is 16×30 ft., and the walls up to the eaves are 15 ft. high. We sheeted the outside with inch hemlock, and then put on paper and clapboards.

The lower story is divided into two rooms — the front room for a general repair-shop, where we can fix up leaky covers, old hive-bodies, bottom-boards, etc. The back room has a stove, the pipe leading to a chimney

built from the ground. In this room we extract honey, scrape sections, render wax, and do all of the other things of like nature that go with bee-keeping. We have also a large sugar-maple orchard, and this room makes an ideal place for boiling the syrup. Both rooms are sealed inside, which makes them look clean and inviting. This lower floor is of cement.

The upper story we use for storing sections, foundation, and all supplies. The walls of this room are sided with basswood, and the ceiling is of steel.

We built the roof half-pitch to save shoveling snow and to make the shingles last better. A porch on the west side prevents storms driving in the front door. There is also a door and a window facing the apiary.

It would be pretty hard to say just how much the building cost, for the rough lumber came from our own farm, and we did the work ourselves without aid. The pine lumber, the shingles, windows, doors, etc., cost about $300. It is true that the building could have been put up much more cheaply; but an attractive building never decreases the value of property. Every farmer or bee-keeper, moreover, should do his best to make his home and surroundings more pleasant and convenient.

Cherry Creek, N. Y.

"GRANDMA" WILSON, 93 YEARS OLD, EATS HONEY AT EVERY MEAL.

BY DR. C. C. MILLER.

Groups of honey-eaters have been shown at different times, and I herewith present a group of one that, for steadily consistent consumption of honey, deserves, if not a blue ribbon, at least "honorable mention."

Born in Scotland in 1819, Mrs. Margaret Wilson was, at the time this picture was taken, 92½ years old. In 1881 she consented to be my mother-in-law, and for the past 13 years has been a much beloved and honored member of my household.

Here is her daily bill of fare:

Breakfast.—A dish of oatmeal and cream —no sugar; then plump 2 oz. of honey in half a bowl of hot water.

Dinner.— Ripe fruit, as orange, apple, pear, etc ; then a very moderate amount of the same dinner the family has; a glass of milk and cream, bread aud butter and honey, and a cup of hot water. Rarely does she taste cake or pastry.

Supper.—A very light meal — generally bread and butter and honey, with a glass of rich milk.

Just how much her remarkably good health is owing to the honey she eats; how much to her abstemious diet, and how much to a rugged Scotch constitution, it would be hard to say. Serenity of mind is no doubt another factor, and, conversely, her regimen is conducive to serenity of mind. Her memory is a wonder. She has a complexion and a freeness from wrinkles that many a woman of fifty might envy, with a disposition that would fit an angel. But then, she's better than an angel—she's a saint, and I've no doubt some of the credit for it is due to the honey she eats.

Marengo, Ill.

[Well do we remember grandma Wilson. She looks not a day older than when we saw



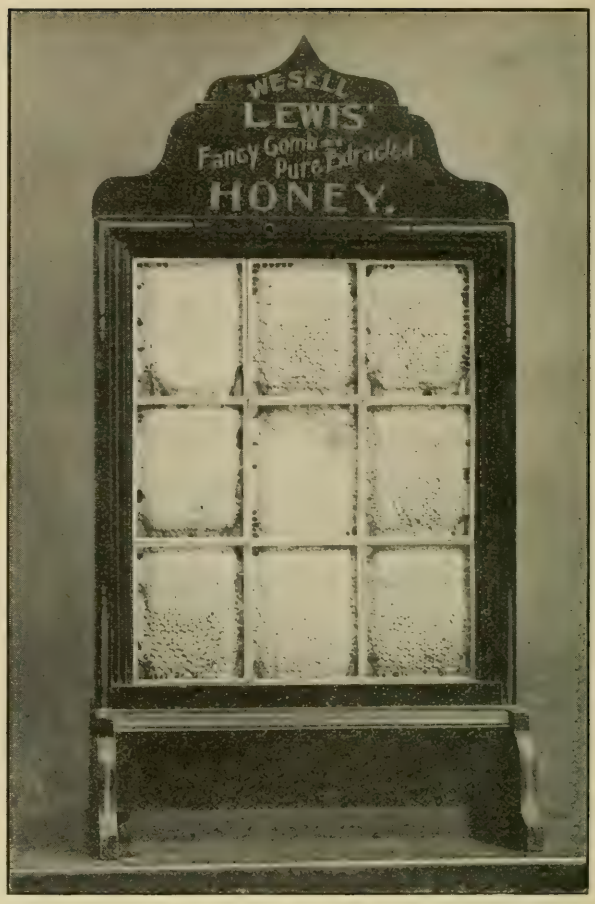
MRS. MARGARET WILSON AT 93 YEARS OF AGE, WHO EATS HONEY THREE TIMES A DAY.
Mrs. Wilson is Dr. Miller's mother-in-law.

her last, nearly ten years ago. We hope this consistent use of honey may help to prolong her life at least ten years more.—ED.]

A DOUBLE-SIDED SHOW-CASE FOR COMB HONEY.

BY W. J. LEWIS.

The photo illustrates a show-case designed for exhibiting our honey where it is sold. When set in a show-window it shows the color of the honey, as it has glass on both sides, and is a sign either from the inside or outside of the building. If there is a light on the inside, it shows up fine at night from the outside.



A show-case for comb honey, with glass on both sides to allow the light to shine through the honey.

WASHING DRONE LARVÆ FROM COMBS WITH A STREAM OF WATER.

Last summer we made a little discovery that may be of benefit to some bee-keepers. We say "discovery," for the reason we never saw it mentioned in any bee books or journals. We had laid out some frames with drone brood in them, thinking the chickens would pick out the brood. Some we had uncapped. Soon after, we were using the sprinkling hose and happened to turn a small stream, under heavy pressure from the city supply, on them. I was much surprised to see every larva struck by the stream fly out of the cell, and I could clear out a comb in less time than it takes to tell it.

We are pleased to say we never had foul brood; but we have thought this plan might be used to assist the bees in clearing the combs, as we notice lately that some writers claim that the bees will clear out the disease if young queens are introduced.

St. Louis, Mo.

[With a disease like American foul brood, where the larvæ have so changed in consistency as to become like hard glue, we question whether the stream of water would be efficacious in rendering the comb free from trouble.—ED.]

DO QUEENS LAY EGGS THAT DO NOT HATCH?

BY WM. L. COUPER.

I notice that the editor is inclined to disagree with Dr. Miller when he states his opinion, July 15, p. 418, that a queen very seldom lays eggs that will not hatch. I think the doctor is right, although, like him, I once had a queen whose eggs would not hatch. She was a young and handsome queen, and filled her combs regularly. I placed one of these combs in another hive, and the bees cleaned the eggs all out in a few days.

I had another and more remarkable case in a very strong colony, and the queen in this case was also young. I am in the habit of looking at all colonies once a week, till they are ready for supers. One week this colony was marked as very strong, with five combs of brood. I expected to find it ready for a super the next week; but it had not altered, except that the brood looked a little patchy. I did not pay much attention; but the next time, I found that there was brood in five frames still; but scattered all over were empty cells, eggs, sealed and unsealed brood, in no particular order. Beyond doubt the greater number of eggs had failed to hatch. I think this case proves that Dr. Miller, p. 418, is correct. If a queen often laid unhatchable eggs, the appearance of the brood-combs would be more or less patchy. (I have employed the clumsy word "unhatchable" to distinguish from drone eggs, which are sometimes styled infertile.) If

any thing like 25 per cent of the eggs should fail to mature, as Mr. Wesley Foster suggests, the appearance of the comb would be very patchy indeed, unless one assumes that the workers immediately remove these eggs and the queen replaces them. I have always thought that patchy brood-combs indicate a poor queen.

Last season, page 584, Sept. 15, 1910, I described a method of swarm prevention which I have successfully tried this year. Briefly put, it consists in confining the queen to an upper story for ten days by means of an excluder. In one case I accidentally shut the queen into a shallow super almost full of honey. When I found her a week later she had a little patch of brood and eggs in one or two combs. I put her below the excluder, and this was one of the very few strong colonies that made no attempt to swarm.



R. W. Ensley and his portable extracting-outfit having a capacity of 4400 lbs. of honey extracted and put in cans in 15 hours.

I had a great many supersedure swarms this year. From my own experience, and from conversations with other bee-keepers, I am convinced that these swarms are very much more common than is generally believed. Of course a supersedure colony is often weak, and on that account not liable to swarm. If it should be strong, and a fair honey-flow on, I believe it will nearly always cast a swarm. If I am correct, this is a strong reason against letting bees do their own superseding.

A PRIME SWARM CAST THREE DAYS BEFORE CELLS WERE STARTED.

This season I had an experience which to me is unique. A colony cast a prime swarm without so much as an egg in a queen-cell. I had looked through the hive a few days before, and carefully, as swarming preparations were rife. When the swarm issued I concluded that I had been careless; and, hiving the swarm with the clipped queen on the old stand, I moved the parent hive to a new location. A few days afterward the bees of the swarm seemed uneasy, and, on opening the hive, I knew at once from the roar that they had somehow lost their queen. I thought the best thing to do was to return the parent hive after cutting out all the queen-cells but one. When I came to look for them, there was not even the beginning of a queen-cell to be found anywhere. I looked over every comb three times to make sure. Having lost all its field bees it was an easy colony to look over. I then concluded that a virgin must have hatched out, though I could not see a sign of a destroyed cell. I placed this hive with the brood on top of the swarm. The next day I looked at them again, and found queen-cells started everywhere. This case seems to me remarkable in two ways: First, the casting of the prime swarm without cells started; second, that the parent colony with lots of young bees had, in three days, made no attempt to start them.

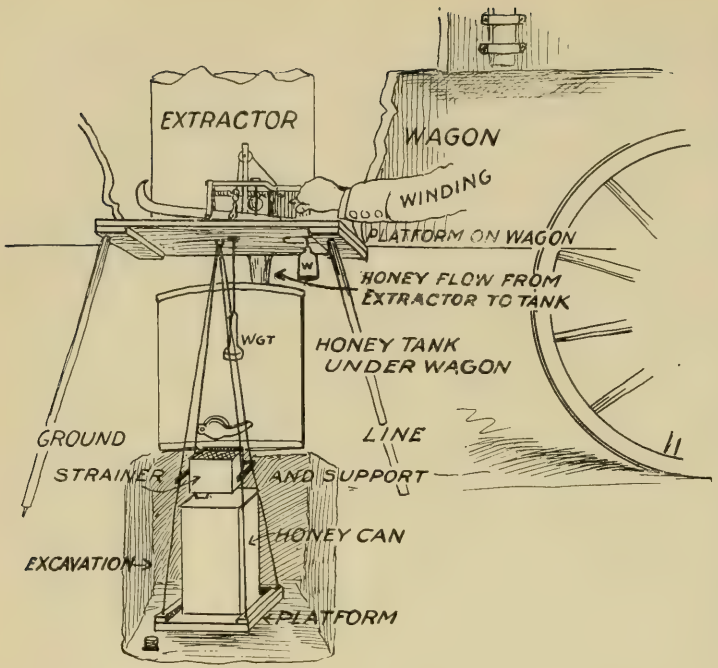
Hatzic, B. C., Can.

A PORTABLE EXTRACTING-OUTFIT.

4500 Lbs. of Honey in 15 Hours.

BY R. W. ENSLEY.

The illustration shows my portable extracting-outfit and my liquid-weighing machine for filling five-gallon cans with honey. It will be noticed that the wagon has an extension box, the extension on one side accommodating the gasoline-stove and that on the other side the comb-carrier. There is also an extension at the back end of the wagon, which is used when passing the carriers in and out under the mosquito-netting curtain. The wagon, as it is shown, is all



DETAILS OF THE AUTOMATIC DEVICE FOR SHUTTING THE GATE WHEN THE CAN IS FULL.

ready for extracting. The uncapping-tank stands just back of the front carrier out of sight, and after the combs are uncapped they stand in the drip-pan until they are ready to be extracted. Eight combs can be held at one time in this pan. The gasoline-stove stands just back of the second comb-carrier as shown. It has two burners, one of which is used to heat the water in which the uncapping-knives stand. We also use this stove for cooking purposes when we are at the out-apiary.

The honey from the extractor runs to the honey-tank under the wagon — first, however, passing through a square funnel having a strainer which rests on the floor and extends down into the tank. To use the weighing-machine, I dig a hole in the ground 24x36 inches, and 22 inches deep. In this swings the platform on which the cans stand while they are being filled from the tank. I also use a strainer funnel in filling the cans.

My whole outfit consists of two wagons, one of which carries the cans, hay, bedding, and rations, and, on the trip home, the filled cans of honey. The other wagon, as illustrated, carries the extracting-outfit.

My crew consists of a man to turn the extractor, my daughter to uncap, my 11-year-old boy to blow smoke, and I myself take off the honey, return the empty combs, and attend to the filling of the cans with the weighing-machine. With this crew I have extracted and put in cans 4400 pounds of honey in 15 hours, taking the honey from the bees and returning the empty combs. On this occasion I broke the record; but I can easily take off, extract, and can 2000 pounds in eight or nine hours when every thing is in working order. Last season I canned 30,000 pounds of honey, and by the outfit I was saved an extra helper, which means something in one season.

In brief, the working of my outfit is as follows: A weight is wound up on a small reel, and held from unwinding by a trigger or rachet. When there is sufficient honey in the can to overbalance the steelyard the trigger is released, the weight unwinds, and falls on the handle of the gate, thus closing it; and at the same time a bell is rung to give the alarm.

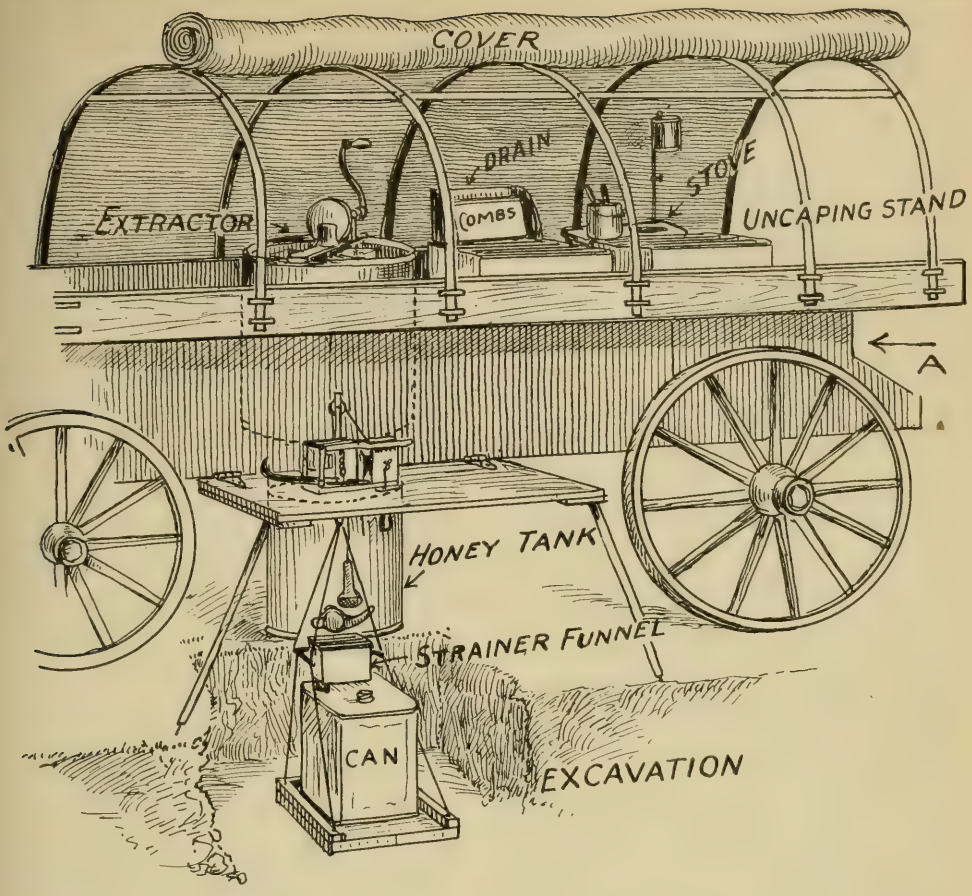
In order to arrange the apparatus ready for filling a can, the trigger or rachet is set in position, the reel wound up until the weight is at the required height, and then the gate opened. One may then go about any other work without danger of the can running over, for the weight will always fall at the proper moment and shut the gate. I have so much confidence in this little macine that I have started the honey running, and then gone to bed, knowing that the gate will be as sure to close as if I watched it.

The frame that holds the steelyard and winding-drum is made of narrow strap iron, except one broad plate of iron that holds the old squirrel-rifle triggers that release the drum or reel. On this drum is a loose swinging hammer that hits a bell every revolution when the weight falls to shut the gate. The swinging platform consists of a square board with a rim around three sides that hangs from the steelyard so that, when there is the proper amount of honey in the can, the weight on the arm will be overbalanced.

Cory, Colo.

[The record made by our correspondent is a very good one, especially if we consider that the outfit is a portable one, and is capable of the same output in any one of several different outyards. Since the extracting-outfit stands right in the apiary there is very little loss of time in handling combs of honey, and the animal heat from the bees is thus preserved to keep the honey thin so that it runs freely.

The trouble with most portable outfits is that they are very inconvenient; but such does not seem to be the case with this.—Ed.]



BEE BEHAVIOR.

Some Things Which Are Not Down in the Books.

BY ARTHUR C. MILLER.

[Last June we met Mr. A. C. Miller at a convention of bee-keepers held at the Massachusetts Agricultural College, Amherst. During the course of our conversation we discussed the special observatory hive that Mr. Miller had invented, from which he had learned some things about the domestic economy of the bee-hive that are not recorded in any of the bee-books. We may explain that this special observatory hive, unlike the ordinary glass hives for observation purposes, has the combs built crosswise between the two glasses, instead of running parallel. Where the combs are crosswise, and built against the glass, it affords excellent opportunity to determine what takes place in the cells, even if they are sealed over. One can readily see how the bees regurgitate the honey into the cells, how they feed their young, how the larvæ spin their cocoons, because one side of the cell is covered with glass, so that the observer can witness all the wonderful operations that heretofore have been hidden from the world. Mr. Miller, we understand, has spent hours and hours and days and days in watching the bees while they were at work in this special observatory hive. Well, during the course of our conversation at the Amherst School of Apiculture, Mr. Miller incidentally mentioned some things he had discovered. We were immediately interested, and requested him to place some of these before the public. We finally made an arrangement by which this is to be done. The articles are to be first published in these columns, and, later on, they will be compiled and made over into book form for easy reference. These will be illustrated where engravings can be used. The first of the series of articles is given herewith; and so far from being a statement of dry facts, the series, we believe, will be exceedingly interesting and practical. Please notice where Mr. Miller explains how the Aspinwall principle checks or keeps down swarming. If you read through it you will run across some things you have known before, perhaps, and some things you have not known, but which will conform to experiences which you have not been able to understand. In other words, we believe that Mr. Miller's contribution on the domestic economy of the hive will supply certain missing links that will complete our chain of knowledge bearing on certain questions. We suggest, therefore, that the man who gets his bread and butter off the bees will find something in these articles that will enable him to get more bread and butter. Here is the first of the series.—ED.]

Bees sleep, and do a lot of it. They will crawl into a cell containing an egg or sometimes a small larva, settle comfortably down, and stay there for hours at a time. Thus doth the little busy bee! They never touch the egg nor larva, and their presence has nothing to do with the hatching of the egg.

When a queen is cramped for room she will use any shaped cell or put several eggs in a cell, and sometimes two of them will hatch there and the larvæ be fed as one. Be-

fore they get very large, one disappears. There is an authentic report of two queens hatching from one cell.

Bees sometimes seal a queen-cell when the larva is only four days from the egg—ninety to one hundred hours—and the resulting queen is as fine as can be desired. This accounts for some of the supposedly tardy hatchings. The reason that the queen larva does not spin a cocoon at the upper part of the cell is because she can not reach it. She turns about and reaches up her full length, but can not go further. When pressed for room, bees will sometimes put fresh nectar in cells containing eggs, and soon after remove the nectar. The eggs hatch as usual.

When ripening honey, bees spread out all they can; hence ten frames in a ten-frame super are better than eight, as it gives the bees more "standing room." The ripening process is most interesting to watch. The large glands which open at the base of the mandibles apparently have an active part in the conversion of nectar into honey. This "standing room" probably has much to do with the non-swarming or retarded swarming in the Aspinwall hive.

A bee packing pollen in a cell acts like a little pig rooting, and a tiny grunt from the little worker would hardly seem strange.

Workers, drones, and queens alike are very fond of digested food fresh from the workers or of brood food from the cells when it is taken out; and why they let it alone when it is in the cells is a mystery—probably due to the presence of the larva; for when that is gone, the food is promptly eaten up; and yet if conditions become adverse, larvæ and food all vanish. Shall we ever know the whys?

To irritate gentle bees to the stinging-point, use cotton in any form as smoker fuel.

Comb-building, to all appearances, is a most haphazard job. One bee, after a seemingly endless lot of fussing, will add a bit of wax to the growing comb, and soon after another bee will remove it and apply it elsewhere. And yet see the result.

Unsealed honey in the brood-nest undergoes a lot of shifting—outward if the brood is increasing; inward if decreasing; and this is so, even with a pretty heavy inflow of fresh nectar.

A dozen bees can raise a good queen if conditions are right.

Bees draw down out of the supers on cool nights, not to keep the brood warm, but to keep themselves warm. The sheets of brood are superb warming-pans for cold bee-feet. Watch the drones when they are being gradually expelled from the cluster. They will mass shoulder to shoulder on any outlying brood. To keep that brood warm? Well, hardly.

The bee's tongue has four known functions: Taking up food; spreading propolis; "polishing" cells (probably with propolis); and taking up any surplus liquids within the hive.

If the food is good, bees can get along without flying for a long period in winter. Under normal conditions, then, all excrement is virtually solid. If the hive is dry, and ventilation ample, it soon becomes quite dry, and is later thrown out with capping chips, etc.

In winter the temperature within the hive and outside the cluster is, within one or two degrees, the same as it is outside the hive. Winter temperature of the cluster is close to 70° F. Bees hang back down and feet up when putting honey (nectar) in the cells until the cells are nearly full; then they hang vertically with head down. The nectar (already partly changed to honey) is discharged directly from the mouth, and flows between the mandibles and over the gland-duct openings thereon. The mandibles are kept in motion during the operation. The tongue takes no part in the operation, but is folded up behind the chin.

Providence, R. I.

[The idea that brood is a warming-pan for the cold feet of bees is a new one, and probably right. This is like a number of other things here suggested that should draw forth discussion. We don't find that cotton waste angers bees—quite to the contrary. We use dirty or greasy waste as an exclusive fuel for smokers.—Ed,]

WINTERING BEES ON THE SUMMER STAND.

Upward Ventilation and Clustering Space Above.

BY ISAAC F. TILLINGHAST.

With fifty years' experience I have never yet lost bees in winter, either in doors or out, except from two causes—first, too little food; second, too much moisture.

It is really surprising how much cold weather bees will stand if kept dry; and, on the other hand, it requires not very severe freezing to use them up soon if left so that water works in, or so that the moisture which naturally accumulates can not escape by proper ventilation.

It is, no doubt, true that those who have a properly constructed cellar, well drained and ventilated, and with a dry concrete floor, can and do winter bees inside with more safety and less expense, or less consumption of food, than can be done out of doors; but as most cellars are far too moist, nine times out of ten, bees are better off in the open air. In our climate we usually have days every month when it is warm and pleasant enough for the bees to take a good flight; and I find that they keep in better health than when confined for four or five months as they usually are in cellars. So, for a number of years past I have practiced packing them for wintering on their summer stands, which is accomplished about as follows:

First the oilcloth which is kept on the tops of the frames when sections are not on, I double over to the front, leaving the back

half of the frames exposed. Then in the center of this exposed space I invert a 1-lb. butter-dish, and place an empty super on the hive. If there is more honey on one side of the hive I place the dish a little to that side. This makes a clustering-place for nearly a quart of bees, where they can generate and retain their natural body heat, and also enables them to reach the honey by going over the tops of the frames, and prevents a few getting caught between two combs, and perishing, as they sometimes do in sudden snaps of very severe weather.

Next, over this half of the hive, and over the inverted dish, I place a piece of old coarse carpet, or gunny sack; tuck it down carefully around the edges, and then fill the super with dry wheat or oat chaff.

Now I carefully fit on the cover; and if there is any possibility of its leaking rain or snow water I cover it with a piece of roofing so as to be sure that no water will work in at either top or sides.

Then I raise the rear end of the whole hive at least two inches, letting it rest upon a couple of bricks or stones so that rain or melting snow will speedily run away from the entrance, and not work in so as to freeze and clog the entrance, or keep the bottom-board wet or damp.

There is but one more source of loss to contend with. We often have warm sunny days toward spring which will induce the bees to come out while snow is still on the ground, on which many will alight, become chilled, and not be able to return. When I have empty supers to spare I sometimes place one under each hive, which puts the bees so far from the entrance that they are not so quickly incited to emerge on account of a little sunshine. This may also be accomplished by shading the entrances.

Sometimes when, on a very warm day, they will come out in large numbers, I spread straw or waste hay thinly on the snow for a rod or two in front of the hives, and most of the bees will alight on this rather than on the snow, and then they get back without much loss.

If the hives are not in a naturally sheltered location it is well to protect them from the winds by standing some corn fodder or straw against the north and west sides.

When I find a colony dead in spring I invariably discover either that they have died from lack of stores, or, more frequently, that the cluster of dead bees is wet and moldy. If packed so that the moisture will escape, yet their bodily heat be retained, we never have weather cold enough to freeze them.

If it is desired to remove or change location for a short distance, some old bees are sure to be lost, and it is much better that this should occur in the late fall; for as these are old field bees it is, perhaps, an advantage rather than an actual loss to dispense with them now, rather than feed them two or three months or more and then have them die of old age before beginning work in the spring.

Factoryville, Pa,

GLASS-FRONT SHIPPING-CASES FOR SHOW-CASES.

BY WESLEY FOSTER.

John Welton had the largest grocery business in Spring City. Whether he had the finest show-cases, the biggest cash-register, or the finest display in the show-window is another matter. John's customers were not of the social set, neither were they from among the very poor. John never had a call for a nickel's worth of flour nor a quarter of a dozen of eggs. He was doing a good business with carpenters, teamsters, and tradesmen of various pursuits. His rent was not excessive, for he was off the main street, though on a good corner where most of his customers got off the car when coming from work.

He told me to size up his situation, and see how near I could come to estimating correctly the amount of honey he could sell a month. I estimated that he could sell lots of honey in quart, half-gallon, and gallon pails, and a good amount of comb honey if it was not too high-priced, say a fair weight of No. 2 honey that he could retail at 15 cents straight.

I went home and made up a shipment of a dozen gallons, a dozen half-gallons, two dozen quarts, and four cases of nice No. 2 comb honey. I wrote to him that it would be a good idea to make a window display of the honey for a few days, arranging the pails in a nice pyramid on top of the cases of double-tier packed comb honey. The comb honey in those cases sold right along, about a case a week, and he wrote for more, for he wanted enough to make a little showing all the time. I had some corrugated-paper shipping-cases, and I thought I would show John something in a case that would ship without cracking a single capping, so off went four more cases. Back came a letter saying that he expected to get the honey in the same kind of cases he had had before, and that, when it came, as he had used the other cases to display peanuts, walnuts, dried fruits, and raisins, he had to empty all of the fruit and nuts out and put the honey from those homely, awkward old paper cases into the wood cases to display; and in getting the honey out his clerk had broken two and run his finger through three more. He did not have any breakage in shipment, but called attention in terms more picturesque than polite that there were other considerations than freight-handling.

John has been supplied with comb honey in his choice glass-front display cases for over a year now; and, as fast as emptied, nuts, dried fruit, etc., go into them. He says they are nice and handy. I do not object, for my advertisement is on every one, and one of John's customers said one day, "Why, don't you sell any thing but honey?" So I think it pays to put honey in a glass-front case. It certainly pays John and me.

Boulder, Colo.

Heads of Grain from Different Fields

An After-swarm from a Colony that had Cast No Prime Swarm.

The following incident of this season includes such various conditions and results that I am prompted to relate it for the benefit of those who have not had a similar experience.

Colony 4 was shaken May 14. The old brood-nest was left on top as an extracting-super (with excluder), no increase being made. Almost six weeks later, on June 23, both stories were "boiling over" over with bees, and there were a dozen or more fine, large, bright-yellow queen-cells on two combs, so here appeared to be an excellent opportunity to try an experiment in swarm prevention.

Two nuclei were made, the intention being to give each a frame with queen-cells, making three frames for each, taken from the mother colony, and to give a ripe queen-cell from another hive to the mother on the old stand. However, by some bungling the ripe queen-cell was given to a nucleus, and a frame with queen-cells was left on the old stand.

The old queen (clipped) had been missing several days. The colony was sifted to find her, so there was no doubt of her absence. On July 2, about 9 o'clock, I heard a great roar in the air, and I knew at once there was something doing. Fortunately there was a hose near by, so by the judicious use of the spray nozzle the swarm was headed off and caused to settle on a young tree within 50 feet of their starting-point, and within 20 minutes the bees were shaken down and hived on the stand which they have since occupied.

I immediately opened the old hive to learn conditions. Several unhatched queen-cells and three virgins were found; and from the first cell, which I opened, out walked a fully matured and lively queen. The remaining cells contained nymphs and larvæ only. Evidently they were ready for a high carnival at after-swarming, and all this after and in spite of having had two nuclei and half their queen-cells removed.

The swarm was examined two days later, but no queen could be found; so I supplied them with another frame of brood in all stages, thinking the first brood which had been given at hiving might have become too old to make a queen. Three days later I was relieved to find that no cells had been started. A day or two later a fine laying queen was found at work. Without question the swarm issued with a virgin queen; and at my first examination, which was very thorough, she must have been out of the hive on her wedding-trip. Four frames of foundation were beautifully drawn out on both sides by the end of a week, and there they rested for lack of any honey-flow. Feeding was kept up until there was something for them to work upon.

A résumé of the incident presents these interesting points, without trying to state all:

A colony shaken (without increase) cast a swarm.

Swarming was not prevented by a severe division of the colony after preparation had begun.

The use of the water spray probably saved the swarm, which, being out with a virgin queen, might have "dusted out" for good and all.

The virgin which I "hatched" by picking the cap off the cell, being fully matured and lively, had apparently been held in her cell in accordance with some purpose known to the bees. The presence of three others was interesting, to say the least.

If I had carried out my intention to give the mother colony a ripe queen-cell on the old stand (which was the only thing to do, as any nucleus placed there would represent the mother colony and be the subject of the same conditions), and to give the two frames with queen-cells to the two nuclei on new stands, my experiment would have had a different result as I believe. All vacant spaces in the hives were filled with frames of foundation of course.

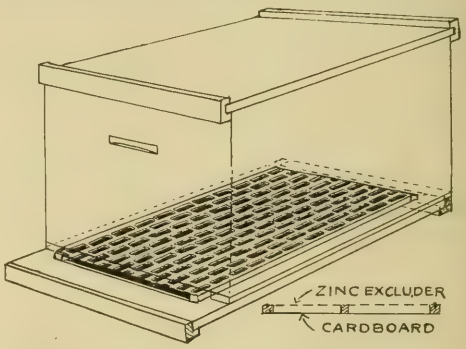
The greater interest in bee-keeping, aside from the financial, lies in the careful observation, study, and analysis of these experiences which are likely to be unexpected and most surprising.

New Jersey. B. KEEP.

[Your experience reminds one of the saying that bees do not go by rule. But perhaps the first shaking was done too early to thwart the inclination to swarm; and the colony, after having lost its clipped queen, and having given up a part of its bees to make the nuclei, was really in the same condition that any colony would be after casting a prime swarm, especially since it was provided with the queen-cells; hence the after-swarm was to be expected.—ED.]

Queen-finding Sieve to Fit in Hive-entrance.

The queen-sieve described by J. P. Brumfield, p. 536, Sept. 1, has suggested what I think is a simpler one. I fashioned a piece of zinc excluder, 10 x 14 inches, to strips of wood ½ x ⅜ inch on the two sides and one end; then I tacked a very thin piece of board or cardboard to the other side of the wood and one or two small supports in the center to keep the board and zinc apart. I have this under the brood-frames so that it is the only entrance to the hive. When the bees are shaken on a sheet in front of the hive they *must* enter through the sieve, and the queen will be secured.



No sharp lookout has to be kept; in fact, none at all, for whether one examines the sieve in fifteen or twenty minutes, which is the usual time for them to go in, or five hours later, as I did with the last hive, the queen is sure to be in the sieve. All I have to do is to put in the sieve, shake the bees, and let them take their time to go in, and the queen is surely safe.

Claremont, N. H., Sept. 21. ROBERT FORSYTH.

Goldenrod as a Honey-plant, etc.

This plant is known here in the mountains of Kentucky by the name of stickweed or farewell-weed. It has been here only about twenty years, but it seems especially adapted to our soil and climate. It grows all over cleared land and by the roadsides, and in cultivated fields and meadows. It is ready to bloom in a piece of land I had planted to corn last year, and it is safe to say that it will be in all fields next year that were cultivated this year. Its stalk grows from six inches to as many feet, with several stalks in a bunch, and it has a woody appearance. In good land a person can hardly get through it. It begins to bloom about the first of September, and remains in bloom until frost, or about three or four weeks. It blooms just early enough to escape the frost.

You ought to see the bees at work on it. They store lots of honey from it. Last season I had five or six nuclei that did not have any stores at all on the first of September; but when I went to feed them for winter I found they had 20 lbs. of nice honey which they had gathered from this source. I weighed this honey. They had about half a gallon of bees and a little brood, but all came through the winter in good condition, and made my best colonies this season. I am of the opinion that the bees will crowd their brood-nests with this honey, but am not prepared to say to what extent bees store honey from this plant each year.

Langnon, Ky., Aug. 25. J. S. JOHNSON.

Old Queens Voluntarily Leave the Hive to Die.

Mr. J. L. Byer, in his Notes from Canada, Oct. 1, p. 583, says, "It would be interesting to know how bees as a rule dispose of their superseded queens." My opinion, based on years of observation, is that queens are treated just like all other old worn-out

bees. They simply walk out of the hive and die. In several instances, when I have found a queen on the outside of the hive, I have opened it and placed her on the top-bars. Then after a few hours I have found her again on the outside with a few bees with her. I take it that, when the old queen is past all laying, the young queen will not sting her to death; and when she is ready to die she walks out to do so, just as other old bees do.

Those who winter bees in the cellar can easily make the experiment to see whether those bees that walk out of the hive can be returned. They will invariably walk out again, to die for the good of the colony. I think that those superseded queens that are still laying eggs may be stung to death by the young queen before she lays eggs; but I myself am fully convinced that the bees of the hive never drive their own queen away.

Nashville, Ill. S. P. SCHROEDER.

How are the Closed-end Frames in the Simplex Hive Secured?

On p. 172, March 15, Mr. O. B. Metcalfe describes and illustrates the Simplex hive used by Mr. Carl Ludloff. I am interested in this form of hive, and would be very glad to know how the frames are secured to the bottom-boards — that is, whether a hook is used similar to the ones on the old Quinby frames or whether it is some different method. I should like to see a further description of that entrance, frame, bottom-board, etc.

Mohawk, N. Y. C. R. MORTS.

[This question was forwarded to Mr. Metcalfe, who replies:]

I should be glad if some American would try the Simplex hive in this country and report on it. At Cuerna Vaca I found that Mr. Shoemaker was using this hive almost entirely, and he said it was far ahead of the American hives, of which he had several in the ten-frame size. In the city of Mexico I met a Mr. Allen who has given the bees a thorough test in American hives, and he was just getting in some of the Ludloff hives as a last effort to make a go of the business. He is a reader of GLEANINGS, and I wish he would tell us how the Ludloff-Simplex hive came out with him.

To what I have already said in the March 15th issue I can add that the hives in Mr. Ludloff's home yard are all supplied with a concrete base. This is well shown in Fig. 10. They are thick and heavy, and could not be moved around to any advantage; but this concrete base is unnecessary, as the hives could rest on any kind of stand such as we use. A ⅞-inch board 10 in. wide, and as long as the hive is ever expected to be, and with narrow ⅜-inch strips tacked along the edges, forms the bottom. The frames are made so that the two side-bars extend down past the bottom-bar about ¾ inch; and as the frame measures 10 in., inside measurement, it fits down astride this bottom. The two ⅜ strips hold the bottom-bars up so that the bees may pass back and forth on the bottom the full length of the hive. The bottom-bars are ¼ inch narrower than the top and side bars, thus leaving a half-inch beeway between the frames for the bees to go up wherever they like.

The Simplex hive has an entrance at either end. This entrance is about 2½ in. long and ⅜ in. deep.

The frames are held snugly at the bottom by pins stuck through holes bored in the bottom-board, and at the top by a strong cord which is fastened permanently to a peg at one end, and tied (each time the hive is closed) to a peg in the other end. The pegs and the strings may be seen in Figs. 9 and 10.

Mr. Ludloff claims that the greatest advantage which these hives have over the American hive is that the entrance is at the side of the frame, and therefore does not let the air blow in between the frames to chill bees and brood. He also claims that they are of much more uniform temperature. They probably are when they are as precisely made as he turns them out, for he is a fine workman.

I have just been thinking that this Simplex hive might be a fine thing in some parts of this country for queen-rearing and for making increase. To make increase, Mr. Ludloff puts in a division-board which goes clear to the bottom, and a few days later he gives a queen to the side where the queen did not happen to be. It certainly would not be difficult, with a wire-screen division-board for this purpose, to maintain a one-frame queen-rearing nucleus at one end of each hive. The hive would keep it warm, and it would do the hive but little harm.

Mesilla Park, N. M. O. B. METCALFE.

Italians v. Blacks; Buckwheat Sown with Corn.

I note, Oct. 1, p. 600, that J. W. Lemry, of Texas, managed to make a test of honey-gathering between the Italian and black bees. His showing is so different from my experience that I am prompted to let him hear from me. I shall go back to my first start, not that the test was made a long time ago, but to show how faithful and devoted I have been to black bees.

Some 35 years ago, when I was a young man, a friend whose family I had treated through several cases of sickness made me a present of a colony of black bees, and I have kept the same stock all this time, and at times I have had as many as 80 colonies. But finding all my time was demanded in my profession, and I could not neglect my pets, I sold off until the bees were reduced to only four colonies. I began to get lonely, as they were always company for me, especially in my leisure hours; and last fall, 1910, I bought 18 colonies of fine Italian bees, and the spring started off with a good flow from clover. I put on two supers with 48 sections over each colony, and in a very short time there was nothing for them to work on. I left the supers on, however, until Sept. 20, when I removed them all, and from the four colonies of black bees I have an average of 30 lbs. each. Having lost one of my Italian colonies by robbers last spring, the remaining 17 had an average of just 5 lbs. each. All of them were in the same apiary. The difference is enough to cause me to ask whether it depends on the climate. I leave this for some one who has made a more thorough test.

Mr. Briggs, of Iowa, inquires, Oct. 1, p. 602, regarding buckwheat sown in the corn, so I will give my experience this season. The drouth in May dried up every thing, and I was put to my wits' end, for I wished to avoid having to feed the bees. Having over an acre of corn in a rich black prairie loam, and as no buckwheat is sown in this section, I sent forty miles for some, and on the 1st of July I sowed it in the corn, but not very thick. I had a man go between the rows once with an adjustable cultivator, and we had a shower of rain the first night. On the 16th I had a furrow run between the potato-rows, and drilled buckwheat in them, and on the 25th I made another sowing among the potatoes. All three sowings made good growth. You may imagine me out in that corn and buckwheat watching the bees and listening to their lovely and reconciled hum. It was an experiment on my part, as I had never heard of its being tried. I want to say to our friend Briggs that, if his surroundings are like mine, he need not fear for the results, as the flow of nectar was certainly good, judging from the way the bees worked on it in the forenoon; but owing to the multitude of bees in this section it was but little for all.

Goodland, Ind., Oct. 11. M. L. HUMISTON.

Serious Automobile Accident.

Our friend J. W. George, while riding in his automobile in Los Angeles, met with a serious collision with a street-car. He himself escaped without serious injury, and so did Mrs. George; but his son was badly hurt — a leg crushed, and other injuries that may result fatally, although he is making a brave fight for life, and Mr. G. is hoping for the best. The son was on the way to the depot to take the train for one of the State agricultural schools. Mr. and Mrs. G. have the sympathy of all. D. D. B.

A Remedy for Ants.

For keeping ants out of hives, make a strong solution of gasoline and moth-balls, and with a brush or feather apply to the corners where the ants crawl up on the hives. If your experience is like mine you will not be bothered any more by ants. I have not been troubled by them since.

Bedford, Ind., Sept. 23. A. C. BENNETT.

A Few Good Reports.

This season we increased our bees from 12 colonies, spring count, to 44, besides getting over a ton of honey.

Minnedosa, Man., Aug. 10. A. T. HARPER.

This year I had 30 stands, spring count, and got 3500 lbs. of extracted honey, and increased to 65 stands, which I think is doing very well.

Lonoak, Cal., Oct. 4. P. E. HALLETT.

Our Homes

A. I. ROOT.

But I say unto you, Love your enemies, bless them that curse you, do good to them that hate you, and pray for them which despitefully use you and persecute you.—MATT. 5:44.

Then came Peter to him, and said, Lord, how oft shall my brother sin against me, and I forgive him? till seven times?

Jesus saith unto him, I say not unto thee, Until seven times, but until seventy times seven.—MATT. 18:21, 22.

Last Sunday, Oct. 15, Mr. T. B. Lanham, Secretary of our County Y. M. C. A., addressed our Men's Brotherhood in the basement of the Congregational church. He told a little story of some of his early experience in early life that impressed me so much that I asked him to let me have it for one of my Home papers, and here it is:

HOW I "WON OUT."

A few years ago I had the honor of being elected a member of the town council in the little southern town in which I lived. This was considered quite an honor for a young man, as I was only nineteen years of age at the time. During my administration, one Sunday three boys decided that they would "paint the old town red." They "tanked up" on booze, got in their rigs, and drove through the streets at a tremendous rate, etc. On the following morning they were brought before the council. I might say that such cases came before the council in our State instead of before the mayor. Our mayor was a man with a strong backbone; and after we had discussed the matter very thoroughly, he thought, and the other members of the council thought, that we ought to make an example of those young men for their own sakes as well as for the sake of other boys, and so he imposed a heavy fine—twenty-five dollars each. I do not know why it was, but they seemed to censure me for the fine being so heavy; and one of the number—as fine a specimen of humanity as I ever saw (over six feet tall), who played football with a college team—said that if I came down out of that courtroom he was going to open me up—meaning that he was going to use his knife on me. Well, I knew he was a better man than I, but I did not propose to stay in that courtroom always. So after we adjourned I came down the steps and passed very near him. He did not cut me. I can not tell why, because I knew, and I knew that *he* knew he was the better man. I had simply done what I believed to be my duty, and had no animosity whatever against those three boys, all of whom were as good friends as I ever had.

The next day I met the three young men on the street—Ben, Charley, and Frank. I spoke to them, calling them by name. None of them noticed me. I thought that, perhaps, I might be mistaken, and so I resolved to speak again. I spoke to them the second time, but with the same result. Then there was a fight on in my life. I had often heard the old saying, "Three times and out," and so I said I would try the third time; and if they did not speak then, they could—"go to Boston." I met them the third time and spoke to them, but not one of them replied. I had often heard my old pastor say that we ought to put God to the test; and that was a testing-time for me, and I decided that I would continue to speak to those fellows. I passed and repassed those three boys almost daily for three months, speaking to them just as if nothing had happened, and each time there was no response from any of them. All the time the Devil was saying to me, "You are humiliating yourself by running after those boys for their friendship. Why don't you be a man?" Many such suggestions came from him; but I determined to win out in that fight. After three months, one day I spoke as usual, "Good morning, Ben, Frank, and Charley" (for the three were usually together), and I noticed that they nodded their heads. After that they began to speak, and we soon became as warm friends as we ever were. Now, I think this is worth while.

But this is not all the story; for this same young man—this athlete—the boy who was going to "open me up," preached to me the greatest sermon I ever heard from any one. It was less than a year after this story I have just given you, that an uncle of my friend the athlete rode up on horseback to the little store in which I was at work, and said, "Ben wants to see you—he is dying." I was never so shocked in my life; for in that little town I knew everybody, and every thing that was going on, and yet at that time I had not even heard of Ben's illness. I did not say a word, but leaped up behind this man on his horse, without blankets, and we rode to the boy's home, which was just a mile from the square, as fast as the horse could go. I went into Ben's room. He was as conscious as I am just now. He said, "Tom, I am dying, and I have sent for you. Look over on the table and get that Bible of my mother's; and I want you to read from that, and pray with me, for I want to say to you that I have confidence in *your* kind of religion."

Now, I ask you if all the humiliations I underwent (and I grant you they were many, and the fight against the old self was hard) were not worth while. I had not always done that, I assure you; but this one instance is a bright spot in my life today, and I thank God that I did not yield to self and to the insinuations that came from Satan—for I believe that all such come from him. I yielded to the influence of a higher power.

The above strikes exactly on a point that is being considered and discussed all over our land at the present time. This man, only nineteen years old, was called upon to see that the law was enforced against some boys of his own age, and who were his personal friends. How often the question comes up, "Shall one be just as ready to see that the law is enforced when it strikes a personal friend or neighbor as somebody else?" Friend Lanham does not tell us how much he had to do with imposing the fine of $25.00 each against his three comrades. From what I know of him I suspect he put personal friendship out of the question, and considered only the good of humanity or the good of his own little community. Ex-Governor Frank Hanley, who has been prominently before the political world for several years past, was scored unmercifully because he refused to screen a personal friend—one who not only stood high in the community, but a man who had been prominent in helping him to the governorship. Because this man had done him many and perhaps great favors in times past, should he permit him to go "scot free" on that account? Mr. Hanley decided to do his duty before God and before humanity, without regard to personal favors or personal friendship; and I fear that many people will never forgive him because he *did* his duty.

In the case before us, one of the guilty boys was a college athlete—a leader, perhaps, among the other boys. In a personal conflict, Mr. Lanham (at that time) would have been only a child in his hands; and yet, knowing his threats, he unflinchingly came out of the building and passed close by him. I have had some trials of that kind myself. Years ago I visited a young man in our county jail The circumstances were something like those that surrounded my friend Fred whom I have recently told you about (p. 188, Mar. 15). The boy seemed to

be soundly converted, came to our prayer-meeting, and took part. I had told him the story of Fred's emancipation, and he seemed to be very much impressed by it. We all thought him honest and sincere. In a few months, however, he made a visit to his old home, and when he came back he brought a young lady with him whom he introduced as *his wife*. As he had never before mentioned being married, the transaction did not look right, and I finally told him he must show us his marriage-certificate or he would not be permitted to work in our establishment. This was a reflection on the character of the woman he was living with, as you will notice. And he told around town that the next time he caught me off by myself he would teach me a lesson I would always remember, or something to that effect.

Not long afterward I saw him at a distance, and walked up to him and asked him about his threat. As he had been a desperate character it seemed quite probable I might receive bodily injury. He was angry; but I went over the matter gently, and assured him again that, notwithstanding his conduct, I was still his friend, and a friend of the young woman in question. Little by little he softened down, and finally admitted I was right. For some reason unexplained I could not persuade him to be legally married to the woman he had been living with, but he sent her back home, and *tried* to live down the episode. Friend Lanham did not suggest that the *Holy Spirit* protected him and myself also, but one who is doing God's bidding is seldom molested.

I do not know just how many of you have had experience in being "snubbed" by having some one you have offended turn his face the other way when you pass him, or refuse to reply or look toward you when you address him. As friend Lanham suggests, it is a pretty hard matter to keep on when you are *repeatedly* ignored.

I once put out my hand to a man in the jail who was angry because I reported him for being intoxicated on the street. Instead of taking my outstretched hand he put both his hands behind him. I said:

"Why, friend A., won't you even shake hands?"

He replied, "Mr. Root, I will shake hands to get rid of you, but for no other reason."

"All right, my old friend," I replied, "let's shake hands that way. That will be better than nothing at all."

Of course I then left. Some time afterward I tried to explain to him that I was only doing my duty. He turned on me and said:

"Mr. Root, that operation of yours took several hard-earned dollars out of my pocket, and I am a poor man, and have a family to support."

I put my hand in the money-drawer (for it was in my store where we were talking), took out some bills, and asked him to figure up all the expense, and offered to pay it. To my great surprise he softened instantly, and changed about as if by magic, and smilingly replied, "No, no, Mr. Root. I shall not take a cent of your money. You were right and I was wrong. You simply did your duty, and I will try to do better in the future."

It was the first time the poor old man had been in jail; but although he had been addicted every little while to this bad habit, none of his friends and neighbors would undertake to have the law enforced—probably out of respect to his wife and family.

Yes, I too have many times passed through the experience of having the Devil suggest that my religion was making a fool of me; but sooner or later I had my reward.

Those who have read GLEANINGS since the time it was started may remember that, when I began publishing Our Homes, our journal was for a brief time ruled out of the mails on the grounds that it was simply an advertising sheet. The man who was editor of our county paper, and at the same time postmaster here, had been all his life an avowed infidel. He and I had been on friendly terms up to the time of my conversion. After that it seemed to me he left no stone unturned to harm me or my business. Getting our journal excluded from the mails was only a sample of many things. Of course I did some most earnest praying; and as I felt that God had called me to start these Home papers in our journal I had faith to believe that he would *overrule* even the authorities at Washington. Hon. James Monroe, of Oberlin College, was at that time in Washington as a member of Congress. My old pastor, Rev. A. T. Reed, wrote to Mr. Monroe, stating the circumstances. Mr. Monroe carried this letter to the Postmaster-General; and a letter, saying the decision in regard to our journal had been reconsidered and was withdrawn, reached Medina *just in time* for our next issue. I distinctly remember our postmaster remarking to me with a cynical smile that he would probably have the privilege of selling me quite a lot of postage-stamps. As he did so, he removed his cigar from his mouth and puffed a cloud of smoke (which he knew had always been peculiarly offensive to me) near my face. I made no reply, but I remember I had faith to believe our journal would reach the homes of our subscribers, without a great lot of expensive postage-stamps. Well, when this man came near to death he sent a particular request to see me. To my great surprise he was anxious to see me in order to tell me he had accepted Christ Jesus as his Savior. Let me go back a little.

After his repeated unkindnesses, which had always been met in the spirit of our text, he came down to our factory one morning and said something like this:

"Mr. Root, you and I have been for a long while at odds and ends. Now, there is no need of it. I can help you, and you can help me," etc.

I was surprised at this, even though our difficulty had always been on one side (for I had tried continually to "do good" to the

man who had seemed to hate me), and at times I felt a good deal discouraged because, year after year, it seemed to make no impression on him. Well, he went on to tell me what his errand was. He said our business was enlarging to such an extent, especially our mail business, that our Medina postoffice was entitled to a higher class, thus giving him a larger salary. He said that all that was needed was my signature. I stopped and thought a while before I replied. Should I, by my signature, give this man a bigger salary as a reward for what he had been doing in times past as postmaster? He, by misrepresentation, had caused our journal to be excluded from the mails. He had done me harm in ever so many ways whenever opportunity offered. Should I now, when circumstances made it possible, do him this favor? I confess I was for the time undecided. Perhaps it was the memory of our other Bible text that brought about my decision.

Not very long after this his health failed; and when he came to face death he wanted to see the man whose religion he had so long ridiculed, I mentioned the matter to the pastor of the church—the one who preached the funeral sermon. As the sick man was a very prominent citizen, quite a crowd had gathered, and I think the sermon was preached in the open air, as it was on the first day of June. When the minister mentioned that the deceased, before he died, accepted Christ as his Savior, a man by the side of me, who had been an intimate friend of the deceased, said to me quite audibly, "That is a lie." He who knew him so well could not believe that one who had been so pronounced against the *Son of God* could have changed so suddenly, even if he was face to face with death. Lest some may think he may not have been quite in his right mind before this confession I may remark that he lived several days after his talk with me, and he read his Bible and some other books after his change of heart.

Just as I finished dictating the above, my good friend W. P. Root called my attention to the fact that he had in his possession a paper that I dictated to him on the 21st day of May, 1890, and which, for some reason or other, has never been put in print. I dictated it while the facts were all fresh in my mind, to meet such an occasion as this if it should ever arise. As it gives some details not recorded in the above I think it will be very proper to put it in right here.

On the 20th of May, 1890, I called on my friend ——— ——— and had quite a talk with him in regard to his new stand in regard to the Scriptures, and especially the character and divinity of Christ. At the very first he stated very clearly that he accepted Jesus as the Son of God. He said he had been for some time questioning the miracles and the divine conception of Jesus, but that he had finally, as a last resource, and the only reasonable and consistent course, decided to accept it all, and to trust himself entirely to the mercies of the Son of God. He expressed great admiration for the humility of Christ, and for his life of self-sacrifice. When I suggested that Jesus pleased not himself, he said that expressed it exactly. Humanity, as a rule, seeks first its own pleasure and gratification; but Jesus ignored self, and gave his whole life for the good and comfort of others, forgetting himself to such an extent that he never even once used his miraculous powers in the least degree for self-gratification, nor even to procure food when faint and hungry. In parting I expressed to him my great joy to know of his new stand, and asked him if it were not a great comfort and a great relief to feel that the whole matter was settled, and that he was resting all his hopes on the solid Rock, Christ Jesus. Said he, as nearly as I can remember, "Mr. Root, it is the greatest comfort and satisfaction I have ever known in my life." At one part of the conversation I gently urged the importance of announcing in his own paper his changed views. I told him of the influence of his own opinion, and said that it would be helpful to a great many other people. I urged the matter until, with tears in his eyes, he said he would write it up fully as soon as he was able; but for the present he said he was too sick and too weak to write any thing. He has read very extensively all the prominent writers, especially those who touched on theology and the different religious beliefs of the past; and after having considered all these, and after having thought it all over these many months when he was confined to his home by sickness, and unable to read any more, he has come to the deliberate decision that Christ is to poor sinful humanity all and above all. He agreed with me, that the greatest event that ever happened in the world's history is God's message delivered to a sinful world through his only-begotten son.

May 21, 1890. A. I. ROOT.

And now let us have one stanza of the beautiful hymn that has been sung so many times since it was first used by Moody and Sankey:

Lord, now indeed I find
Thy power, and thine alone,
Can change the leper's spots
And melt the heart of stone.

Can the Ethiopian change his skin, or the leopard his spots? then may ye also do good that are accustomed to do evil.—JER. 13 : 23.

NEVER INSIDE A SALOON; THE HAND BOTTOM-BOARD TRIED.—SEE PAGE 657.

Dear Mr. Root:—I am sending a picture of myself and wife among the bees. I am one man 24 years old who was never inside a saloon, and never tasted liquor of any kind. The son and grandson of Methodist preachers who were both bee-keepers, I like the way you are fighting the liquor-traffic. We are having a hard fight here in Tennessee, but have come out on top so far.

As you will notice in the picture, I am trying the Hand switch-lever bottom-board, and will say that it is surely a grand invention. By its use I got 80 lbs. of comb honey from two colonies when the crop was almost a total failure in this neighborhood—few colonies storing as much as 25 lbs. My father, W. P. Banks, and I take GLEANINGS, and look forward to its coming the 5th and 20th of each month with pleasure. Our Homes is about the first thing to draw attention. Long may you live to fight the liquor-traffic.

Liberty, Tenn., July 10. J. I. BANKS.

LANGSTROTH'S OLD HOME, ETC.

Mr. Root:—On p. 574 you say, "The old house is there still. The name of the town, Colerain, has been changed to Lyonsville, because of a trolley line that runs up the valley." I am a native and a resident of Hancock, Mass. A former pastor of the church in town came here from Colerain, therefore I think if the town name had been changed I should have noticed it, as the legislature would have had to pass an act to that effect. The manual for the General Court, 1903 (Massachusetts), gives town, Colerain; postoffices in town, Colerain, Lyonsville, Adamsville, Elmgrove, Line, Griswoldville, and Shattuckville. As to the reason of these offices receiving their names I am in ignorance. The first Italian bees and movable-comb hives that I ever saw, two of my schoolmates procured of Mr. W. W. Cary, driving to his place, each bringing back a colony. That was about 1867. Each hive had the Langstroth patent painted on the front. I am not keeping bees at present, but have in the past. My father and grandfather had them, and as

a boy I was interested in them, although the sting was painful and would swell badly.

HOW APPLE-SEEDS GET ON THE HILL-TOPS, ETC.

Another thing might be added. You say, "I can not quite make out how any apples originally rolled uphill." The settlers in these hill towns built on the higher grounds. The old cellars, foundations, and stones all indicate that; and, further, cows are very fond of apples, and seeds are scattered through that source, as is indicated in our pastures, some of which are grown and others are growing up to forests. ELMER S. GOODRICH.

Stephentown, N. Y., Sept. 26.

POULTRY DEPARTMENT

A. I. ROOT

FORECASTING A LAYING HEN.

I think I have had correspondence more or less with Mr. C. W. Leonard, of St. Augustine, Fla., for the past two years. He is an enthusiast on poultry, especially laying hens and running incubators. I will introduce you to him by a letter which I received last spring.

Mr. A. I. Root:—One of your journals refers to the 300-egg hen as a sort of chimera. Well, so far as my knowledge goes she is, as I never saw one; but I discovered a peculiar fact last year, which makes it seem to me that she is not only a probability but a near one. Had we more trap-nests I believe we could find her already with us. A White Leghorn and a Brown one commenced to lay in November, 1909. They were both 24-day fowls. Here is their record for 13 weeks:

Brown.—5, 4, 5, 5, 2, 3, 5, 5, 5, 5, 5, 5—54 (including a rest of 15 days.

White.—3, 6, 5, 4, 5, 5, 4, 5, 5, 5, 5, 5, 5—62.

Here we have a rate of 208 for Brown and 248 for White. White kept at her rate until she became broody — lost two months, and in August was stopped by jiggers from further laying (none of my hens laid from August until December). Brown increased her rate of laying as high as 27 eggs in March, and for many weeks showing six eggs.

Now, it does not require six eggs weekly to get 300 for the year; but it does require keeping constantly at it, at a trifle under six eggs. Brown laid 200 eggs in exactly nine months; and at the rate she was laying when stopped she could have got in 75 more. An average of half an egg more per week for the year would have made her rate 300 eggs; so I am of the opinion there are many hens which have done this in the past; and with breeding, there will be many more in the future.

These two hens were 28-hour ones. They required 28 hours in which to make an egg; but as the season advanced they became 26-hour hens. The whole secret of the 300-egg hen is in this — the number of hours required to make an egg, all hens varying in this particular, the one with the other, and each with itself, according to season and condition as determined by environment.

A 26-hour hour hen can lay six eggs weekly; and non-sitters, laying through moult, should lay 300 eggs with 65 days to spare.

The peculiar thing about the manner of laying is that a hen that lays an egg daily for 15 to 25 days will never be a 300-egger, as she will be the sitting kind. An egg each 24 hours is not to be desired. A rest is required between a certain series of eggs, say six, and these rests are equivalent to a lay-off amounting to two months for the year. If you get my meaning, and will trap-nest your Buttercups, and do some figuring, you will see that 300 eggs is no more impossible than the two-minute trotter was years ago.

St. Augustine, Fla., April 11. C. W. LEONARD.

After the above there was more or less correspondence in regard to the discovery; and finally, Oct. 7, he writes me as follows:

My discovery will do all I have claimed. It requires but two eggs to be laid, as a rule, although the first few eggs of a pullet should not be depended on; and it is necessary to note an early morning egg of one day and the second egg on the following day.

The trap-nest is not required for ordinary flocks; but as we are to observe each hen temporarily, some method of recognizing her by a mark must be used. Trap-nests do not classify hens in the sense I mean. They gather and assist to record the egg, and give total laid.

Friend Leonard's article contains several pages more; but I have thought best not to submit the rest until we have reports from different localities and from different people—see page 23, advertising department of our last issue.

I now wish to make a suggestion right here. Some of you may think it is visionary, and getting into "machinery" a little too much. For instance, with all the duties I have on hand in Medina it is very inconvenient for me to watch a certain hen, even if she is in a pen by herself, and tell exactly at what hour of the day she lays an egg. If friend Leonard is right in his theory we need a nest attached to a time-clock that will, without any watching, record at what hour she went out on her nest and laid an egg. With this arrangement we could put our hens in a suitable pen by themselves, one after another, and the clock would tell us whenever we came around *when* the egg was laid. Who will furnish a nest with such an attachment, or any other suitable mechanism to keep record automatically of the time of day the egg was deposited in the nest?

If friend Leonard's letter is correct, a flock of hens will be found to lay something like this:

One day and a skip; another, two days and a skip; still another, three days and a skip, or something after that fashion.

Later.—While I have had almost a lifetime of experience with poultry, and as much of friend Leonard's theory agrees, as far as I can recollect, with past experience, still I felt somewhat uneasy in regard to it. I remembered that our Ohio Experiment Station at Wooster has quite a poultry-plant, and a skillful man in charge of it, and it occurred to me that our various experiment stations are the very best place in the world to get unbiased opinions, based on actual experience. I have seen them, on my visit to the station, removing hens as soon as the hens had laid, examining the leg-band, and noting down their rate of laying. I accordingly submitted the matter to them, and below is the reply:

Mr. A. I. Root:—Replying to your letter of October 17, I am pleased to state what our records show concerning the egg-laying discovery.

We will consider, first, "Do all laying hens have a fashion of laying an egg every so many hours — some 27, some 30, some 36, etc.?" From our trap-nest records of about 300 hens we find that they do not follow any such rule. It is true that a few hens lay every other day for a short time; a few lay two days and skip a day, but seldom is such a record

continued for over a couple of weeks. Taking the record as a whole, no regularity is noted.

Then, again, "Does the laying hen keep up her period of making an egg every so many hours as long as she lives?" The answer to the former question answers this one as well. She did not do it during her first year, neither does she her second year.

I wish to correct a mistaken idea in the footnote on p. 23, Oct. 15, concerning our 31-egg hen of 1910. Instead of laying once a week, as stated, she laid March 24 and 31. Then she laid seven eggs between April 2 and 22 inclusive. None of these eggs were laid on consecutive days. May 1 to 10 she laid seven eggs. In one case during this time she laid on three consecutive days, and again on two consecutive days. She rested 53 days, then laid six eggs between July 3 and 13, two of these being laid on consecutive days. After a rest of 53 days she laid nine eggs between Sept. 5 and 18, three times having laid on two consecutive days. She rested 153 days during moulting time, and then laid as high as ten eggs on consecutive days. This hen does not follow either of the rules outlined by the discoverer of the method of telling the laying hen,

Any way of forecasting the egg-laying ability of a hen would certainly be a great help to poultrymen. However, as I understand it, the inventor bases this method on two points which do not accord with trap-nest records. ROSS M. SHERWOOD,
Assistant in Poultry Husbandry.
Ohio Agricultural Experiment Station,
Wooster, O., Oct. 24, 1911.

THE SIMPLICITY INCUBATOR, ETC.; SEE PAGE 740, DEC. 1, 1909.

Perhaps a good part of our readers have forgotten about my "Simplicity" incubator. I think about the last mention I made of it was on page 239, April, 1910. I confess it was with great reluctance that I let it drop and ceased experimenting with "contact heat," especially so since I had been *praying* quite a good deal over this very invention (as I have told you); and all through this busy life of mine, the things I have prayed over earnestly, and at the same time worked over faithfully, have usually, sooner or later, developed something of value to the world; and I confess I have been expecting all along that, even if I did not succeed with this form of incubator, somebody else would; therefore it is with much interest that I read the following letter from one who is not a subscriber to GLEANINGS:

Through the kindness of a friend, most of the 1909 numbers of GLEANINGS have fallen into my hands. We are not at all interested in bees, but we are in poultry, and we surely enjoyed your articles in that department. Did you ever perfect your incubator? and have you put it on the market? We shall be on the market for an incubator in August or September, and know from our experience with the Dixie Auto Hatch this year that yours is the correct principle. We are just starting in the day-old-chick business. We did all that we had capacity for this season, without advertising. We live on the car line to Gulfport, and I painted a sign to put up; but before I could get it dry and ready we had all we could do, and I finally rolled it up and put it away for next fall.

St. Petersburg, Fla., May 15, 1911. W. E. SMITH.

You will gather from the above that the writer has been working with an incubator on the principle of the one he found described in this old journal; and I think I shall have to tell you now that I, too, have been, during the past winter, experimenting with a fifty-egg "Dixie" incubator. This incubator is the only one of any sort ever manufactured and sold in Florida; but at the present time it is sent out in a rather crude condition. I returned mine in order to have it improved, and may perhaps try it again later. These incubators are made on a small scale at St. Augustine, Fla. I at once asked the writer of the letter to give me full particulars in regard to this hatcher, and received the following:

Mr. A. I. Root:—Regarding our experience with the Dixie, we have had all kinds. Last February we purchased a 150-egg machine. When it arrived we had 95 eggs ready, out of which we *did not hatch a single chick.* We commenced filling at the bottom, and filled as far as they would go. We broke nearly all the eggs to see how they were. We were entirely new at the incubator business, never having run a machine of any make, nor ever tested an egg before; but a year ago I took the *Poultry Husbandry* correspondence course with the State Agricultural Department. We found chicks dead at all stages, from a few days to a few hours of hatching. The first five lower rings did not carry one beyond the seventh or eighth day. Higher up they did gradually better. We put on the top ring some that had been under a hen two weeks, and hatched every one that did not test out. We kept putting in as we had them, and kept it nearly full until the end of the first three weeks. Then we wrote the Dixie people, and told them, as well as we could, what we had done, and that we had tried to keep the temperature at 104 to 105°. They wrote us that our trouble was too low heat, and told us to put the eggs in at the *top* and work them *down*, and to do all hatching on the lower rings. We later abandoned using the lowest hatching-ring entirely — no "luck" on that one—too cold, I judge. We did the most of our work by putting the eggs under the hen for two weeks, and testing out dead and unfertile ones, and then placing them as low down as we had room for them in the incubator. We had fine luck that way, sometimes getting 100 per cent, and an average as good as 88. We carried one lot of six clear through in the machine, with a result of 100 per cent, and some others with nearly equal success.

From my experience so far I should judge that the 50 and 100 egg machines are too short; and I think, too, that the 300-egg one that they put out would be too tall. The water varies in heat from bottom to top, and we take the temperature with a thermometer hanging in the water at the top. We try to keep it up to 108°, and do not worry if it goes to 110°; but we change it promptly when it gets up to 112, as the eggs then get hotter than they do under a hen. We are satisfied that, for *our* work, it is decidedly the best we know about. It is very handy when a hen leaves her nest or has to be removed for any reason.

We had mites so bad earlier in the season that we did not let the hens sit over two weeks.

I knew of your wintering at Bradentown, and I should be glad if we could find time to visit you there, and assure you that we shall be more than glad to have you visit us on Tangerine Ave. We go north for the summer.

St. Petersburg, Fla., May 25. W. E. SMITH.

Now, the principal reason why I have given the above letter is that it brings out strongly a point that has not been sufficiently dwelt on and discussed by our poultry-journals; namely, that there is no incubator in the world—at least good authority has so stated—that will do as good a job from *start* to *finish* as a sitting hen. It may be true, however, as I have stated, that the Buckeye incubator (and may be several others) will, as a rule, hatch every fertile egg. But now just hold on a minute. How do we usually decide what eggs are fertile and what are not? Why, with an *incubator* of course. But now comes the particular special and important point: The sitting hen will always give a larger percentage of fertile eggs than any incubator. If I am mistaken in this, give me the proof. There is something that a sitting hen does to give the egg a

start that no incubator has yet accomplished.* On page 238, 1910, I stated that the eggs that had a short "send-off" of only one a day, under a sitting hen, gave nice bright chickens; and they were almost the only ones that hatched out of 60 eggs in that Simplicity incubator. Now, here is some more proof from that excellent Petaluma *Weekly Poultry Journal:*

FERTILITY—SITTING HENS AHEAD OF INCUBATORS.

In looking over the pamphlet from the Oregon farm station I find a test was made at the station to determine the relative value of hens and incubators, with the following result:

The incubators hatched 78.5 per cent of fertile eggs, and the hens hatched 96.5 per cent of fertile eggs. Eggs incubated artificially tested out 22.7 per cent as unfertile, while those incubated by hens tested out 2.8 per cent unfertile.

I want to call attention to the last sentence. With the incubator, nearly 23 per cent were unfertile; with the sitting hen, not quite 3 per cent; and this Oregon farm station gave this report, as I understand it, as the result of a number of experiments. The incubator threw out over seven times as many eggs as unfertile as the sitting hen did. I have been satisfied of this fact for some time. Now, in that excellent little book, "Poultry Secrets," by the *Farm Journal* people, the last secret given was that a lot of chicken-men in a certain locality had been having wonderful success in getting chickens, and good strong ones. They had kept it a secret among themselves; and the secret was in starting all the eggs under sitting hens before they were moved into the incubator—exactly the plan friend Smith in his letter maps out. But as soon as I read of their secret, I was puzzled to know how they managed to have sitting hens enough to furnish eggs to fill almost any sort of incubator; and I shall have to confess that it never occurred to me, until I read friend Smith's letter, that my incubator, as well as the Dixie (on the same principle), was just the machine for that business. Both the machines have circular shelves; and each shelf holds from 13 to 15 eggs, according to the size of the egg—just enough for a sitting hen. Now, here is my discovery. I do not know whether friend Smith has caught on to it or not. Start up your incubator, and start up a sitting hen at the same time. Give the hen a shelf of eggs—from 13 to 15. After she has given the eggs a start, so the fertile ones can be sorted out, put them on the upper shelf of the incubator, and again give her another setting of fresh eggs. When *they* are found to be fertile, say anywhere from five to seven days, as you choose, move the first lot down a shelf and put in the second setting. In this way keep the hen going until she throws up the job or until you get the incubator full. Or you can have two hens or more. When the eggs show by the egg-tester that they have a good start, turn them over to the incubator. My experiment that I have mentioned showed there was an advantage in letting the hen have the eggs for even only one day. The book "Poultry Secrets" said they left them with the hen clear up to the 15th or 18th day, then gave them another setting, and let the incubator finish them out. Friend Smith does this to get rid of mites.

Some people will object to an incubator for hatching a dozen chickens every day or every week; but friend Smith had his "shingle out," "Baby Chicks for Sale." Some of you may object, because a dozen chickens are not enough to keep up the heat in a fireless brooder. I reply, this objection does not apply down in Southern Florida. A dozen day-old chicks can be put in a basket under a feather duster, or they can be managed without a bit of trouble in that warm clime, in "almost any old way." You can sell a dozen day-old chicks in the spring of the year at almost every house on the street, town or country; and the best way in the world to learn how to handle chickens is to begin with not over a dozen. The address of the Dixie incubator, if you wish to know more about it, is the Auto Hatch Co., St. Augustine, Fla.

*A few days ago I was obliged to break up a sitting hen that had stolen her nest, and she had but three eggs. These eggs were up against her breast—directly against the bare flesh. She had pulled the feathers off or they had dropped off—I do not know which. As it was hot weather they not only felt damp but were greasy and shiny. Oil from her naked body had become communicated to the egg. Now, no incubator, so far as I know, has ever attempted to furnish this animal oil that comes from a sitting hen; and is it not possible that this same oil has something to do in causing the germ to start any eggs where they would not have started at all in the incubator? Who can tell? Again, how often do we lift off a sitting hen and find an egg under her wing? Does she not in like manner "hug up" every egg in turn?

WHITE INDIAN RUNNER DUCKS, AND SOMETHING ABOUT ADVERTISING ON THE READING-PAGES.

I am well aware that I have been criticising our poultry-journals rather severely, and may be some of my good friends will think I had better spend more time in looking after our own journal instead of picking flaws in some other branch of rural industry. May be that is true; but here is a matter that I want to submit to all of you. If you say it is all right, then I will beg pardon for meddling, and try to keep still. In the *Reliable Poultry Journal* for September (please notice the journal is "reliable"), on the first page is a description of the new White Runner ducks. The article was written by a lady—Mrs. Fishel, and on the same page is a picture of "a small part of the hundreds" of her ducks. It is a very nice picture; and the testimony in favor of these ducks is extravagant. They are not only all white, but they run white, without any off color—"not an off color has appeared in over 2000 birds." The eggs are also white, and run white. The ducks are nice for a table fowl; and at the close of the article Mrs. Fishel winds up as follows:

To ladies who are interested in poultry, whether they live on the farm, on a city lot, or in a suburban home, I can conscientiously recommend this new variety, and even go further and urge them to se-

cure a few White Indian Runner ducks. If you do, your tables will never want for eggs and poultry, and your purses will always contain spending money.

Now, mind you, all of this is on the *reading*-pages of the journal. On the large page opposite (the first one containing the "duck story") is a full-page picture (a beautiful one) of the white ducks. This last may be one of the advertising pages, and paid for—I do not know; but we are told also that these ducks lay enormosly, "simply wonderful," and keep it up winter and summer. Well, the whole article is very entertaining and instructive, and it may be all true—I sincerely hope it is; but on one of the advertising pages, in the front part of the book, the eggs are advertised at $10.00 a dozen. Let us figure a little: 400 ducks will lay 200 eggs a year each. But may be that estimate would be a little too high for the whole flock, and so we will call it 144, or just 12 dozen. That would be $48,000 income if all sold at the above price. The advertisement mentioned is headed "The Gold-mine of the Poultry Business." Sure! there *is* a gold-mine for somebody—that is, if plenty of customers can be found at $10.00 a dozen for duck eggs.

Now, may be I am all wrong, and the fashion of many of our poultry-journals may be all right; but I submit the matter to our readers. Is it the fair thing to have this sort of advertising on our reading-pages, say for the very first article on the opening page? Of course I have no means of knowing whether Mrs. Fishel pays for advertising space on the reading-pages, or whether the editor pays the lady for writing her instructive and entertaining article.

A year or two ago I asked the question what our poultry-journals are for. Some college professor took it up in the periodical called *Poultry*, and this professor raised quite a breeze by saying that our fifty or sixty poultry-journals were published mainly to enable advertisers to gather in the "shekels" from the unsuspecting. I hope it is not true. I am *sure* it is not true; but I do feel that our journals on bees, poultry, and every thing else, should be published mainly to give the people at large honest information in regard to our separate industries. The reading-pages, at least, should be devoted to *this one thing* and nothing else.

INDIAN RUNNER DUCKS—DO THEY EVER SIT?

The following, clipped from the *Farm Journal*, must be pretty conclusive evidence:

I have raised Indian Runner ducks for more than three years, from thirty to 100 all the time, and have never known of a single instance of one attempting to sit or even make a nest.
Rahway, N. J. ROBT. N. RIDDLE.

Notwithstanding the above, however, one of our two ducks which we kept last winter in Florida did try to sit on a nestful of eggs, and she fought like a tiger when I tried to take her off and get her eggs.

THE WRIGHT BROTHERS UP TO DATE, AND SOMETHING ABOUT FLYING-MACHINES.

Over fifty years ago I "forecasted" that electricity would soon take the place of steam in transportation. In fact, I went around to schoolhouses, when I was only 17 years old, to proclaim in my "lectures" (?) what was coming to pass. Like the Weather Bureau, however, things did not always come quite as soon as I predicted. It was *forty* years instead of *four* or *five*, and steam has not *quite* been done away with yet. Later on I "forecasted" that automobiles would some time take the place of horses. That has not yet come to pass, but is coming; and finally GLEANINGS was the first periodical in the whole wide world to announce the Wright brothers had made a flight of something like a mile, and whirled round and come back to the place of starting. Well, we have wireless telegraphy, fireless cookers, fireless brooders for chickens; and a fireless incubator is not exactly in sight, but it is under way. And now it is my privilege to announce—that is, to the best of my belief—that flying-machines will in time be as plentiful as automobiles. Perhaps I shall be dead and gone, however, before that happens. But there is still one thing more coming. With the fireless cookers and wireless telegraphy we are going to have powerless flying-machines. Orville Wright has already left the ground on a glider, without any power whatever, and has gone up in the air and remained stationary for almost ten minutes. Perhaps he is away up in the clouds by this time if a merciful Providence has spared his life* to go through with these daring experiments.

Most of you have seen great birds away up in the sky, sailing hither and yon without a movement of the outspread wings. Mankind has speculated for years past as to how this is done. Well, if I am right, these birds have simply learned the trick of hunting up a current of ascending air. The air is constantly in motion, as you may know; and whenever a body of air sinks downward, somewhere else a body of air will go upward, and *vice versa*. The sun, in its daily course, keeps up these moving currents. Well, the Wright brothers have only to acquire sufficient skill to find these ascending currents of air; and after taking advantage of these they can get to a sufficient height, and from this point they can glide down hill or go anywhere they wish to; for aviators frequently shut off the engine when up at a great height, and go many miles without making any use of their power whatever. A glider without any engine or propellers will be very much *lighter*.

Now, look out, friends, and see if my predictions do not come true. I am not a prophet. I am simply a forecaster, just as our good friend Leonard forecasts (or tries to) the laying hen. "Coming events (usually) cast their shadows before," as you may recall.

* Please notice the frequent losses of life among aviators are all or nearly all with other machines than those made by the Wrights.

Gleanings in Bee Culture

Published by The A. I. Root Company, Medina, Ohio

H. H. Root, Assistant Editor
A. I. Root, Editor Home Department
E. R. Root, Editor
A. L. Boyden, Advertising Manager
J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX NOVEMBER 15, 1911 NO. 22

Editorial

In many localities in the North, especially at outyards, it is advisable to have the entrance slot of outdoor-wintered colonies not deeper than ⅜, or, better, $\frac{5}{16}$ inch, to keep out field-mice. They will make bad work of the combs, and often so stir up the cluster that the bees in their disturbed condition freeze to death.

ELIMINATING ONE MEANS FOR THE SPREAD OF FOUL BROOD.

Most of the queen-breeders of the country have agreed to boil the honey they use in making queen-cage candy. This is encouraging, for it will eliminate the possibility of spreading disease through this means. We will publish the list of the breeders who agree to boil, when it is more complete.

OUR COVER PICTURE.

The statistician of the reclamation service at Washington is doing a good work in getting data before the public concerning the possibilities of newly developed land. The picture of H. N. Simmon's apiary in the Yuma Valley, Arizona, page 272, May 1, was from the reclamation service, as is also the striking picture of the Arizona apiary on our cover for this issue. This apiary, by the way, is in the Salt River Valley, the climate of which is vividly described by L. M. Brown, page 698. If an egg can be fried on a stone heated only by the sun, it is no wonder that a framework is necessary for shade. Bees should have no difficulty in ripening the honey in that kind of climate.

WINDBREAKS FOR BEES WINTERED OUTDOORS.

Mr. Robert B. McCain. and R. F. Holtermann, in this issue, emphasize the very great importance of having windbreaks for bees wintered outdoors. We are satisfied, from an experience covering about forty years, that, while a good windbreak is not absolutely an essential in outdoor wintering, yet it is a very important requisite. Usually an apiary can be well screened if it be located in the center of an orchard, or in a grove or next to a woods. A solid tight board fence is not necessary. A few low bushy trees or shrubs surrounding an apiary will do very much to break the force of the wind.

HORSES HITCHED TO A WAGONLOAD OF HONEY AT THE END OF A LONG ROPE WHEN ROBBERS ARE BUSY.

We wish to call attention particularly to the device mentioned by Louis H. Scholl, in "Bee-keeping in the Southwest," in this issue, page 682. Very often it is not safe to bring horses close to the bees, and it means considerable expense and loss of time to carry the honey from the honey-house to the wagon stationed at a safe distance. Some, in order to avoid all danger, leave the wagon some distance away and haul the honey to it on a wheelbarrow. Mr. Scholl's plan seems the best of any we have seen, for the rope can be long enough to allow the horses to be as far away as need be.

The only difficulty in the plan that we can see would be steering the wagon when the driver was alone; and if there were many obstructions or a curved road or track there might be some difficulty. However, even then we presume it would be possible for the driver walking a few feet ahead of the wagon-tongue to steer it without much trouble by pulling one way or the other on the rope, which, with judicious driving of the horses, might work all right.

FEEDING SYRUP LATE IN THE FALL WHEN THE WEATHER IS A LITTLE CHILLY.

It is quite useless to feed a *cold* syrup when the temperature outside is down below 50° F., because the bees will rarely take it from the feeder unless the colony is very strong, and well housed; but when the syrup is fed as *hot* as the hand can be held in it, the bees will take it at once and empty the feeder.

We feed our outyard colonies hot syrup in this way: We take a cheap galvanized wash-tub and use it outdoors as our grandfathers used the old iron kettles for heating water. The tub, like the kettle, is leveled up on three or four stones of suitable size, and filled about a third full with water. A fire is built under the tub; and when the water is boiling, enough sugar is *gradually* stirred in till the tub is nearly

full. Before putting in the sugar, the fire under the tub should be raked out to avoid any possible danger of scorching the syrup or causing the tub to spring a leak. When the sugar is *all* dissolved, so that the syrup is clear, it may then be put into a large teakettle, from which it may be easily poured into the feeder on the hive.

The advantage of this arrangement is that *dry* sugar can be carried to the outyard or kept stored in a building. We obtained the idea of giving hot syrup in this way from the late W. Z. Hutchinson; and while we have referred to it before in these columns it will bear repeating.

THE USE OF HONEY IN COOKING; A FINE HOME-MADE HONEY-DRINK.

OUR new honey-recipe book is nearly ready for distribution. For several months we have had several good cooks testing the large number of recipes that we selected for use in the book from those sent us. This work has required considerable time, but it has not been without compensation, for we have been especially gratified in discovering so great a proportion of really very fine recipes in which honey is one of the principal ingredients. Even one having no sentiment regarding the use of honey, and therefore not prejudiced at all, can not help being enthusiastic in praise of some of the cakes and cookies baked.

We can not refrain from giving here one of the recipes which turned out surprisingly well. It is for making cereal coffee. We have been somewhat skeptical regarding the so-called coffees made from browned cereal, but our opinion in regard to this matter has entirely changed since tasting the coffee made by this recipe. Here it is, try it yourself.

1 cup honey (preferably dark honey); 1 egg; 2 quarts wheat bran. Beat the egg, add the honey, stirring together thoroughly, then stir in the bran, mixing it until there are no dry lumps of bran. Spread the mixture in a thin layer in a large dripping-pan, and place in a moderately hot oven to brown. Stir it frequently to prevent burning.

To make the coffee, use a *heaping* tablespoonful to a cup of water, and boil vigorously for at least ten minutes. Serve with rich cream.

This very simple recipe results in a drink that has a fine rich flavor, with none of that scorched bitter taste that so many cereal coffees have. Now, however much addicted you may be to the use of good coffee, just try the above recipe and see if you are not pleasantly surprised. It costs practically nothing, and is very little trouble to make.

BEE-RIPENED OR MAN-RIPENED HONEY; UNRIPENED BUCKWHEAT HONEY AND BOILED SHIRTS.

OUR old friend Dan White, who has for years been persistently and consistently preaching the importance of letting all extracted honey ripen thoroughly on the hive, has an interesting and valuable article on the same subject in this issue, page 684. We remember the time quite well when friend White stood more nearly alone than he does now in the advocacy of *bee*-ripened honey.

Some thirty years ago some of the (then) modern bee-keepers discovered that they could discard the antiquated uncapping-knife, because, forsooth, they could extract before sealing when the honey was more or less green, and finish the process of ripening artificially. While it is admitted that a fair grade of honey, before the cells are sealed, is sometimes produced in this way, yet experience over and over again seems to have proven that nature's ripened honey is superior in every way to that ripened by man. We are glad to assure Mr. White that nearly all honey-producers to-day stand with him.

We remember talking some years ago with a large producer of honey who claimed that his honey ripened before it was capped over—or at least enough so to enable him to finish the process of ripening in open tanks, after he had extracted it without the use of the knife. Not long afterward, we learned of an incident worth relating here, connected with an attempted sale of his honey. It seems that a commission man who had the sale of this honey, and a prospective buyer were going to attend a social function on a certain night. Both put on full-dress suits with low vests and white shirt-fronts. On the way over to the "function" they decided to stop at the commission store and examine some of the beautiful honey about which they had just been talking. Mr. Commission Man and the buyer approached one of the barrels, and proceeded to loosen the bung with a hatchet. Both men leaned over the barrel, when bang! the bung flew out with a loud report, and that delicious (?) buckwheat honey flew all over the white shirt-fronts of both men. It is needless to say that neither of them went out that night. The commission man was disgusted, and his friend the buyer was mad all over.

The bee-keeper who produced this lively honey, a few days later received a letter scoring him up and down for shipping fermented honey, and asking what to do with that sort of stuff, that was so hard on boiled shirts.

Moral.—All beginners and most professional bee-keepers should let their honey ripen thoroughly *on the hive.*

THE ADVANTAGE OF A HONEY-PUMP IN EXTRACTING; SOME FIGURES IN REGARD TO THE USE OF THE PUMP IN CONNECTION WITH A POWER-EXTRACTOR OUTFIT.

THE question has been asked more than once what the capacity is of small honey-pumps that can be run from the cross-shaft of a power extractor, the expense of such pump, power required, etc. We have had a great deal of difficulty in obtaining for our purpose a pump that would handle honey satisfactorily that was not too expensive. There are several rotary oil-pumps on the market, but not all of them are adapted for pumping honey, since honey is so much thicker

and heavier than most oils. However, we have at last found a pump that will average a gallon of thick cold honey a minute when running at a speed of a trifle over two hundred revolutions a minute. We attached the pump to the bottom of an extractor and belted it to a pulley on the extractor cross-shaft so that it would run whenever the extractor was running. So little power is required that no difference is noted in the running of the engine that drives the extractor; but at the same time we do not regard it as practical to attach a pump to a hand extractor. It is hard enough to turn the machine without the addition of a pump.

In some honey-houses, especially those that are located on a side hill, the honey may run by gravity direct from the extractor through the floor into a tank below, and this, of course, makes a very ideal arrangement. But in such rooms as are not adapted for the gravity plan the honey-pump is very satisfactory, the honey being easily elevated by means of a pipe to the top of the tank in the same room. It is certainly a very great convenience to have the extractor firmly anchored on the solid floor instead of having it elevated on a high box where it is not only unhandy to work around, but where the honey must be lifted by the pailful to the tank. By the Townsend plan, there is very little danger of running the pail over; but the operator has to wait until the proper amount has run out without ever taking his hand from the gate, and this consumes time. By the old plan of leaving the gate open and allowing the honey to run into a pail as fast as it is extracted, less time is consumed; but there is constant danger of running the pail over and losing a lot of good honey, besides valuable time.

BETTER SHIPPING-CASES FOR OUR COMB HONEY; AN INTERVIEW WITH A PRODUCER WHO SHIPS BY THE CARLOAD.

In our department of Stray Straws in this issue there will be found a little discussion between Dr. C. C. Miller and ourselves on the question of wide or narrow glass, or better shipping-cases with solid wood front as well as back. While it is true that the producer should adopt better and stronger shipping-cases, it is equally true that that same producer is governed by the buyer. Said Mr. H. Trickey, of Reno, Nevada, who has been with us for a few days, "The buyers are in the habit of putting up a big kick because of the losses by breakage in shipment. Instead of raising a howl *after* the crop has been produced, for not using stronger cases, they should instruct the producer *a year ahead* as to the kind of cases they want him to use."

That's true. Why should not the buyers of honey get together and agree on some standards for shipping-cases which they will accept? If, for example, they will say they will pay one or two cents *more* for comb honey put up in a standard case, the comb-honey producer himself would be very short-sighted if he did not adopt the better case, providing, of course, it did not actually cost more than the difference in price secured for the honey. It is, therefore, up to you, Mr. Buyer, as well as to the producer. Shall we let the comb-honey business go by default, or shall we reform our methods and cater to the trade of consumers who demand both comb and extracted? It is not too late to mend our ways.

If some of our producers would make a trip and see their honey unloaded, some of their individual theories and notions would be shattered instanter. They might be able on *future* shipments to save many times the cost of the trip. If adjustment has to be made, it can be much more satisfactorily arranged if the parties can see each other face to face and talk it over.

After we had written the foregoing we showed it to Mr. Trickey, and, after reading it, he said: "Besides the buyer, there is the supply-dealer and the manufacturer. The latter can do a great deal toward inducing producers to use the right sort of shipping-cases; and then if you fellows will urge in your catalogs the importance of having standard well-made shipping-cases, it will help materially to solve the problem."

"But," we said, "Mr. Trickey, the supply-manufacturers are already reducing the number of the sizes of their cases; and, if we are correctly informed, most of them will urge their customers to adopt standard sizes with corrugated paper in the cases, top and bottom."

"I do not know about corrugated paper on top," said Mr. Trickey. "I believe it may be all right to use it in the *bottom* of cases.

"There is another thing that the manufacturers ought to do, and that is, to print on the covers of all their shipping-cases, in plain large letters, *Comb honey; this side up; handle with care.* The average case is so made that, when honey is packed in it, no one but the bee-keeper himself knows whether the case is right side up or not. When upside down the leakage will be worse; and when the case is opened up, by removing the bottom instead of the top the whole case of sections shows off to great disadvantage to a prospective buyer.

It is important also that there be a uniform weight or uniform tare. When the cases are of different weight in a car of honey, the consignee or buyer is pretty sure to charge up against the producer the tare of the *heaviest* cases that he finds in the whole lot of honey; and too often the producer is compelled to take what he can get or else try to fight it out at long range."

EIGHT-FRAME V. TEN-FRAME HIVES.

For his locality Mr. Trickey favors the eight-frame hive. "I say locality," said he, "because I find that my smaller hives do better—that is to say, I have more honey in proportion to the amount of brood than I did in the large hives. In another locality the result might be very different."

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

CORK-DUST, says *Deutsche Bzcht.*, 159, is the worst thing possible for winter packing. It absorbs very little, but allows too free passage, and what little moisture it absorbs favors mold.

PFARRER F. GERSTUNG, *Deutsche Bzcht.*, p. 150, says that bees take up the different lines of work according to age in the following order: Feeding the queen; warming and preparing brood-cells; brooding the eggs; feeding larvæ; sealing brood; building comb (probably together with predigestion of food-stuff); ventilation and defense; gathering pollen; gathering nectar; carrying water.

MORE TWO-INCH glass than three-inch is sold, page 646. Naturally. To save a cent apiece on glass the majority will take the poorer case. If one-inch glass were listed, it would find purchasers. But, as always, the minority of better judgment prefer to pay the higher price for the better article. Can there be any reason except that the wider glass makes a better show? If wider glass makes a better show in single-tier cases, why not in double-tier? [We are both wrong, doctor. We were mistaken when we stated that there was more two-inch than three-inch glass used. It is the other way. You were, therefore, wrong in thinking that the cost had any thing to do with the proposition. In our opinion the two-inch glass shows off the honey as well as the three-inch. The question of looks, it seems to us, is a matter of slight importance, compared with the strength of the case. See answer to the Wesley Foster Straw below.—ED.]

WESLEY FOSTER says, p. 647, "It is unnecessary to display as much of the goods in a double tier as in a single tier." Why? Isn't the more good surface shown the better? He says, "People can use their imagination a little if they can not see all the comb." O Wesley! If the imagination fills out, so that two-inch glass is as good as three-inch, then why isn't one-inch as good as two-inch? But you are quite right in objecting to glass so wide that it "shows the unsealed cells and pop holes too prominently." I don't think it should show them at all. Does three-inch glass do so? In a 4¼ section the comb surface is 4 inches deep. A three-inch glass exposes 2¾ inches, leaving 1¼ inches covered with wood—⅝ at top and ⅝ at bottom. If ⅝ does not cover your unsealed cells and pop-holes, then three-inch glass is too wide for you. But I would not consider such honey fit to ship. Neither would you if you'd actually look at the honey in the case and not depend on "imagination." I've shipped many a ton of sections, both in single-tier and double-tier cases. I never ordered a piece of glass less than three inches, so far as I can remember; and I think unsealed cells and pop-holes were always sufficiently covered.

The finer the show of section honey, the greater the total output. *Please* don't discourage its sale by making a poorer show, just for the sake of saving a cent on each piece of glass. [We favor the two-inch glass mainly because it permits of a stronger case. In fact, we have about come to the conclusion that there should be no glass in the case, either front or rear. The front and back should be marked "Fragile," and "Handle with care." If no glass of any kind is used, there will be no temptation to "face" the cases. It takes but a moment to pry up the cover, then the sections can be shown far more satisfactorily than when surface indications are taken through a glass-front case.

Say, if you could see some of the broken-down shipments of cases that we see, even when they come from *up-to-date bee-keepers*, you would come to the conclusion that you did not want any glass at all. The other day we examined a large shipment of cases that were glazed, front and rear; and such a mess as it was! A large number of the combs were broken. Had this comb honey been put up in cases having one solid back, or, better still, solid back and front of wood, there would have been but very little breakage. The fact is, buyers are becoming disgusted with the comb-honey business because of the great amount of breakage in shipment. We must put the mere question of looks in the background and adopt a case that will be stronger and better than those formerly used, or the comb-honey business will be ruined. We talked with a honey merchant the other day. Said he, with some emphasis in his tones, "I am done buying comb honey. There is too much breakage and too much trouble in adjustments. I shall handle extracted hereafter," and this is not an isolated case by any means. Comb-honey producers are pursuing a wrong policy. *Wide* glass is a step in the *wrong* direction. Better use *narrow* glass or no glass at all. When a case has a solid wood front and back it is very much stronger than one with glass front. Unless comb-honey producers wake up to the importance of better cases and less breakage, their business will be ruined beyond redemption. Already there is a strong exodus from comb to extracted. This is all wrong. Why should we spoil an important department in our business? See editorial on this question elsewhere.—ED.]

"AN AVERAGE yield per colony, well located, should be at least 100 lbs. of extracted honey," says Louis Scholl, p. 617. That leaves the question still, "How well located must a colony be to do that?" and the more important question, "What is an average yield in an average locality?" I suspect it falls below 75 lbs. extracted honey,

but I wish we could have an authoritative answer. [This question depends a good deal on locality and the number of bees in it. In many places in the South, Mr. Scholl's estimate is not out of the way; but in most localities of the North, if we take one year with another, and strike an average, from ten years, 100 lbs. per colony would be too high, even for extracted. Possibly 35 lbs. of comb and 75 of extracted would be nearer the correct figures. Then there is another factor that must be taken into consideration. A backlotter who has, say, only a dozen colonies, with no other bees in the vicinity for two or three miles, might secure an average of 150 lbs. of extracted and 75 lbs. of comb honey. He might, some years, get from some individual colonies 250 lbs. of extracted and 150 lbs. of comb honey. Then he might have a year when his bees would barely get a living.

The larger the number of bees that one keeps, the smaller will be the yield per colony unless he distributes them around in out-apiaries, far enough apart, so that each colony will have, we will say, "good picking." One of the most extensive producers of honey in the United States once told us that his average of comb honey did not exceed 35 lbs. per colony, and his extracted not over 60. His bees were located in one of the northern States; and yet we have known of some extensive producers located in tropical climates whose averages would run along pretty evenly at 200 lbs. per colony. These we may say, however, were exceptional.—Ed.]

Mr. Editor, you ask, p. 614, whether that fruit-eating joke is on A. I. Root or myself. Both. He started it by saying he was going without supper, and then innocently revealing that he was eating apples at supper-time. But there's more than a joke in it, and it's of such immense importance that it deserves a whole page instead of a Straw. Much is said of the wholesomeness of fruit. I arise to remark that, to a great many people, it does more harm than good. They eat a full meal—all they care for—and then add the fruit. That overloads, and does harm. When A. I. Root eats nothing but apples at a meal, there's little danger he'll overeat. If fruit is to be eaten at the same meal with other things, let the fruit come first. "Oh! but if you eat apples before dinner you'll spoil your dinner." Well, better spoil your dinner that way than to spoil your stomach and your temper. Besides, it's not spoiling your dinner to make fruit the first part of it. The fashion is to eat breakfast-melons at the first of the meal, and no one complains that it spoils the breakfast. Follow the same fashion, and let all fruit come first at a meal. The same with nuts. Last winter, many days I ate about ten blackwalnuts before dinner, and it worked well. After dinner they would have done harm. More fruit should be eaten, and more nuts; but they should not come after a full meal. [One thing we found in our own experience was very important; and that is, not to mix two kinds of diet—that is to say, a large quantity of fruit should not be eaten with meat. They do not go together any better than mince pie. If one finds it to his advantage to eat meat because it is digested in the stomach, he must not mix a lot of other food with it at the same meal. A fruit diet should be exclusively of fruit, and a meat diet almost exclusively of meat. Don't you remember, doctor, how you proved to us, years ago, that you could eat clear meat at one meal and clear fruit another meal, without any discomfort? We have since tried it time and time again to our own satisfaction.—Ed.]

Mr. Editor, speaking of the recurrence of European foul brood here, you raise the question whether I have Italianized. Before answering that, let me say that I entirely agree with you and others in thinking that the correct rule is to Italianize if you want to get rid of European foul brood. Italians are more vigorous than the blacks of this country, consequently better honey-gatherers, and the same vigor that makes them better honey-gatherers makes them better at resisting disease. Now to your question. I have introduced in the past few years some 20 queens of the best Italian stock I thought I could find in this country, and this year I imported three queens direct from Italy. I have bees of the yellowest kind down to those that show no yellow color; but I think the yellow largely predominates. I have not discovered that the yellow bees are more nearly immune than the darker ones. Still, I may be mistaken, as I can give no positive figures. I know that No. 99, pure Italian, though not affected last year, was affected this year. Let me hasten, however, to say that my case is exceptional. For years, without reference to color, I bred from the best honey-gatherers, and secured hybrids that are hustlers. I have not been able to get any Italians that will equal them in storing. Being so vigorous at storing, why should they not be vigorous at resisting disease? But while they are storers, they are also stingers. I have been Italianizing, not to get better storers, not to fight disease, but to get better-natured bees. This does not prove that hybrids are better than Italians. It proves that breeding from the best will give better bees. If I had stuck to pure Italians, always breeding from the best, I might now have Italians better than my present hybrids, and not so cross. So if you want to fight European foul brood, Italianize. [We agree with you that, if you had used the same care in improving a pure Italian stock, you would have secured as good or even a better strain of bees for gathering honey than you did from your best hybrids. And it would probably be true that, if you had only pure Italians, you would to-day be almost immune to the attacks of European foul brood. The experience of others points this way very strongly.—Ed.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

Stirring honey undoubtedly will make it candy more quickly; but the best quality can be secured only by using well-ripened honey. See page 550, Sept. 15.

Dr. Miller refers, page 516, Sept. 1, to bees tearing down worker comb and building drone comb. Since this matter came up I have spoken to a number of bee-keepers who seem to think it a very common occurrence.

Early this year it was thought there would be an unusual crop of honey in the clover belt; but September reports show the crop of clover honey the lightest for many years. This indicates how uncertain the honey-flow is, and how little one can foretell what the crop will be.

With the number of GLEANINGS for Sept. 1, Mr. Baldwin finished his series of articles on "Bee-keeping in Florida," which has given such a clear idea of conditions in that land of flowers. Few articles are more fascinating than those regarding other sections of our broad country, for the good things are not all in one place. Every section has its good and bad points.

On page 534, Sept. 1, O. B. Metcalf gives some objections to a gravity strainer for thick honey. We have found it almost impossible to strain very thick honey through any fine strainer. I have wondered whether the strainer could not be enclosed in a water-jacket and the temperature raised to 125° by heat from a stove, or by steam, and thus make straining a simpler process.

Page 552, Sept. 15, our genial friend Doolittle advises keeping bees better rather than to buy more, and tilling a small farm well rather than to enlarge it. Good advice, surely, and it reminds me of a sturdy little German whom I met a few weeks ago in the southwestern part of our State. He has supported his family, and secured a competence on a twenty-acre farm. I was congratulating him on the productiveness of his farm when he laughed heartily, and said the man he bought it of could not make a living on it.

That letter by J. E. Hand, page 515, Sept. 1, on outdoor feeding, with notes by the editor, is a good step in advance of any former facts along this line. It certainly is much less work to feed in the open than to each individual colony. The possibilities seem to warrant outdoor feeding in spring to get bees ready for the clover harvest, especially between fruit bloom and clover. The feeding of dilute sugar syrup (or shall we call it sugar water?) in the open, seems to offer great possibilities. Already it seems to be of great value in queen-rearing in the prevention of robbing when handling bees; in keeping bees away from fairgrounds, and for stimulating brood-rearing. I have found, however, that a good way to keep bees away from fairgrounds is to kill the first bees that come. Only a few scattering bees find it first; and if these are disposed of, not enough will come later to make any serious trouble.

Mr. Doolittle advises, page 454, Aug. 1, a temperature between 80 and 90 degrees, never below 70, for keeping comb honey perfectly, which is, no doubt, all right, but I fear it is not very practical; for how many bee-keepers are there who have such a place during winter? Perhaps one in five hundred. For the benefit of the other four hundred and ninety-nine let me say that well-ripened clover comb honey has been kept in places far different from and far cooler than Mr. Doolittle suggests. In fact, we have recently bought several such lots of honey, most of it wintered in a chamber of an ordinary dwelling-house, and we found it in fine condition. Some of it, however, which had been wintered in an out-building, where the temperature must have been below zero many times, was somewhat cracked. Most of this honey was free from granulation, and looked as though but recently taken from the hive.

That article by Wesley Foster, page 456, Aug. 1, "Let's be Intelligently Honest," is decidedly good except the quotation from the *Rural New-Yorker*, which, as I happen to know, is rather misleading. The reason for using barrels for apples here in New England is not for the purpose of putting a bushel of poor-quality fruit in the center of the barrel, but rather because it has been the custom for a long time to use barrels, probably because it is cheaper, and requires less work. I heard an extensive apple-grower from a neighboring town say last fall, when asked why he did not put up his apples in boxes, that he preferred barrels, and should continue to use them as long as he could get from seven to ten dollars a barrel for his No. 1 Greenings and from ten to fifteen dollars a barrel for the same grade of Spies, and he had between two and three thousand barrels of this grade of Greenings alone the previous fall, and he can't supply the demand for his apples. I could name a good many fruit-growers in this locality who get fancy prices for apples in barrels. Apples from the Pacific coast in boxes? Yes, that is the best for them, for their beautiful color is their best asset; but when it comes to flavor, Wesley, you should eat some of our Vermont apples, and then you would say that "I have boasted less than I should."

BEE-KEEPING IN CALIFORNIA

P. C. CHADWICK, Redlands, Cal.

There are said to be 900 bee-keepers in Los Angeles Co.

Smoke may not be necessary, according to the new idea; but, just the same, some of us in California seem to have a great amount of confidence in a well-filled smoker, and are not too particular which end of the bee it strikes, if it keeps the business end at a safe distance.

Mr. Frank E. France, page 625, Oct. 15, speaking of the black or button sage, says: "Blossoms commence to come out on the outer edge of the bunch of buds." This is a common idea, even with some of our natives, but is not correct, the inner circle blooming first. See cut, page 527, Sept. 1.

I am just in receipt of a bulletin issued from the State Agricultural Experiment Station at Berkely, entitled "Honey-plants of California." Every bee-keeper in the State should have a copy of this work. It is a credit to our experiment station, and places bee-keeping on a footing with other industries of the State. Though somewhat tardy, we are glad to see our industry recognized.

I was once an enthusiastic believer in and advocate of the two-queens-to-a-hive theory, for early spring breeding, but am now becoming convinced that it is really a theory, and not practical, inasmuch as a queen lays during the early spring largely according to the amount of bees available to cover and care for brood. If the force were divided and another queen supplied they would be able to cover actually less brood space for a time than with the one queen and all of the bees in one chamber.

In discussing size of hives, page 586, Mr. Metcalfe advises a thorough trial before discarding the eight-frame size. I have experimented to some extent with the 8, 10, and 12 frame, and my conclusions were in favor of a 12 over an 8. Considering all points, the 10-frame size has more desirable features than either the 8 or 12; meets the need of the average colony, and should be made the standard for both comb and extracted production. A standard size would save many a sacrifice sale where a bee-keeper desired to dispose of his holdings if the hives conformed to a size generally in use. Counting out the two outside frames, which are largely used for honey and pollen stores, the eight-frame gives only a six-frame brood-space, which is not sufficient, especially during the honey-flow, when bees are wearing out rapidly in the field. The ten-frame is more adequate in this respect; and were I to be confined to a single brood-chamber I would choose the twelve-frame over either for this locality. Mr. Metcalfe's suggestion, that both upper and lower chambers be used for early brood-rearing, is an excellent argument for the eight-frame size, but equally so for the ten. Many apiaries run for comb honey do not carry extracting-combs, however, nor do they have facilities for extracting, so we must depend on a single brood-chamber. For this I would choose a twelve over either the eight or ten frame size, with the super narrower than the brood-chamber, enabling a strong force of bees to occupy a smaller space, which is desirable for comb-building and rapid filling. However, as the ten-frame is fast becoming the standard I am satisfied to let it remain so, without spending much on experiments.

My intention of visiting the vicinity of Covina and Monrovia, where European foul brood (black brood) was said to exist, was mentioned in my last notes. In company with Mr. Heber Wagoner and M. J. Meeker I went by auto to Covina, on invitation of Mr. J. D. Bixby, of that place. We reached Mr. Bixby's home about 10 A.M., and were soon on our way to an apiary of which he had charge. After arriving we were equipped with veil and smoker for business. It took only a few minutes to dispel all previous doubts about the existence of the disease in that locality. We opened a number of hives, Mr. Bixby carefully explaining the various stages of the disease, giving us as fine a talk as one could ask for. We spent a full hour taking in this illustrated lecture, all feeling fortunate in having a person so well informed on the subject to point out the features of the disease. Those who live in reach of Mr. Bixby could well afford to visit him and pay for the time and trouble it takes to acquaint them with the disease and its characteristics; for in my opinion we are confronting a condition that is now not only in its incipiency but one that we shall have to fight in earnest sooner or later. Those who live in this infected area should begin at once by Italianizing as rapidly as possible, there being no question that it spreads rapidly and depletes a colony faster than the American form.

Mr. Bixby having shown us colonies that were marked "light case" four weeks before that were then very bad. Should the suggested theories of Mr. Ralph Benton (*Bee-keepers' Review*, November, 1910) prove true, that the disease may travel with the prevailing wind, we in San Bernardino and Riverside counties may expect it to reach us among the first. There are at least three in this county who now know the disease, and do not propose to be caught napping, though there will doubtless be heavy losses when it strikes, especially among the "near" bee-keepers, some of whom have not seen the interior of their brood-chambers for two years.

Bee-keeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas

It will pay to feed those colonies that are short of stores, even if honey is not at hand, and 8-cent sugar has to be bought to do it with. Don't save at the wrong end. A few dollars well expended in feeding now may mean a return of tens of dollars next year when the honey-flows come again.

Our prospects for next season begin in the fall; and if abundant rains continue as they have in many parts of Texas within the last month, the season of 1912 promises to be a good one. Some of us are naturally expecting a bumper year after two shorter-crop years than we are used to, as we are still staunch believers in "three bad years do not follow each other in succession."

By October 1, practically the entire Texas honey crop was disposed of, and buyers offered good prices. The few scattered producers who still had some honey had no trouble to get it off their hands. This was particularly true of bulk comb honey, the standard honey product of Texas. The consequence is, that some of the larger producers received orders for such, amounting to hundreds of cases above their annual output.

Foul-brood samples, and samples of comb infected with any other disease or trouble of any kind should never be sent in any thing but a stout and secure box, and this well wrapped with strong paper, and well tied, to prevent exposure of the contents. On several occasions, such samples of comb were sent to us in very frail paper packages, or enclosed in only a single paper wrapper from which the diseased comb was exposed with danger of spreading the disease far and wide, and into our own apiaries. We feel as though we could never forgive the person guilty of infecting our own or other apiaries by such gross carelessness and negligence; hence we hope that hereafter such combs of this nature as are sent us will be securely enclosed in a proper box made either of wood or tin, and then wrapped properly before sending them away. This is important.

KEEPING UP THE PRICES.

The bee-keeper can do a good deal to keep up the prices of honey. This we have proven repeatedly to our own satisfaction in our experience of many years in selling hundreds of tons of honey. We have at all times aimed to keep prices a little in advance of "the other fellow," and we are confident that we have made some progress, not only toward keeping up the prices here in Texas but in bringing them up to a higher notch than honey prices have been for the last fifteen years. We are glad to note that there are several others who are doing the very same thing, and the result has been that each year the prices have gradually crept up half a cent or more a pound. This is one way of getting for our honey what is due us, and our Texas bee-keepers are not complaining nearly as much about low prices of honey as is the case in many other parts of the country.

A HANDY APPLIANCE.

Nothing is more disagreeable than to have a load of honey near an apiary ready for the team to be hitched to the wagon, but the entire load completely in possession of thousands of infuriated robber bees that can not be driven back by smoke or any thing else. After having several experiences along this line, some of which very nearly ended seriously, we contrived a method of drawing the loaded wagon some distance from the yard by means of a long stout rope. This is arranged with a strong hook at one end, so that it can be quickly hooked to the end of the wagon-tongue, while at the other end a set of light doubletrees and singletrees are fastened to which the horses are temporarily hitched. This outfit is always carried along on the wagon so that it can be used whenever needed. When the wagon is once away from the yard the team is hitched to it, and there is no more trouble. We hope that others will try this easily-made contrivance which we have found indspensable.

Perforated zinc has advanced, but the price does not concern us, for we do not use zinc excluders. We know that opinions as to the use of queen-excluders differ; but our own twenty years of extensive experience, and that of many others, have proven that queen-excluders can be dispensed with altogether when colonies are properly manipulated. In this management the brood-nests are placed in such ideal condition that there is no desire on the part of the queen to leave them and to go into parts of the hives where they are not wanted. That this can be done we know from the fact that we have accomplished it for more than fifteen years. We want it understood that we are not making these claims without good grounds, for we have produced large crops of honey year after year, during which hundreds of supers have been removed from the hives, entirely free from brood, making the use of excluders absolutely unnecessary.

We save, therefore, not only the extra expense of first cost of these, but the handling of over a thousand excluders. Since we manipulate our brood-nests several times in a season, these excluders would have to be handled as many times also; but, enough said.

Conversations with Doolittle

At Borodino, New York

THE BEST HIVE.

A correspondent writes, "Not long ago I heard a man advertising a hive which he claimed was superior to any other in general use. He tried to persuade me that, if I would purchase the right to make this hive and use it, the results from my bees would be doubled. I have wondered since whether you old specialists use a particular make of hive, and from so doing secure your large yields. What would you advise in the matter?"

I would say at the outset, that, while a good hive is important, the man who manages affairs well has much more to do with success or failure in bee-keeping. At present there is about one man in one hundred who is trying, by some hook or crook, other than producing wealth for himself, to get into his possession a certain amount of the wealth produced by the other ninety-nine, and this "best hive in the world" man can be numbered among these. He would make it appear that one using his hive will have honey to sell and give away.

The purchaser is told that all he has to do is to leave these hives with some farmer bee-keeper who will hive swarms in them at $1.00 each, after which the hive and bees can be taken home and deposited in some out-of-the-way place, where the bees will not sting the children. The wily agent adds that the bees will take care of themselves until fall, when enough surplus will be found for the family use for a year, or, if not used at home, honey that will sell for more than enough to pay for both hive and swarm. Is it any wonder that there are so many failures in bee-keeping, when so many are persuaded to start in this manner? No, no! It is not in the best hive, but, rather, the bee-keeper behind the hive, who leaves no "stone unturned" for the attainment of success. I doubt whether there is any thing better, all things considered, than the hive of Langstroth dimensions. That this hive and frames of Langstroth dimensions are used by the majority of our most practical bee-keepers is a great recomendation in their favor.

Successful apiculture includes work with and a love for bees; for the person with brains enough to secure a thorough knowledge of his location will put the hive to its test by insuring for the colony inside the proper conditions for securing a maximum number of bees at the time the flora of that particular location yields a surplus secretion of nectar. A good hive in the hands of such shows to the world that there is both pleasure and profit in the bee business, even at the present low prices of honey, compared with most of the other commodities of life. Such a person will have his bees in readiness for the honey harvest when it comes, and will do every thing at just the right time to secure the best results.

One of the questions which often comes to me is this: "What advantages have the hives of the present over the box hives used by our fathers?" Many, in every way, in the hands of a skillful apiarist, who uses all of the improvements to secure the best results; but none at all with the person who takes no advantage of the benefits which the movable frame, the extractor, sections, etc., bring within his reach. What are the movable frames good for if they are never taken from the hive? if the bee-keeper never looks for the queen to know whether she keeps the combs well supplied with eggs at the right time, so that the progeny may take advantage of the harvest? if the welfare of the colonies by the way of seeing that they have stores for winter and early spring is never considered? if swarms are allowed to issue in the good old way? if by the superseding of inferior queens with those from the most improved stock that can be obtained is overlooked? And yet I find many persons using movable-frame hives who do not open them once a year, who wonder why they do not succeed as well as the specialist who takes advantage of all of these things.

From the above I do not want it understood that a bee-keeper should continually overhaul his hives, in season and out of season. What I mean is, that when a gain is to be made by looking inside a hive, do it, and at just the time it is needed. Look after the stores in the spring before any colony restricts brood-rearing through shortness of food supply. Where any colony is discovered with a queen that does not keep up her brood to the necessary standard for a harvest from white clover or basswood, mark that hive; and as soon as the harvest is over, supersede her with one from the very best colony. Don't try to supersede her at a time when it will make a break in the work of the field bees, when the harvest is on, for continuous brood from an average or even poor queen is better than a break of a week or so with no brood at all. Put on the sections at just the right time, according to the honey harvest and the strength of the colony. Make swarms at the proper time, or work for their prevention through knowledge of the time when each colony is ready. All of these details are more conducive to success than is the hive—the hive being the medium through which one is able to bring the bees to that point where they will produce the best results.

INTENSIVE FARMING.

They used to have a farming rule
Of forty acres and a mule.

Results were won by later men
With forty square feet and a hen.

And nowadays success we see
With forty inches and a bee.

—*Wasp.*

General Correspondence

CONSTRUCTIVE ADVERTISING.

Getting the Good Will of the Purchasers, and Convincing them of the Superior Quality of Your Products.

BY DAN WHITE.

[The writer of this article is an experienced honey-salesman as well as producer, and what he has to say is based upon fact. Notice that *constructive* advertising, for the future, makes possible the disposal of a larger and larger output each year with an expenditure of practically no greater effort than at first.—ED.]

The word "progressive," used by E. G. Hand, p. 784, Dec. 15, 1910, is all right. Don't you see that this progressive advertising, if properly attended to, will induce thousands of people to sample honey? Mr. Hand's stunts and advice on how to advertise are sound. Let me quote the wording of one of his advertisements: "Honey from my apiary has been produced and put up in the most approved and careful manner. Its strong point is *quality*." How true it is that the masses, these days, are looking for the very best quality in every thing in the line of food! This alone should convince every producer of extracted honey of his duty to supply customers with so good a quailty that they will not only continue to be buyers but will tell their friends about it. Their children will, at the same time, be educated to eat honey, and as time goes on it will prove the true way to do everlasting advertising.

About forty years ago the few colonies of bees I had were on Langstroth combs. I want to relate my first extracting experience. I had heard enough about the business to know that some sort of whirligig threw the honey out of the combs; so I tied a long rope to a rafter in the barn, procured a comb just filled with new honey, fastened it in an upright position in a good-sized tin pail, then tied the handle of the pail to the end of the rope and proceeded to twist the rope well. I then let the pail begin to whirl. Around it started, and I believe the honey came out of that comb from both sides at the same time. Anyway; it came out of all sides of the pail at the same time. I was driven out of the barn. It was thin honey; and, thinking of it now, I am glad I lost it.

Very soon after this I bought a new Novice extractor; and, just as everybody was doing, I started in by going through the brood-combs and letting the new extractor take out some sweet stuff mixed with larvæ in all stages (it's a wonder we strained it, but we did). Somebody gave it the name of "honey," and labeled it "*Pure*." After two or three years of experience, without hearing a good word for my honey, and with few purchasers a second time, I said to myself, "I don't like this honey myself. Nearly everybody has tasted good comb honey, and can't be fooled with such stuff." I began to feel ashamed of myself, and finally decided that selling thin unripe honey was poor policy. Then I was far from doing as I would wish to be done by, having helped to give extracted honey an everlasting reputation that would be handed down from generation to generation. I resolved to get a supply of surplus combs and pile them up over the bees until the honey season was over, then let the bees take care of it until it was just as good as time could make it. The honey was left until October; and when it was out of the combs, and ready for market, I knew I had honey of quality. There was about 4000 pounds to dispose of, but I started out with plenty of confidence. When I met those who had bought of me before, and still had some on hand, my proposition was to weigh what was left, in exchange for an equal amount of new honey. As time went on, realization was beyond anticipation; and in two or three years I was an extracted-honey crank.

As the trade increased, people began to come to the house for honey, and mail orders, too, began to reach me; so it was evident that the days for peddling my honey were about over. I fancied I would some day be a second Father Langstroth. In my anxiety to reform the whole extracting fraternity I wrote an article for GLEANINGS, which was printed. Some of our most able writers and leading apiarists came back at this very article in a way that made me know better than to do any more writing; but I had the satisfaction of feeling that I had been defeated in the right.

Fifteen years later, when I wrote another article, the sentiment had begun to change, as many prominent bee-keepers were beginning to favor putting nothing but the best quality on the market. Now, a large share of those who advertise honey for sale are particular to say, "Thoroughly ripened on the hives by the bees." The words "ripened honey" are becoming fashionable.

This is progression in the right way; but the coveted harbor is still a long way off.

What is successful advertising? It matters not what industry, isn't it the confidence of the public that must be secured before the desired results can be attained? Think of the thousands of great industrial plants that now cover acres of ground, that, years ago, started in two-story buildings! Have they made this enormous growth without judicious advertising and careful management of the sales end of their business? Are they not continually looking after customers, and especially after prospective consumers of their product? Imagine the great field of prospective honey-consumers. What would be the result if every producer of honey in the United States would individually, this year, advertise in the local and county newspapers and would start a campaign of education to prove to the masses that there is more nourishment in a pound of honey than there is in a pound of

meat, and that, if they are looking after cheaper living, they must certainly include honey—one of the most essential on the list?

Short articles written for these papers, that will be printed gratuitously, telling about the management of bees, will interest the readers. At the same time, mention of the food value of honey could be made.

Any bee-keeper who can spend a week or two peddling honey can make expenses, and can, at the same time, meet a few hundred people to whom he can talk in a way that will result in good customers in the future. Stop at every house. Make a sale every time if possible; and if they refuse to buy, leave a generous sample, so that the whole family will get a taste of it. Mention the extra quality of your honey, and tell them that they can always depend on getting it from you. Speak of how thin it is when the bees first take it into the hive, but that you never extract it until it is perfectly ripe. Explain how it candies in cold weather, and how to liquefy it. Can't you see the good work that can be done along this line? Fifty pounds of honey given away in samples will create confidence and customers, and result in the cheapest and best kind of advertising. Much can be accomplished by educating customers to buy extracted honey by the gallon, as they regard it as a luxury when purchasing it in quart bottles, one or two at a time.

For fifteen years my product has been 3000 to 4000 pounds of honey a season. During this time it has been called for, and I have simply filled my orders, selling much of it in gallon cans. For two seasons a large part was sold in Akin honey-bags, in 2½ and 5 pound packages. My customers took it readily. It was not only satisfactory, but surprising to many to see honey in paper bags without showing a drop of liquid, and solid as a rock; this proved the nature of perfectly ripened honey. But I went back to gallon cans. Why? because some customers were inclined to take only 5 pounds while they would have bought 10 or 12 pounds if put up in gallon cans. You can see what I think of small packages.

Past experience, and knowledge of the amount of inferior extracted honey that has been before the people, has driven me to extremes—so much so that I have never bought a pound of honey to supply my customers in case of a season's failure. Certainly there are plenty of honey-producers just as particular along this line as I am.

New London, O.

THE BEE-KEEPER'S WINTER WORK.

Cold Weather the Best Time for Moving.

BY ROBERT B. M'CAIN.

The writer recently received a letter from a brother bee-keeper asking what he could do with his bees in the winter time. Would it be safe for him to open the hives to look into the clusters in order to ascertain the condition of the food supply, etc.? Such questions suggest themselves to all bee-keepers who are really interested in their work with the bees; and these questions recur again and again as they sit by the fire during the long winter evenings and wonder how it fares with the busy little workers that are now so silent and inactive in their winter nests.

The answer that was given to this particular inquirer was that there is very little that one can safely do *with* the bees during the winter months; but there is a great deal that one may do *for* them. Though it is trying on the nerves to restrain the impulse to open the hives and take a look at the bees on a bright warm winter day when they are flying in great numbers, the probability is that they will be injured rather than helped by thus disturbing their household affairs.

One thing that one may and should do for his bees in the winter months is to look carefully after the protection of the hives from the cold winds. If the hives are not sheltered by buildings or a tight board fence on the north and west, something ought to be done. Some old boards placed so as to break the force of the winds will help wonderfully; and if the hives have a tendency to leak, a covering of some sort that will keep out water should be put over them. Perhaps there is nothing better than tar paper for this purpose. Care should be taken not to bank straw or leaves about the hives in such a way as to hold moisture. If these materials are used, they should be protected from the rain and snow so as to remain perfectly dry.

And then one may change the location of the apiary in the winter time better than at any other time. If for any reason it is desirable to make a change of this kind, a new location should be sought and carefully prepared before any thing is done to the bees. Having chosen the site, and having placed the hive-stands in position, a day should be set for the work of moving the bees. If the distance is more than three miles the bees may be stopped in the hive, and moved at any time without danger of their returning; but if they are moved only a short distance, a time should be chosen after the bees have been confined to the hive by the cold for a week or ten days at least. The hive-entrances should be carefully stopped with wire cloth the evening before the bees are to be moved.

No better method of moving bees has ever been invented than the old-fashioned way of carrying the hives in the hands. If they are too heavy for one person, some way can be devised for two men to carry a hive between them. The next best method is to use a sled on a smooth track in the snow. A wheelbarrow should not be used for this work, as it is almost impossible to avoid violent shaking of the bees, and even breaking the brittle combs in the cold. When the distance is too great to move the bees by hand or even with a hand-sled, then employ a bob-sled, if possible. By all means avoid using a wagon with out springs.

If the apiary is suitably located, and the

bees properly protected, there is still much that may and ought to be done in the winters months in order to insure a successful summer's work. Hives should be carefully prepared against swarming time. If the bee-keeper intends to increase the number of his colonies during the year he should purchase and prepare the hives in the winter time. When swarming time comes it is usually a busy time for men as well as for bees, and it will mean a great deal in time and money if the bee-keeper has all his hives and supers in readiness for the bees when they need them. This is true of all the mechanical equipment of bee-keeping. The best time to do the work of preparation is when the bees are quietly sleeping in their winter nest.

Now a final word about the bee-keeper himself. No one can hope to succeed with bees without information in regard to the theory and practice of bee-keeping. Books, and papers also, on the subject of bee-keeping, should be read, and the information obtained carefully considered with a view to the improvement of the work. The long winter evenings are well adapted to this work of self-instruction. And it is one of the most delightful pursuits of the bee-keeper's life to dream and plan for his faithful little workers. They are in many respects the most satisfactory of all his helpers. They do not need to be driven to their task. All summer long they work ceaselessly whenever there is any thing for them do, and they never strike for higher wages.

The bee-keeper's dreams do not all come true. Sometimes he has a rude awakening; but as a rule the best and most successful bee-keeper is the one who does the most toward self-instruction by reading and study—the one who plans and makes the most thorough preparation for the summer's work in the winter time when he has more leisure and the bees are quiet.

Oswego, Ill.

YOUNG BEES CARRIED OUT BECAUSE CRIPPLED BY MOTH-WORMS.

How to Get Rid of Them.

BY DR. L. A. SIMMON.

Sept. 15, p. 571, Mr. J. I. Lutes speaks of a very common trouble, viz., "old bees killing off young bees." I think that, if he will examine his brood-combs carefully, he will find them infested with moth-worm, for the mode of attack of the moth-worm, and the habit of bees in relation to their presence in the hive, are not always understood. For this reason there is a great deal of brood destroyed by them unobserved.

The ovules of the miller are deposited in the cells, or carried by the bees in going in and out, are sealed over, and hatch coincidentally with the bees. The young worms feed on the pap of the larvæ; and as they grow larger they burrow and push their way from cell to cell under the capping of the brood, forming elevated lines that may be seen crossing the surface of the capped brood. These lines vary in diameter from $\frac{1}{16}$ to $\frac{3}{32}$ of an inch, and constitute the runways of the worms. There are two important points to remember—first, that bees never attack the moth-worm until it is seen; second, moth-worms instinctively remain secreted behind the cappings of the brood until they reach full development and are ready for the last transformation. They then emerge, make excursions about the hive in search of a crack, depression, or hole, where they spin their silken cocoon. It is then the bees attack them and carry them out. But all the damage they can do *is* done.

Bees will cluster over dozens of moth-worms secreted in these runways, day after day, with no apparent knowledge of their presence, nor make any attempt at their removal while their brood is being destroyed. The worms do not eat the young bees, but rob them of their food, so that most of those die over which they burrow. But if the larva is sufficiently developed to live the bee will be defective, often minus one or both wings, or so dry that it emerges with difficulty, having a segment of the cocoon adherent to its body. It is a law of the hive that they tolerate no invalids or imperfect bees in the colony; therefore these are carried out to become the prey of carnivorous ants.

It is the duty of the bee-keeper to examine his brood-combs now and then for these telltale elevated runways on the surface of the capped brood, especially when bees are carrying out dead larvæ or young bees.

When a colony is found infested, it will require bi-weekly examinations for four to six weeks to eradicate them. I had one very strong colony of the best Italians last summer, in a new hive with beautiful frames of brood that became infested, and I removed, in all, 114 worms from beneath the cappings of the brood. It required six weeks to eradicate them. I would find from four to fourteen worms at an examination. The best tool to operate with is a delicate sharp-pointed hook formed on the end of a steel wire about 6 inches long. With this you can rip up the runways from end to end without injury to the brood, and turn out the worm. When operating, turn the worm loose among the bees and see how they will pounce upon it and attempt to sting and carry it away.

Auburndale, Fla.

Report from Santa Clara Valley, California.

The season opened late, with lots of rain. Bees built up slowly, and did not do much work in the supers until June 1; but during June and July they did well. In our valley bees open the season with fruit-bloom; then come wild flowers, eucalyptus, and then, toward the end, buckeyes, redberries, and other shrubbery and trees found along watercourses. Of late years a great many areas have been put into seed-farms where onion, lettuce, and radish seed is raised wholesale. The honey from these is of first-class quality. Honey prices are good here. Fancy comb is selling at 20 cts.; No. 2, 15; extracted white, per quart, 50 cts.; amber, 40.

THE B. F. STILLSON CO.

Palo Alto, Cal., Oct. 12, 1911.

THE MUSCLES OF THE HONEY-BEE.

BY DR. BRUENNICH.

One of the most important characteristics that distinguish the vegetable kingdom from the animal is *voluntary* movement; and only in the case of the lowest organisms is it true that this difference will not stand the test, there being a great many forms of bacteria which can not be counted in the animal kingdom, but yet which possess the power of locomotion.

Movement in the lower animals is possible because of organs called muscles. While a common type of structure is evident in the whole animal kingdom, there is considerable difference in the development of particular classes of muscles. For instance, the vertebrates possess for involuntary movements (intestines, arteries, etc.), the smooth muscles, these being but cells of an inferior development; and for voluntary movements the well-known striate muscles, these being animal cells of a very high degree of evolution.

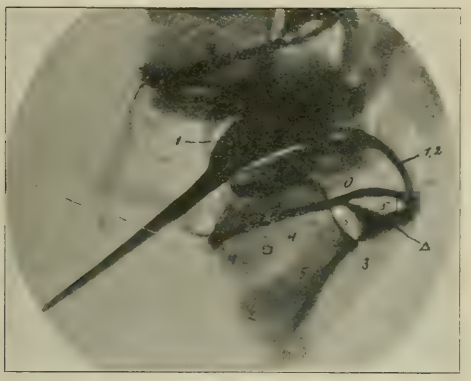


FIG. 1.—Sting of bee, showing muscles. 1, 2, spear and husk; 3, 4, retractor of spear; 5, protractor of spear; O, oblong plate; ◢, triangular plate; ■, square plate.

It is remarkable that bees and kindred insects possess two kinds of muscles which are very different from each other. To name them according to their structure, for the sake of simplicity and a better understanding of them, I will call them *tube* muscles and *fascicle* muscles. The first are found everywhere in the body of the bee; the latter are found associated in the breast of the bee, forming there the muscles of flight. Both muscles assist in voluntary movements. The discovery of involuntary muscles has not yet been effected.

Let us look first at the more frequent tube muscles. Unlike the flight muscles, these exist as single fibers, often united in groups, however, where each fiber seems to possess a certain independence. In Fig. 1, the photo of a sting, one recognizes a great number of those slender fibers, here united in loose bundles. Each fiber consists of a hollow cylinder of minute diameter. An extreme-

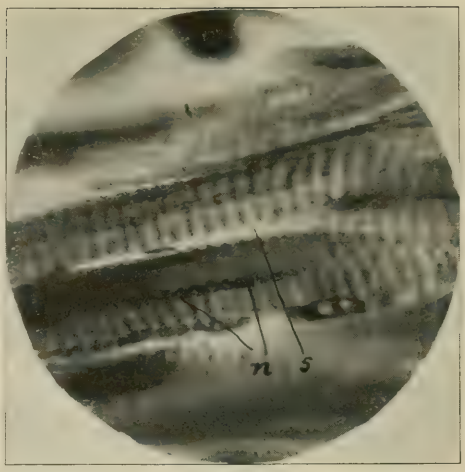


FIG. 2.—Tubular muscle—fibrils; *n*, nuclei; *s*, sarcolemm.

ly minute canal is trenching the fiber throughout its length. It is filled with protoplasm, and with thousands of nuclei side by side, forming a string of pearls (Fig. 2). The structure of the fiber is an intricate one. In Fig. 3 one recognizes at the first glance a distinct transverse streaking, even visible in Fig. 1, which is not so highly magnified. This striation is a result of the alternation of tiny sheaves of apparently dark and light color; i. e., of greater or lesser refraction. Every dark sheaf with half of the adjacent light sheaf contains a nucleus, and forms a primary sheaf, and it is clear that this little foundation is a unity, a highly developed cell. The proof of this assertion is evident when looking at Fig. 2 or the schematic Fig. 4; for every primary sheaf is enveloped in a fine membrane, the *sarcolemm*. But the finer structure of the little sheaves is still more complex, for every fiber shows, besides the traverse striation, a distinct longitudinal striation, Figs. 2, 3. This striation is due to the fact that every sheaf is composed of

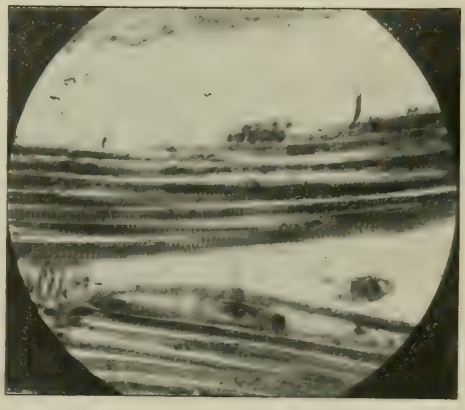


FIG. 3.—Tubular muscle.

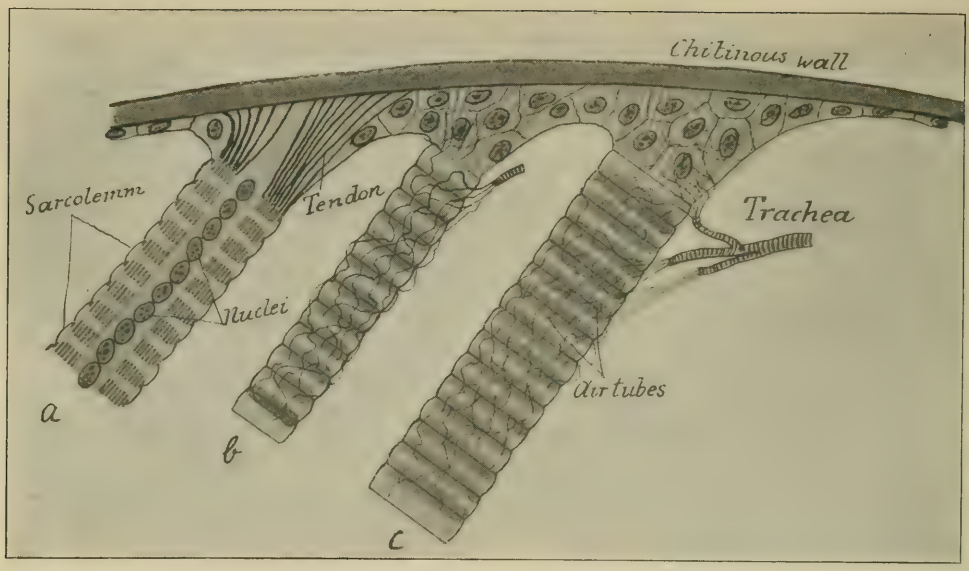


FIG. 4.—Schematic illustration of the tubular muscles.

many very fine staves. A transverse section through a large number of tube muscles, see Fig. 5, shows the fine staves as a series of minute points. Between the single fibers there are numerous tracheæ from which arise the finest air-channels, going in serpentine lines along the fibers, thus furnishing them the necessary oxygen and eliminating the carbonic acid.

These muscular fibers adhere firmly at one end to some part of the rigid chitinous harness, while the other end is grown together with some part of the body (antennæ, tongue, wings, etc.), which is to be moved. By an energetic contraction of the muscular fascicle the extreme point is moved in a certain direction. The opposite movement is performed by relaxation of the fascicle with simultaneous contraction of the antagonist. To every muscle or group of muscles is a corresponding one or more antagonists. Thus the muscle (protrusor) which pushes forth the sting possesses two antagonists (retractors), which have a tendency to withdraw the sting.

The fascicle muscles possess a high degree



FIG. 5.—Tubular muscle, transverse section.



FIG. 6.—A fiber of fascicle muscle: t, trachea.

of development. Their structure is similar to the texture of the striate muscles of the vertebrates. One may discern a well-distinguished longitudinal striation and transverse striation not less characteristic. The longitudinal striation is due to the great number of fine fibrils, forming a fascicle. The transverse striation owes its origin to the fact that each fibril is composed of sheaves of more or less refraction. Fig. 7 shows, in a transverse section, the fibers. A few nuclei are scattered rather regularly between the fibrils, which are not clearly shown in Fig. 6, but visible in Fig. 7. There is no sarcolemm around the fascicle, but a multitude of tracheæ penetrate between the fascicles. For example, see Fig. 8, showing a transverse section of the breast of a drone. Fig. 9 shows a great magnifying of these tracheæ, whose walls are strengthened by minute chitinous rods.

From those tracheal branches emerge a great number of extremely fine air-tubes, like little trees, sending their boughs into the interior of the fascicles. In Figs. 8 and 9 only the chitinous rods are impregnated with silver by a special method of coloring. As the finest air-tubes do not contain any of those chitinous rods, nothing is seen of them in the photos. If they too had been colored the figure would show nothing but a thick web of black lines. The exchange of oxygen and carbonic acid takes place only in those minute air-tubes.



FIG. 7.—Transverse section of a fiber of the fascicle muscle: *n*. nuclei.

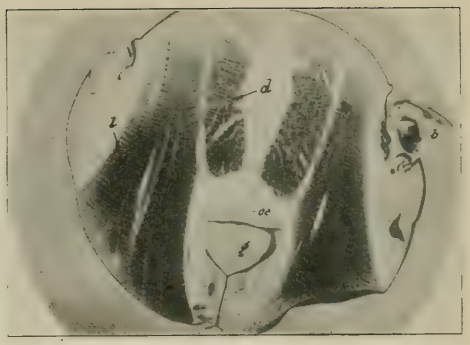


FIG. 8.—Transverse section of drone breast: l, levator of wing; d, depressor of wing; b, basis of wing; oe, oesophagus; g, ganglion.

The exceedingly rich supply of the flight muscles with tracheæ proves the great importance of the gas exchange in the muscles. Indeed, the task of the flight muscles is enormous, the flight of a body heavier than air requiring great mechanical labor. Deliberating on the quickness of the movement of the four wings, one may conceive that the rather simple-structured tube muscles can not suffice, and that here organs are required which possess a considerably higher development.

The breast contains three pairs of air-entrances (stigmata), and the respiration must take place in such a manner that the alter-

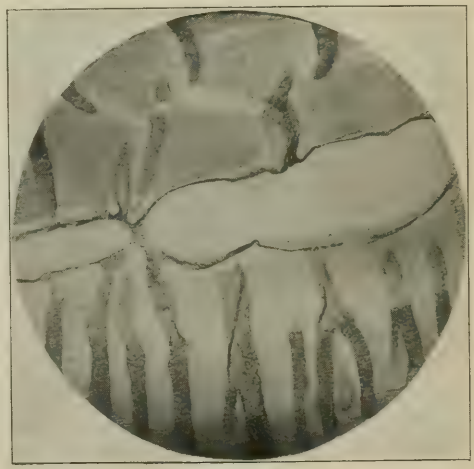


FIG. 9.—Tracheæ in a fasicle muscle.



FIG. 1.—Twin mating nuclei as used by C. W. Phelps, Binghamton, N. Y.

native working of the flight muscles will attend to the expiration and inspiration of the necesary air. Probably there is no abdominal respiration when a bee is flying; but the bee with reposing wings respires only with the abdomen. Before the bee takes flight it fills its abdomen with fresh air to diminish the specific weight of the body.

Zurich, Switzerland.

THE USE OF COMB-CARRYING CASES IN THE APIARY.

BY C. W. PHELPS.

When I commenced bee-keeping in 1879 I had never seen an Italian queen. I received my first one in 1880. Shortly after that I commenced rearing my own queens, making cell-cups by the rake-tooth method, and transferring larvæ *a la* Doolittle. I still have one of these old top-bar sections with cells.

We use the twin mating-boxes, Fig. 1, to a certain extent, and like them; but it took us some time to learn how to use them properly. We used to have trouble with the bees swarming out, etc. The swarming-cases, as shown in Fig. 2, are used for so many purposes that I have not space to tell of them at length. We could not "keep house" without them. We use them for forming nuclei, introducing valuable queens, etc. We can take them on street-cars, with a few bees, and set them in a new locality where the bees will stay. It is only in the last year or two that we have learned by a combination of methods which we use in connection with this box that we can introduce queens *absolutely* without loss. Suffice it to say, at this time the principle is simply to make the bees want the queen and the queen want the bees.

The boys shown in the photo are a great help to us.

Our honey is all sold here in local market, usually about as fast as it comes from the hives, and is out of the way by the time outside parties commence to ship here.

Binghamton, N. Y.

AN IDEAL EXTRACTING-OUTFIT.

BY F. J. SEVERIN.

During the last few years I have had an extensive experience in extracted-honey production in the yards of such men as Mr. John Nippert, of Phœnix, Ariz.; J. W. George, of Imperial, Cal.; E. F. Atwater, Meridian, Idaho, etc. I have traveled over the State of Washington from west to east through the famous Yakima Valley, stopping at various places, and investigating bee pastures. I was also in Central Oregon, then later in Eastern Oregon, all the while getting acquainted with the northwestern bee-keepers and studying their methods.

Mr. J. W. George, whom I was with last, manages his bees differently than any other man I ever worked for. He has eight outyards, with a man at each yard, and he certainly has an opportunity, in this way, to judge his men thoroughly.

Fig. 1 shows the apiary of 175 colonies that I managed. The shed is 240 feet long and 14 feet wide. The brush roof provides the shade so necessary in this country. There are two rows of hives, one facing north

and the other south, the shed running east and west. The ground between is as hard and level as a floor. The honey-house is at the center of the shed. In this picture it looks as though it were at the end; but the other half of the shed extends beyond, out of sight.

By observing closely, two colonies may be seen in front of the front row of hives that stand down on the ground. These are supersedure colonies with queens ready for mating. When the queens return they usually go into the nearest hive; and if the hives prepared for them are left in position with the rest so that all things look alike, even though guards are placed to mark the location, they will, eight times out of ten, get into the wrong hive and be killed, or else kill a good layer and create no end of trouble.



Fig. 2.—Carrying-cases may be used for forming nuclei, introducing queens, etc. They are cheaply made, and yet very handy in a queen-rearing yard.

While with the different bee-keepers I have had abundant opportunity to experiment with various styles of hives, from the shallow to the Jumbo, with the plural-queen system, etc.; but I have been most interested in improvements inside the honey-house. I had a tinner make a capping-melter, which in some respects resembles the melters used by E. F. Atwater and F. A. Powers, of Parma, Idaho; but I introduced several improvements over these machines. I also made what I call "the Severin improved honey and wax separator," on which I worked three weeks before it was ready for use. My first experiment was made with a five-gallon honey-can, and then, after noting all of my failures and improvements, I had a tinner go ahead with such parts of the outfit as I could not make myself. Mr. George expects to adopt my new separator, and will have nine of them made this win-



Fig. 3.—The Phelps boys, who are a great help in the bee-yard.



FIG. 1.—Apiary of 175 colonies at Imperial, Cal., managed by F. J. Severin. The extreme right of the picture is really the center of the long shed apiary, the hives shown being only half of the total number.

ter—one for each yard, and I think he will also adopt my melter in preference to his own.

In the first illustration a pile of dirt is seen at the extreme right of the view. This was thrown up to accommodate a two-ton tank sunk in the ground. The tank has a very heavy canvas cover to keep out the rain, supported by a pole, and raised like a tent over the three-inch galvanized pipe that runs from the extractor to the tank. In this way every thing is dirt and rain proof.

The extractor as shown in Fig. 2 is well bolted down, one inch above the level of the ground, the three-inch pipe referred to extending from the bottom of the extractor to the tank in the ground. This gives all the convenience of an extractor on the ground, and avoids the inconvenience of having it elevated on a big box and then drawing the honey off into a pail, which has to be lifted high in the air to pour in a storage-tank. It does not take long to dig the hole in the ground for the tank; and if a fifty-case tank is used, it will hold all that is extracted. At one side a trench is dug down below the bottom of the storage tank for filling the cans. I leave one can slowly filling while I carry out a filled one, and then bring an empty one back. At one time when the honey was cold I let off 27 cases of two 60-lb. cans



FIG. 2.—Interior of F. J. Severin's honey-room, showing extractor, capping-melter, and wax-separator.



R. F. Holtermann's bees in winter quarters, showing the four-colony winter cases and eight-foot fence to form a shelter from the cold winds.

each in two hours. Warm honey requires a longer time here in Imperial Valley.

The wax-melter (that I will describe in a later article) might be a little closer to the extractor than shown. Close to the melter is my separator referred to, which I will also describe at a later time. This melts the honey and cappings at a temperature of about 150 degrees, and a trough is made at one side and end to carry away the honey through the three-inch pipe that conveys the honey from the extractor to the tank. The gasoline-tank for the stove under the melter is located outside the honey-house. By having every thing conveniently arranged I save considerable time in walking while I am working. The wheelbarrow is only three feet from the extractor, and all I do is to step sidewise or back, and then turn to get more combs of honey. Every thing is within reach, and is low enough so I can work to advantage.

In the morning, when I am ready to extract, I go to the honey-house, lift off the melter, start the gasoline fire, then replace the melter, making sure that it is full of water. I then light the smoker and start off with the wheelbarrow after a load of honey. I first bring in a load of from four to six ten-frame supers that I have prepared the day before. This gives me so much to go on. The rest of the combs have to be brushed and shaken to get the bees off. Mr. George does not use excluders, nor can he use bee-escapes without excluders, the weather being too hot to permit it. Besides, the bees need all the ventilation which they can get directly, and the ⅞ entrances are enlarged one-half inch by little wooden blocks at each front corner between the bottom-board and hive body.

When I get my first load into the honey-house I uncap four combs, as the knives are not very hot yet. These I put in the extractor, throw the honey out of one side while I am uncapping two more combs, then reverse the baskets, and, while the machine is still spinning, uncap two more, which completes the four for the next load in the extractor. At this point I take out the four empty combs in the extractor, and put them in the super ready to receive them, then continue with the whole load in the same way. When I return with the next load, the first cappings are all melted, and the knives are good and hot for the rest of the day. After the second load, and from then on, the melter heats the cappings so fast that, when I get through with the last comb, it is nearly dry, so that I have to turn down the fire a little to keep it from boiling over. There is thus nothing to do except to bring in the honey, uncap it, and extract, all the honey, wax, and slumgum being taken care of safely and automatically.

The separator holds more wax than I can uncap in ten or eleven hours. I begin when every super is sealed two-thirds or quite full. My best day's work was when, without help,



Another view of one of the yards: the colonies are often left in these cases until clover-bloom.

I extracted 35 ten-frame supers of honey, getting, in the ten hours, 13 cases of honey and 15 lbs. of wax, or a little over one pound to the case. Mr. George averages 22 lbs. of wax to a ton of honey. We use eight combs in a ten-frame super, and uncap deep.

By the extractor in Fig. 2 will be noticed five large cakes of fine yellow marketable wax without a particle of dirt in it, just as it came from the separator.

San Diego, Cal.

THE OUTSIDE WINTERING OF BEES.

BY R. F. HOLTERMANN.

At this date, Oct. 26, my bees have been in winter quarters, and ready for winter, for over three weeks, and I have for that length of time turned my back upon them and their care, perfectly confident that they need no further attention until April, unless a thaw should set in and the melting snow



One of the covers removed, and the leaves taken out to show the hives underneath.

turn to ice, preventing the bees getting air; and then arrangement has been made at each yard to remove the obstruction.

Some of the readers of GLEANINGS have wondered that I should be wintering my bees outside when a first-class bee-house costing $1000 is available.

WHY I WINTER OUTDOORS INSTEAD OF IN MY $1000 CELLAR.

When wintering in the above-named cellar my method was to remove the bees from the cellar and place them on stands. They were next taken to clover pasture, sometimes a distance of thirty miles. Next they were taken to buckwheat, and finally returned to the bee-yard in connection with the cellar.

By this method the hives and bees were unprotected during the spring, also in the autumn, until placed in winter quarters about Nov. 20. I was also compelled to be on hand when the cold weather began to moderate in spring, and there was always a good deal of anxiety as to the best time to set out, sometimes to find that, owing to conditions of weather, many bees had perished in their first flight, and others had drifted to the disadvantage of the weaker stocks.

Again, I had to be on hand in the autumn until about Nov. 20; and even after that, the outside doors required too intelligent and expert judgment to regulate to trust to inexperienced hands. The bees were thus often unprotected, which was injurious to them, not only in the spring but during cold damp days and nights in the fall of the year. In the spring, with low temperature, I have found the bees quiet and inactive, so that practically no enlargement of the brood-space was taking place when bees packed offered a strong contrast in their interior activity.

METHOD OF WINTERING.

As I now winter the bees shown in the illustrations in connection with this article, four twelve-frame Langstroth hives are wintered in an outer case; two hives are placed in the case side be side, and another two also side by side, but back to back with the first pair. This makes two sides of each hive have the best of winter protection—namely, the protection of other hives warm with bees.

The cases consist of a platform of half-inch boards nailed upon three cleats 1×4 inches, the two at each end being on edge, to give strength. The three cleats extend half an inch beyond the side of the platform, and are so arranged that the two at the ends project half their thickness beyond the ends of the floor-boards.

By this construction the half-inch siding lumber may extend down past the floor, and rest upon the half-inch projections all around, protecting all from lodging water and snow. The sides and ends of the case are made of tongue-and-groove material, ½ inch thick, 23 inches high, and therefore make a case deep enough to hold an extracting-super on top of each hive. This half-inch stuff is kept together and strengthened by a cleat on the inside, 1×2 inches, and half an inch shorter than the side or end is high, namely, 22½ inches. These cleats come even with the top of the case, but are ½ inch short at the bottom, the object being to allow the side or end to extend the half-inch below the top of the platform, and rest on the end of the bottom cleats, as mentioned.

The cover of the case is made of half-inch material nailed at the ends to 1×2½-inch cleats. These latter cleats extend down over the case. They strengthen the cover; and if the locality is windy they can be fastened to the case by means of hooks. The lumber is covered with roofing-paper nailed to the wood part of the cover, and made watertight by the judicious use of roofing cement. The cases, from the above description, will be seen to have a perfectly level or flat cover. They can be made to shed water by slightly raising one side of the case.

The bees go in and out through the case by means of ⅞-inch round holes. Three are recommended, but I will confess I have found that size of entrance inadequate in the spring before removing from the case, as I leave the bees packed sometimes until clover is opening, having many supers on before removing from the case.

The case is set on blocks 8 to 12 in. high, one at each corner. This takes them above water and ice which may lie or form on the ground. There are no supports for the center cleat, as this is held up to the case by means of galvanized iron straps 6×1 inch, binding it to the siding. Considering the tendency to settle and heave, it would be practically impossible to support the case evenly at six points, and by using the above device it is unnecessary.

In making my cases I followed the directions of Mr. Jacob Alpaugh, as also in building the fences described below.

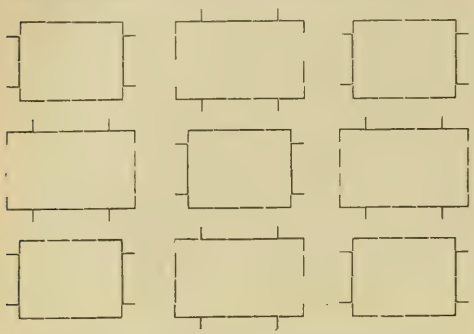
The colonies in their ten-frame hives are packed in leaves about one inch underneath, three inches in front, six inches at the sides, and about 10 inches on top. There must be a shallow air-space left between the leaves and under side of the cover, and some small openings to allow the air to circulate over the leaves and carry away the moisture which rises from the cluster below. This latter is very important, as it prevents moisture from condensing and freezing at the entrance in cold weather.

OUTSIDE PROTECTION.

No one not conversant with the matter can realize the advantage and comfort to be derived from a high fence about the apiary. The freedom from cold winds during the winter is of very great importance; and with an apiary of 100 colonies two seasons' use would amply pay the cost of a fence 8 feet high about the space needed for that many colonies. Then the comfort, during windy days, when working in the apiary, is great. In the Ebert yard I have a space 60 feet square for 40 winter cases (160 colonies), which is ample. Then there are large ap-

ple-trees which practically protect the entire apiary from the sun. The other apiaries are not protected from the sun quite as well; but by running a cross-board at each side of the top of the fence, and another opposite the bottom scantling, every second board can be drawn out during hot weather, allowing a current of air to pass through the apiary.

The hives face north and south in one case, and east and west in the next, thus:



This gives the bees a better chance to mark their location when the hives are not far apart.

RESULTS.

The bees are now being wintered for the third time in this way, and nothing could induce me to go back to cellar wintering. The expense of one move is cut out with its attendant hard work, the most trying and nerve-racking of all the year, as I move only to buckwheat and back, and generally I do not move all the bees at that time.

Then there is the before-mentioned protection. The bees can be left by Oct. 1; and if plenty of stores are given, there is no need of being with them until April 15, or, at a pinch, May 1.

The feeding is done after the hives have been put in their winter cases. When so fed, and not packed too warmly at the top, the bees are less likely to rob, and they take down and ripen food more rapidly.

Better results have been secured by this method, and my hives are protected from wet and weather for eight months in the year, and the four months they are exposed it is generally the driest of the entire year. There is a rental coming in from the bee-house (as a store-house), which covers the ground rent and place to extract for my four apiaries.

To anticipate any question, let me state that, in this locality, the temperature sometimes reaches 20 to 23° below zero, but not often. I believe bees could be well wintered in the above way quite a distance north of here. Another thing, when packed the bees do not as readily take wing, as the warmth of the sun's rays does not reach them as soon as when the bees are not packed.

Some may question the wisdom of the fence. Those living near say that, when a cold wind blows outside, to go inside of the fence is like being indoors. The fence is made of half-inch instead of inch boards, thus reducing the cost and adding to the durability. Of course the framework must be strong enough to resist the wind pressure, which at times is very great. The bees have to fly over the fence 8 feet high, and they are thus much less likely to come in contact with man or animals.

The two young men in the photograph are Mr. Enoch R. Madeira, of Pennsylvania, and Mr. Fred R. Hays, of Ontario, Canada, who spent the season of 1911 with me learning bee-keeping.

Brantford, Ont., Can.

AFTER THE ISSUING OF A PRIME SWARM, WHEN DO THE YOUNG QUEENS EMERGE?

Reports Conflict Somewhat, but Generally Indicate that the Queens Hatch Seven to Eight Days Later.

QUEENS HATCH FROM FIVE TO EIGHT DAYS AFTER THE SWARM ISSUES.

When I was reading this sentence, Sept. 1, page 537, "The young queens usually hatch from the cells about the day that the swarm is cast," I looked at it to see if my eyes were right, and read it over several times; then I concluded that a word or two had been left out.

It is a great mistake, according to conditions found in "this locality." Don't take Mr. Marchant, Dr. Miller, Doolittle, nor any other person for authority, but ask the bees themselves.

I keep my queens clipped; and when the bees swarm I remove the frames of brood and put them in a new hive, filling the old hive that is on the old stand with drawn comb or foundation while the bees are in the air. I place the hive with brood to one side of the old hive, with the entrance toward another direction; then when the swarm returns to the old stand I give them the clipped queen. In about five or six days, just before the young queen hatches, I brush the bees from the combs of brood, in front of the old hive, and distribute it among the weakest colonies. But if the brood with queen-cells is from an extra-good queen, and I want to increase, I divide the brood into nuclei and use the queen-cells just before they hatch.

The queen hatches from the cell from five to eight days after the first or prime swarm is cast. After-swarms act differently. In handling so many frames of brood I have a good chance to observe, for I keep about one hundred colonies. I handle frames instead of hives, for I am not very strong, and keep my bees in clumsy, awkward chaff hives; but the bees winter nicely in them.

Osceola, Neb., Oct. 18. C. N. SEWARD.

WEATHER CONDITIONS CONTROL THE TIME WHEN QUEENS HATCH.

For the last two years I have noticed that weather conditions in this locality make some difference. Swarms issue anywhere

from one to seven days prior to hatching of queen-cells. I have sometimes seen a young queen that was unable to fly come out on the alighting-board with the swarm and go back into the hive.

In regard to Mr. O. B. Metcalfe's experience with the eight-frame hive, Oct. 1, p. 586, I would say that I agree with him. It has proved about the same here. Most of my bees are in eight-frame hives, although I have a few ten-frame, and I have noticed for the last few years that the eight-frame hives breed up faster in the spring and produce more honey, whether comb or extracted, than a ten-frame hive.

Haskinville, N. Y. M. C. SILSBEE.

QUEENS SOMETIMES HATCH THE DAY BEFORE THE SWARM ISSUES.

A young queen often emerges from the cell before the swarm is cast, either on the same day or the day before.

Two years ago I had a large swarm come off and settle in a tall apple-tree. While the bees were flying in the air I picked up at the hive entrance a queen that was still white, and so young she could hardly crawl. I kept her at the entrance, and the bees had hardly settled before they began to come back. I put the queen on a table and smoked the bees for the purpose of keeping them from the hive until they found her and settled on her. Then I hived them. The young queen does not always hatch a week later, but sometimes does.

In regard to a Straw on page 582, Oct. 1, I will relate an experience with moths. I once had a late swarm die in an old-fashioned box hive, early in winter. I put it in an out-building, and when spring came I neglected to take the comb out until about the 15th of August. When I looked at it, it was full of moth-nests. There were hundreds of worms and millers, so I burned it. Moths will attack comb in this country anywhere they find it, regardless of bees or whether it has been frozen or not.

Webster Springs, W. Va. L. S. WEESE.

QUEENS HATCH SEVEN TO EIGHT DAYS AFTER THE SWARM ISSUES.

Thirty years of experience with from five to thirty colonies of bees has given me a chance to make some observations, and I find that my observations do not always coincide with those of bee-keepers of other localities. I can not agree with Mr. Marchant on the hatching of young queens. It has been my rule, when a swarm issues, to open the parent hive and immediately remove a couple of frames of brood; and to avoid the possibility of ripe queen-cells I have often looked through the whole hive. I never yet found a young queen at such a time. However, from seven to eight days later I have often found one or more queens emerging, and others apparently held back by the bees; and while cutting out these ripe cells I have noticed queens crawling out as I would put them aside or in a protector.

Second swarms usually emerge from the 10th to the 12th day, always subject to weather variations. I have had swarms come out with nothing but eggs in the queen-cell cups; but that is not the rule.

Jamestown, N. Y. J. W. WILSON.

QUEEN HATCHES ABOUT SEVEN DAYS LATER.

I have kept bees in several States during the past 25 years, and have found that a swarm comes out about seven days before the young queen hatches. I saw no deviation from this rule when I was in Mr. Marchant's own territory.

Rio, Va. H. GRIFFIN.

SWARMS ISSUE ABOUT THE TIME CELLS ARE SEALED.

You ask, page 582, Oct. 1, for reports on the day swarms leave the old hive. The rule here is that prime swarms leave about the time cells are sealed, the weather permitting. The older the queen, the longer the bees stay in the old hive after the cells are completed. In one or two cases I have known the bees to kill the old queen and go out with a virgin the next day.

Cozad, Neb. THOS. ATKINSON.

IF BEES DO NOT SWARM THE DAY AFTER CELLS ARE SEALED THEY WAIT UNTIL THEY ARE READY TO HATCH.

In all the text-books I have read, and in dozens of articles, it has been stated that the prime swarm is cast the day after the first cell is sealed, and the first after-swarm about eight days after, the weather being favorable. This would mean that the after-swarm was cast about the time the first cell was hatched. Some years ago I decided to let all colonies swarm that wanted to, as part of a system of management I was trying out. I kept a very careful watch on the brood-chambers, and, to my great surprise, found that quite a large percentage did not cast the first swarm till the cells were ready to hatch. I was using about a hundred colonies in this experiment, the majority of which swarmed, so I tried the thing quite extensively. As a rough rule, I should say that, if the colony does not swarm the day after the cells are sealed, it will wait till they are ready to hatch. Of course, there are many exceptions to this; and if one or two swarms issue on a hot day it is quite apt to set the whole apiary swarming, without much regard to the state of the cells. Indeed, this put an end to the system I was trying, as I got weary of trying to separate a mix-up of some half-dozen swarms.

Hatzic, B. C. WM. L. COUPER.

SWARMS USUALLY ISSUE ABOUT THE TIME CELLS ARE SEALED.

With favorable weather and the necessary amount of nectar in the field, it is my experience that bees seem to be in a condition to swarm about the time the first cells are capped over. We have some neighbors who have a good many after-swarms. They tell

me they usually get their second swarms about eight days after the first (or prime) swarm issues. Supposing the cell to be capped one day when the prime swarm issues, and the virgin that leads out the after-swarm is one day old, this would agree with our experience. Of course, some swarm before capping queen-cells. In rare cases bees swarm without any apparent preparation for swarming in the way of cells. In Mr. Crane's case, page 781, Dec. 15, 1910, where virgins were caged from the parent colony after the issuing of the first swarm, the bees were probably held back by unfavorable weather or honey conditions, as he says this is more likely to occur during the fore part of the season, when we may suppose the weather would be more likely to be unfavorable. If we see virgins with the swarm when hiving them, as with a superseding or after-swarm, then we go to the parent colony with our cages, *a la* Crane, and cage some nice virgins if we are in need of them. But if we go to a colony after it has cast a swarm, with normal weather and other conditions, we usually find, instead of virgins hatching, cells as I have described above, but no virgins. In this controversy, in my humble opinion Dr. Miller is right, and Mr. Crane and the editor wrong, supposing conditions are normal.

Remus, Mich. E. D. TOWNSEND.

SWARMS ISSUE BEFORE CELLS ARE SEALED.

I wonder where I could get some bees accommodating enough to wait until virgins hatch. Mine are so inconsiderate as to swarm before cells are sealed, in many cases, and never wait long after sealing unless bad weather prevails.

Washington, D. C. GEO. S. DEMUTH.

[The "goak" is on us; and we suppose, by all rules of warfare in cases like this, we owe Dr. Miller a box of cigars; but as the good doctor and ourselves don't smoke, and neither of us has any use for tobacco in any form, we owe him a silk hat. If he will go to the store and buy one we will pay the bill; or we will send him ours, because ours is too big now.

Joking aside, we are frank to admit that we may have been misled by conditions of locality or by a condition like that mentioned by Mr. Couper above, or, what is more probably true, by unusual weather conditions at the time the fact (?) was recorded in our mind. No matter now, the *rule* is that a prime swarm comes out about the time the first cells are sealed, and *after*-swarms about the time the first virgin is hatched.—ED.]

BEE-KEEPING IN THE SALT RIVER VALLEY, ARIZONA.

Moths and Crickets do Much Damage.

BY L. M. BROWN.

Does it ever get hot in Salt River Valley, Arizona? Well, let me tell you about it. Tallow will melt in the shade, and have the fluidity of water. Let the contents of a broken egg be spread out on a stone, and the sun's heat in the stone will cook the egg done. Of course, the stone must be exposed to the direct rays of the sun, some time between 11 and 3 o'clock. Some days are cooler than others, and some days hotter than any; but let me tell you nine-tenths of the Salt River Valley people—Indians, Mexicans, white people, and all, sleep out. Any old place will do—under sheds, on the house roofs, under trees, under the starlit sky—anywhere. And what nights! Usually there is a gentle breeze, cool enough so that a blanket makes one comfortable. Sleep? As the Colorado man says, "*You just bet.*"

I am running for comb honey, and am a novice at that particular branch of the business. From 1881 to '86, in Nebraska, I produced extracted honey exclusively.

I want some advice about my crop of comb honey. I have 13 colonies, and shall have somewhere in the neighborhood of 800 lbs. I am just letting them fill one super after another, slipping the empty one with empty sections supplied with surplus starters under the filled-up supers, next to the brood-frames. I have an idea that it would be for the best to remove the capped and completed surplus; but we have drawbacks here that we are not all in a condition to combat. Crickets will uncap our surplus, and keeping out the moths is another serious difficulty. Will it damage our capped sections to a great extent where they are left on, giving the bees access to all the supers? If so, will that damage equal the one of moths and crickets?

Why don't some queen-breeders put the Caucasian queens on the market? I don't believe the Italians are the bees for Salt River Valley. We are likely to have a honey-flow of some kind here—little or great—at almost any season.

Phoenix, Arizona, Aug. 19.

[If there is no way to keep finished comb honey away from crickets and moths except to leave it on the hives, then we should certainly do so, for the travel-stain would not detract so much from its value as uncapped, moth-eaten cells. But we can not believe there is no other way. Honey fumigated with carbon-bisulphide and then put direct into tight shipping-cases should keep safely.

A number of the queen-breeders are furnishing Caucasian queens.—ED.]

Paste for Labels on Tin.

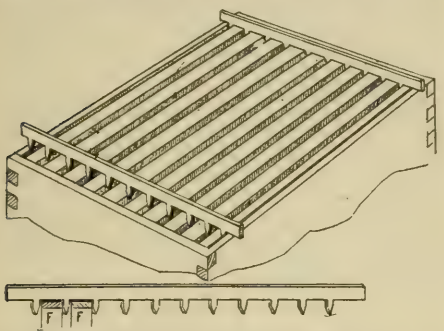
Dissolve two tablespoonfuls of gloss starch in as little water as possible to make a thin solution. Then dissolve four tablespoonfuls of caustic soda in a glass of water. Pour the caustic solution into the starch solution, stirring it. Add enough of the caustic solution to cook the starch, when it will be ready for use. If the labels will not stick, add more caustic. This paste will keep three or four weeks, and then may be renewed by adding more caustic. I advise the use of rubber finger-stalls if a large number of labels are to be put on, as this paste is likely to make sore fingers.

Cauley, Wyo. B. F. SMITH, JR.

Heads of Grain from Different Fields

A Device for Accurately Spacing Loose Hanging Frames.

The drawing shows a spacer which I invented, and have used for twelve years. It works like a charm for me, and can be made to space any distance. The upper end of the tooth is of a thickness to make the space between the frames, and between the teeth it is of a width to fit over the extracting-frames. The teeth are made wedge fashion, so as to have the gather, and the rake-head is made long enough to extend one inch or more over the edge of the super at each end, and you must have two for each workman. Then place your extracting-frames in the body as nearly right



as you can guess; then take one of the spacers and insert it in the frames by wiggling it sidewise, and soon it will drop into place, which spaces the frames at that end of the super. Then take the other spacer, and it will drop into the spaces—the first one made. Then hold the second spacer down, and draw or shove it to the other end of the super, and then the ten frames will be spaced exactly right, with no metal spacers to take the edge off your knives; and while it takes me a good while to tell it, I assure you it is a speedy way to insert frames in a super. I have only one hand, and the device is a great help to me in handling the spacing business.

Kearney, Neb. A. J. SNOWDEN.

[This plan is quite old. It has never proved to be very popular.—ED.]

Why were there No Swarms? Trouble with Moths.

I have thirty colonies of bees; and, so far as I know, not a swarm issued from a hive during the past summer; and I have heard several people, who keep a few colonies of bees, say that they had no new swarms. Do you think it was due to the dry weather?

The moths were very troublesome the past season. They destroyed two of my colonies. What is the best way to fight them?

What is the best method for preparing to winter bees outdoors? Last winter I put on an empty super, and placed oat straw in coffee-sacks, sufficient to fill the super, and in this way made a cushion. The bees wintered well, although some of the cushions collected dampness. The mice got into a few hives and made nests in the straw.

Tuscola, Ill., Oct. 17. J. M. GOODSPEED.

[We presume that the reason your bees have not swarmed is that last season was such a poor one for honey. Swarms issue when colonies are prosperous; and since this last season was such a poor one, individual colonies in many instances found it hard to get built up strong. A weak colony very rarely casts a normal swarm. It may be possible in your case that your queens were not prolific, and did not start brood-rearing early enough in the season, or else went at it in a half-hearted way that did not result in booming colonies.

If you keep Italian bees, and are careful to see that all colonies are strong, the trouble with the moth-worms, wax-moths, etc., will disappear entirely. The Italians protect themselves most vigorously against all such forms of enemies.

It is better to prevent moths than to destroy them after they get into the hives; but in case some of your honey contains moths you had better treat it to the fumes of carbon bisulphide. If you place a little of the bisulphide in a shallow dish it will evaporate; and, the fumes being heavier than air, they will go down. You should, therefore, put your honey in a tight box, or in some place where you can keep the air out, and then put the carbon bisulphide at the top. If your sections are in shipping-cases you should remove the follower and separate the rows of sections as much as possible, so that gas will have a chance to penetrate to every part. By piling up the cases criss-cross you can treat or fumigate quite a number at a time. It is better to do the work in a large box in this way instead of in a room; for there is so much space in a room that, unless it should be an extremely small one, the gas would not be dense enough to kill all the moths, moth-worms, and eggs, unless you had quite a quantity of the liquid around in several shallow dishes.

Your plan of preparing colonies for winter is all right, and we do not know that it can be improved upon, although you might find it to your advantage to put a super-cover underneath that chaff cushion that you prepare. The bees seal this down and then have a passageway across the tops of the frames. The water condenses on this cover and on the walls, runs toward the front and out of the entrance, and the cushion or other packing material does not get wet.—ED.]

The Value of a Drawn Comb.

Please tell me what value to give a drawn comb. At the beginning of the year I want to give them a value in my inventory. They are worth more than a frame of plain foundation.

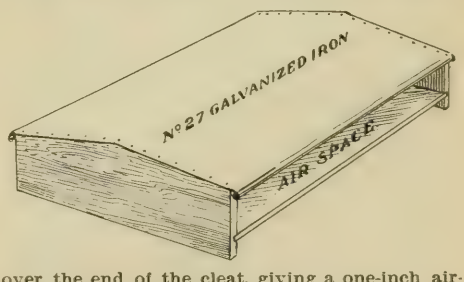
Palo Alto, Cal., Oct. 19. H. J. STILLSON.

[The relatively small amount of wax that these combs contain does not amount to very much, being only from four to five ounces apiece. Their value then as raw material is not very much, for it is seldom, perhaps, that they contain over ten cents' worth of wax, and it would cost something to render such wax. But, of course, the chief value of drawn combs lies in the fact that their use permits a much greater amount of honey to be stored. There are certain times of the year when straight drawn combs might be said to be worth almost their weight in gold; but at the same time it would hardly be fair in an inventory to put them down as worth more than 25 cents apiece, probably.

This is a hard matter to get at. If any of our readers have reason to differ with us on this point we should be glad to hear from them.—ED.]

A Metal-roofed Air-spaced Cover.

I am sending a sketch of a hive-cover that I have been making and using, and I like it well. The end cleats are 2¾ in. wide in the center, and beveled to 2 inches at the ends, and rabbeted out ⅜ inch deep to receive the half-inch bottom or super cover. The roof is of galvanized iron, with the side edges rolled over ⅛ inch around a steel rod that is pulled out after the roll is made, like an eave-trough. This roll makes the edge of the sides rigid, and will not bend. The roll extends out just



over the end of the cleat, giving a one-inch air-space at the edges, and larger in the center. This cover is cheap, and can be used open in summer; and by inserting a couple of inch strips at the sides they can be packed with cut straw, and packed for fall, winter, or spring use.

Stanwood, Ia., March 30. L. G. WOOLISON.

The Foul-brood Law in California All Right as it Stands.

Mr. P. C. Chadwick has made a very unwarranted attack on our foul-brood law, p. 552, Sept. 15. We who framed it and had it passed know what we have, and consider that it ranks well among those of other States. J. F. McIntyre, of Ventura Co., was chairman of the committee, and others of vast experience were on the committee.

If Mr. Chadwick will post himself on the law he will find that all of his points are embraced in the law, and that the inspector has the right to examine any and all apiaries in his county, and to oppose him is resisting an officer. Five counties have passed an ordinance prohibiting the importation of bees or fixtures from any point within twenty miles of where any disease is known to exist. The counties are Ventura, Los Angeles, Orange, Riverside, and San Bernardino.

One man, in attempting to evade the law, paid a fine of $50.00 in Orange Co., and moved out of the State. Now, if the inspector of his county is neglecting his duties it is no fault of the law.

In Riverside Co. the supervisors allow a number of deputies, and recommend men of experience for the position; and I have lately made a tour of the county (partially), and have found satisfactory results, and every one is well pleased. We do not destroy any colonies that can be saved reasonably, and I think that by another year we shall have disease well in hand, as our supervisors have made a liberal appropriation for the work. European foul brood has not appeared in this county to my knowledge. I think one case in Los Angeles Co. has been reported at Asusa, and the inspector is looking after it sharply.

Corona, Cal. T. O. Andrews.

Nine Combs in an Eight-frame Hive.

I notice that O. B. Metcalfe, p. 586, Oct. 1, wishes information on the use of narrower frames, or, rather, nine frames in an eight-frame hive. I have about 300 hives the same width as the eight-frame Langstroth, but shorter and deeper, in which nine unspaced frames were used for years, and which gave excellent satisfaction as breeding-hives. There seemed to be no objection on the part of the bees to this narrow width of frame, as the brood was more nearly perfect, if any thing, than in the regular width. There was not the projecting ridge of honey above the brood, as is the case with the regular width. In the spring, these hives were noted for having a greater quantity of brood for the amount of bees than the wider frames. I believe nine frames would be preferable to eight in an eight-frame hive; but I would not want a fixed or spaced frame for that purpose, as it would then have the same objection as ten frames in a 10-frame hive, which is that they soon become too close a fit. I would use an unspaced frame. I doubt whether the brood gained would offset the disadvantage of using unspaced frames. As the 300 hives above mentioned are an odd size, I now use extracting-bodies over regular Langstroth combs.

East Syracuse, N. Y., Oct. 23. F. W. Lesser.

Substituting Burlap Mats for Hive-covers in Cellars.

I have a cellar under my residence, 13 x 13, 8 feet high, with double frost-proof walls on the west and south sides, a lath-and-plaster partition on the east side, next to my furnace-room, and a matched-board partition on the north side next to my vegetable-cellar. I have 25 colonies to put in this cellar. The chimney to which my furnace is attached starts from the floor in one corner of the cellar. The floor is of cement, and the cellar is always dry, with a temperature about 45; but my bees have always suffered from a lack of ventilation, so I am going to try the following plan:

I will cut a hole in the chimney, which is on the east side of the cellar, and put in a small outside ventilator through the boarded-up window on the west side; and when I put my bees in, raise the hives from the bottom-boards, remove the enameled cloth and covers, and put in their place burlap mats doubled. Do you think this plan will give the desired results?

Elroy, Wis., Oct. 3. Chas. Sheldon.

[We believe you will secure, without trouble, the results you desire. It is possible that you would not need to remove the covers. Would it not be better to leave the covers on as they are now, and simply remove the bottom-board? Then, later, if the bees should get uneasy you could take the covers off any time, and substitute the burlap.—Ed.]

Attention, Iowa Bee-keepers.

It has become apparent that the bee-keepers of Iowa can not expect much consideration from the legislature, without organization. Two years ago last winter a law was passed providing for inspection, but no appropriation was made to cover the expenses of the newly created office of bee-inspector. The Governor declined, of course, to appoint an inspector with no provision for his salary and expenses, as he could accomplish nothing. Last winter we expected that an appropriation would be made; but though a bill was introduced, and passed one branch, it was put to sleep in the other. It now seems advisable to make an attempt to organize the bee-keepers of the State into a society in order that all matters of mutual interest may receive proper attention.

The problem now is, how to reach all the bee-keepers of the State; and it seems that there is but one way, and that through the columns of the bee-journals. I should be glad if all bee-keepers in favor of organizing, who could meet in Des Moines some time during December, would write me at Atlantic, Iowa. I should be glad, also, if those who will prepare papers for the program would advise me what subjects they will handle. Of course no attempt will be made to organize unless there seems to be considerable interest among the bee-keepers of the State.

Atlantic, Ia., Sept. 19. Frank C. Pellett.

Combs Not in a Hive this Summer Destroyed by Moths.

Stray Straw p. 582, Oct. 1. Four combs in a super in my workshop, which had not been on a hive this summer, were destroyed by moths this fall. I handled every comb singly in midsummer, and they were entirely free from moths at that time.

A SURE CASE OF BEES STEALING EGGS.

One of my hives, at the end of a row, 18 inches from the next hive, was found to be without queen, brood, or eggs. It was left from ten days to two weeks, waiting for some young queens which were to hatch. When I opened the hive to give the new queen to the bees I found three queen-cells sealed. I think they must have stolen those eggs, as there was no other sign of brood of any kind.

SMOKE KILLS THE ODOR OF BEE-STING POISON.

Regarding the article by O. B. Metcalfe, page 557, Sept. 15, I find that the odor of the sting on my hand is killed by smoking the spot strongly. After doing so I can put my hand down among the bees without exciting them in the least.

Frankfort, Kan. Rev. L. P. Holmes.

Introducing by Giving the New Queen the Scent of the Old One.

While talking to a bee-keeping friend the other day he told me of his plan of introducing queens. It is as follows: Go to the colony to which the new queen is to be introduced, and find the old queen. Mash her on the wire cloth of the cage containing the new queen; then put the cage in the hive, and leave it alone for five days. He says he has never lost a queen by this method. The bees recognize the odor of the old queen on the cage, and accept the new one without hesitation. I should like to know what you think about it.

Rapidan, Va., Oct. 2. G. H. Latham.

Not Much (?) Honey in Georgia.

I am sorry to learn that so many bee-keepers report a failure in the 1911 honey crop. It will most surely bring about a lot of discouragement, and cast a gloom over our business. We don't get very much honey in Georgia; but we always get that "little." I got 31,600 lbs., which netted me 8½ cts. I shall get about 20,000 lbs. of section honey in Florida, and no feeding has been done except a few barrels of chinkapin honey.

Cordele, Ga., Sept. 29. J. J. Wilder.

Our Homes

A. I. ROOT.

And I will make thee exceeding fruitful, and I will make nations of thee, and kings shall come out of thee.—GEN. 17:6.

My Home paper for August 15, as a matter of course, elicited a great amount of discussion. There were many encouraging words in regard to it, and also some severe protests at the course I there outlined. One good friend went so far as to say that my doctrine, if carried out, would eventually kill off all the world except *A. I. Root* and his family. When dictating the article it occurred to me that some might be unkind enough to put some such construction upon it; but God knows, and the most of my readers know, I am sure, that my aim has been to exalt the Lord Jesus Christ and him *only*, and most certainly *not* the poor stumbling and blundering individual who stands in my shoes. The *objections* to that Home paper were mostly written with a leadpencil, with poor spelling, and other indications that the writers were not very well informed as to what is going on throughout our great nation. The *encouraging* words came almost invariably from well-informed Christian people and friends of humanity. I have room for only one which I give below:

Mr. A. I. Root:—I want to cheer you on the article on degenerates. The noted Harry Thaw left a wake of ruined mechanics' daughters at Pittsburg, and it is now being sought to give him another chance to cause heartaches. Such a law as you plead for, I have been advocating for many years. I would go one step further than you, and apply it as a punishment for seduction and habitual vagrancy. Had we a law in the South giving such a punishment for vagrancy there would be fewer idle louts fed by the stealings from the whites' tables; and by limiting the propagating of the race to the industrious, the uplift would not be so discouraging.

Again, the greatest evil in the saloon was the wine-room, and that has been merely transferred to the soft-drink stand with its half-secluded nooks and its waiters, often mere boys, having access to the most dangerous of drugs. A judge of the Court of Criminal Correction in St. Louis told me he believed more girls were being ruined in the "parlors" than ever were in the wine-rooms.

I have noted with pleasure the good work in Ohio, and should like to see it spread. In this State and Mississippi the law seems largely used as a means of graft. It is almost a rule that the night police in the dry cities make bootlegging a part of their income.

Well, may a better day be ahead of us. May we be able to overcome the greater wrongs, those which ruin the youth, destroy the home, and will eventually ruin the nation.

Nashville, Ark., Aug. 19. A. M. VANAUKEN.

In that August paper I had in mind the "Jukes family," but I did not have any particulars then at hand. Since then a kind friend has handed me several pages from *Pierson's Magazine* for November, 1909, containing an article headed "Hereditary Criminals," written by Judge Warren W. Foster, Senior Judge of the Court of General Sessions of the Peace of the County of New York. The vast criminal administration of New York falls chiefly to this court, and no man in America knows criminals better than does Judge Foster. I make a few extracts from his article as follows:

Two of his sons married two out of five, more or less, illegitimate sisters. These sisters were the "Jukes." The descendants of these five sisters have been carefully traced through five subsequent generations, the number of individuals thus traced being 709. The real aggregate of this progeny is probably 1200. This family, while it has included a certain portion of honest workers, has been, on the whole, a family of criminals and prostitutes, of vagabonds and paupers. Not 20 of the men were skilled workers; and of these, 10 learned their trade in prison, while 180 received outdoor relief to the extent of an aggregate of 800 years. Of the 709 there were 76 criminals. Of the females more than half were prostitutes (52.40 per cent; the normal average has been estimated at 1.66 per cent), and the learned author estimates that, during this period, the "Jukes" family cost the State a million and a quarter of dollars, without taking into consideration the awful legacy of crime and criminals which they also left behind them. Nothing more instructive in criminal heredity has been published as the history of "The Jukes."

In connection with the above I also quote the following:

The question of heredity has been further reduced to cold statistics by Professor Poellmann, of the University of Bonn, in his investigation of the descendants of a confirmed female drunkard who died early in the nineteenth century. The fifth or sixth generation of her posterity numbered 834 persons. Of these, the records of 709 have been ascertained, and, of them, 107 were of illegitimate birth, 162 were professional beggars, 64 were inmates of almshouses, 181 were prostitutes, 76 were convicted of serious crimes, and 7 were condemned for murder. The total cost to the state of caring for this woman's pauper offspring and punishing her criminal progeny, together with the amount privately given in alms and loss through theft, was reckoned at $1,206,000, or more than $12,000 a year. This expense has continued and increased, in almost geometrical progression, even unto this day, for the fecundity of the irresponsible is notorious, perhaps because of their irresponsibility. To them children appear to be rather an asset than a liability, if, indeed, they ever give the subject thought.

A further proof of the potency of heredity is shown by the investigations of the Rev. Dr. Stocker, of Berlin. He traced 834 descendants of two sisters who died in 1825, and found among them 76 who had served 116 years in prisons, 164 prostitutes, 106 illegitimate children, 17 pimps, 142 beggars, and 64 paupers.

Statistics appear to show that Great Britain is, as compared with the other countries of Europe and the rest of the world as well, relatively free from crime, and this comparative freedom has been explained by foreign experts as due to the former frequency of hangings and to the ruthless transportation out of Europe of all convicted of heinous offences, thus eliminating very largely the criminal classes, and putting a stop to the further breeding of criminals by convicts on home soil. It will be remembered that in the eighteenth century, under the English law, there were over one hundred and fifty different offenses for which the penalty of death was ordained by statute. Students of criminology, investigating further, have discovered that in New South Wales, Tasmania, and Western Australia, the penal colonies to which Great Britain transferred her criminals, there is more criminality than in the other ("free") Australian colonies. These sober facts of history thus seem to show that the hereditary criminality which would have increased the crime of to-day in Great Britain, already greatly reduced by the wholesale hanging of felons, has been largely transferred to her penal colonies.

No doubt some of my readers will think that I am dwelling unduly on the dark side of humanity; in fact, I have had that feeling myself, and my conscience has been troubling me; but I "rejoice and am glad" to quote something on the other side from

this same article from which I have been quoting:

JONATHAN EDWARDS AND HIS DESCENDANTS.

By way of contrast, a similar research has been made into the history of the famous Edwards family, of New England. This family, descended from strong religious ancestors, embraced many of the distinguished characters of our national history, and all of them were upright and useful citizens.

Jonathan Edwards was born in East Windsor, Conn., in 1703; 1394 of his descendants were identified in 1900, of whom 295 were college graduates; 13, presidents of our greatest colleges; 65, professors in colleges, besides many principals of other important educational institutions; 60, physicians, many of whom were eminent; 100 and more, clergymen, missionaries, or theological professors; 75 were officers in the army and navy; 60, prominent authors and writers, by whom 135 books of merit were written and published, and 18 important periodicals edited; 33, American States and several foreign countries, and 92 American cities and many foreign cities, have profited by the beneficent influence of their eminent activity; 100 and more were lawyers, of whom one was our most eminent professor of law; 30 were judges; 80 held public office, of whom one was Vice-president of the United States; 3 were United States senators; several were governors, members of Congress, framers of State constitutions, mayors of cities, and ministers to foreign courts; one was president of the Pacific Mail Steamship Company; 15 railroads, many banks, insurance companies, and large industrial enterprises have been indebted to their management. Almost if not every department of social progress and of the public weal has felt the impulse of this healthy and long-lived family. It is not known that any one of them was ever convicted of crime.

The comparison of these two families, the "Jukes" and the Edwards, to be found in Boies' "Science of Penology," forms a most striking instance of the strength of heredity in perpetuating ancestral traits, both virtuous and criminal.

May God be praised that such a man as Jonathan Edwards ever lived, and that he was enabled to bless the world with a large family of children, grandchildren, and great-grandchildren, and so on down.

The above illustrations, are not singular nor the exception. Look about you and you will see the same thing going on in every community and neighborhood. At the present time, however, I am sorry to note that our educated, intelligent, and Christian people are having only small families—one child, two, and sometimes three—while the drinking and ignorant man, next door, perhaps, is blasting the life and happiness of the poor wife by obliging her to bear a dozen children and sometimes more. Mind you, I do not object to large families. A man and woman in good health, living outdoors, may, perhaps, give life and health to ten or perhaps a dozen children. The celebrated Benjamin Franklin says he was one of seventeen children. The protest that I make is against letting the ignorant and vicious and half-witted ones people the earth with creatures of their kind, and burden our Christian people with the task of building asylums, jails, and penitentiaries to care for these degenerates. Let me remind you once more of what is being done with criminals.

Friend Leonard has made the discovery, or at least he thinks he has, by which he can pick out from a flock the hens that lay toward 200 eggs a year, or probably more than that. Let us suppose it is true (although it has not yet been fully proven), that the hen that lays two eggs and then skips a day is the one that will probably furnish a large quantity of eggs in a year, and belongs to a strain of fowls that is desirable. Every one of these 200 eggs this hen lays can be put in an incubator or under hens, and in this manner we shall be rearing all or nearly all valuable fowls. The loafers that lay once a week or less, and the hen that is said to be found in every farmyard that never lays *at all*, although they are kept year after year, will be eliminated. This will be a great gain. The person who is the possessor of a pen of choice prolific layers can make money right along, for he does not have to board and lodge useless drones. I have told you several times of what is being accomplished in selecting seed corn. The world is making wonderful strides in furnishing good wholesome food at a more rapid rate on a given area of ground than ever before; but in the case of breeding (if I may be excused for using the term) bright boys and girls to bless the world, nothing, comparatively, is being done at all. Indiana has made a start, it is true; but it is only a drop in the bucket thus far.*

Let us take another glimpse of the affairs of our State and nation. Texas voted wet by a small majority, just because there were more patrons of the slums and saloons than there were good people. Maine has met almost a similar fate. As I write, it appears that Maine really went dry; but the drys were honest and fair in their election, while the wets hesitated at nothing, for they fear neither God, man, nor Satan. Their sole object and aim, as they virtually admit, is to *make money*. They do not care *how* they get it, if they only *can* get it out of the pockets of their fellow-men. Now, Maine as well as Texas is cursed with too many enemies of all righteousness. We can scarcely hope to outnumber them or make them obey our good and righteous laws if we let this thing I have been talking about go on. The editor of our Medina *Gazette* (who was one of my Sunday-school pupils years ago), just told me that this matter I am urging should be put before our legislature at Columbus, and that our State of Ohio should be vehemently urged to follow Indiana in restraining the birth-rate of "undesirable citizens." Almost as I dictate these words I am told that two counties in Ohio bordering on the Ohio River—counties that have been dry—have voted wet. The W. C. T. U. has just had an enthusiastic meeting at Portsmouth, Scioto Co., Ohio.†

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*After dictating the above I found in a recent copy of the *Plain Dealer* an account of the meeting of the reformatory judges of the different States recently held. See the following:

"Dr. H. C. Sharp, of the Indiana State reformatory, gave a vivid account of good resulting from sterilization of imbeciles and degenerates. Dr. Sharp declared that he is using the method in private practice. This was another reform which did not escape from an Ohio legislative committee last winter."

†Judge Blair, who made his name famous for rebuking and punishing the buying and selling of votes in Adams Co., Ohio, also worked tremendously to keep Scioto Co. dry.

The Sunday-schools and churches have been massing their energies, and working heroically; but the liquor men have beaten them. The hordes of degenerates that these southern counties have been producing in years past outnumber the good people. (Of course, they will die off after a while—in fact, they are dying faster than the abstainers.) But if this work is permitted to go on, if children are to be born because their fathers were too drunk to be any thing but animals (or not even that much) previous to conception, what kind of human beings are to be expected as the outcome? May God help us in this new warfare. In the first part of our text we are told the promise was given to Abram that he should be the father of a great nation—that kings should be among his descendants. The great Father of this whole universe in its infancy selected a stock with which to people the earth. Shall not we, in like manner, in this present century, take measures to people the earth with *godly* children rather than with *ungodly?*

MY APPLE STORY, AND — SOME OTHER THINGS.

Let me explain first that our five children are all married, and their homes are close by the paternal mansion. Through a kind Providence these homes all contain little prattlers, more or less; and it just now occurs to me that, before I get to my apple story, there is something else I want to mention. In one of father Langstroth's axioms in his old original book on the honey-bee he says, in substance, there can be no *real* prosperity of any colony of bees without frequent accessions of *young bees.*

Well, just two days after the golden wedding I have told you about, a telephone call announced that Mrs. Root was wanted at the home of her youngest daughter, Mrs. L. W. Boyden. The call came a little before daylight. Mrs. Root sprang out of bed hastily, saying, "I know what it is." In a short time she rushed back home, her face beaming with smiles, and announced that little "Elizabeth Maud" was safely ferried over the mystic river and landed in one of the five homes close by. There are now five children and ten grandchildren — five boys and five girls. May God help us, each and all, to recognize the sacred responsibility that rests on us as parents and grandparents. And now I am ready to take up my apple story — apples sure, and no mistake. The old home embraces an orchard of about forty trees; and this year the early apples *especially* gave a bountiful crop. When apples got to be quite plentiful I admonished the five children, and sons-in-law and daughters-in-law, not to buy any apples from anybody, for we had Yellow Transparent, Maiden's Blush, Gravenstein, and Ramboes and Fall Pippins going to waste, and I wanted them to be sure to use up *our* apples without buying off the wagons that come along almost every day wanting to sell apples. In spite of my caution, however, every little while some of the children would be buying apples. They gave as an excuse that they felt sorry for the women who lugged the apples around, and they "looked so tempting," etc. Well, I carried around some of our nice apples to the five homes, and enjoined them again to help use up the apples that were going to waste. Finally some one told me that Blue Eyes had been buying some more early apples of a woman. I rushed over to assure her again that we could not get rid of what we had. She did not seem at all disturbed, however; in fact, her eyes were dancing with merriment in spite of my scolding. When a pause came, she brought out a peck basket of apples where I could see them, and laughed outright when she saw me hold up my hands in surprise. No wonder. I do believe that that peck of little apples was the handsomest and most tempting looking of any thing of the kind my eyes ever alighted on. First, the little beauties were covered with brilliant white and black streaks Then there were little stars — yes, *real* stars — all over the surface of the apple. After I had stopped scolding, and had begun to look happy, she said, "Now, father, just taste one." I took one bite and then ejaculated, "Did you ever? Where is the woman? has she sold out her load?" As there were children and grandchildren standing around they had a big laugh to see the joke put up on father, and to see him change his tune, and wheel about so suddenly. The woman had sold out, and no wonder. Everybody who looked at the apples bought some, and when they tasted them they bought more. She said they were called "Early Spes;" but as I had never heard of any Spy apple except the Northern Spy I thought it could not be the correct name; and yet I felt sure that such a beautiful and delicious apple must *have* a name. I put some in my pocket and went over to see my friend E. C. Green, who has for many years, as I have explained, been connected with our Ohio Experiment Station. He said right away that his brother, a nurseryman, had the same apple, and called it "Early Joe." I asked if it was known in pomological circles, and he said he rather thought not. He did not think it was mentioned in any of the catalogs. Since then I have had the matter in mind, and have been planning to write up the Early Joe. Imagine, therefore, my "happy surprise" in finding it described in a late number of the *Country Gentleman,* and by perhaps the best authority on apples we have in our country. I clip the following from an article discussing our best fruits:

> Early Joe is one of the most satisfactory of the second-early apples for home use. It ripens very gradually, and can be used for cooking before it is full grown. The size is small, its color is pale yellowish, with red stripes and distinct lighter dots and tinted shadings. It is of a mild, subacid flavor, peculiar and rich.—*Prof. H. E. Van de Man.*

This little apple is literally "bursting full" of delicious juice. It makes a crisp rattle in the mouth — in short, it is just the

kind of apple to make a schoolboy rejoice, especially if he can get enough of them to fill all his pockets. I do not know where the Early Joe can be obtained. Mr. Green said his brother had a few trees, and I have spoken for half a dozen for our children. If any of the nurserymen whose eyes meet this have the Early Joe for sale I will give them a free notice of it in these columns, providing, of course, it is offered at a reasonable price. May God be praised for that little Early Joe apple.

MNEMONICS, OR AIDS TO MEMORY, ETC. MEMORY "CORRESPONDENCE SCHOOLS," ETC.

Some time ago I spoke of my failing memory as age advances, and I gave you some illustrations. Since that, as a matter of course, I have been looking out for advertisements and every thing else to assist the memory. On page 544, Sept. 1, I spoke about the $25.00 correspondence school for the memory, and my warning seemed a timely one. One good friend, however, had invested $10.00 before he saw my caution. He thought a jump from $25.00 down to $10.00 was worth taking advantage of. What he received for his $10.00 was ten little books or paper pamphlets of perhaps a dozen pages each. Twenty-five cents would have been a big price for all the printed matter. While there is much in it that is good and no doubt valuable (as there is in almost any book), it is a great outrage to ask one to pay even $5.00 for it. In glancing over it hastily, I find nothing in it particularly new. It is in line with suggestions to help memory to grasp things quickly. Let me give you a simple illustration that may be helpful. When I first moved to our Florida home, of course I wanted to get acquainted with the neighbors; and as their names were strange and sometimes peculiar I was telling my troubles at neighbor Rood's. A bright young lady, Mr. Rood's daughter, took me in hand and gave me a little memory drill. She spoke something as follows: "Mr. Root, I will tell you how to remember folks. You were surprised when Mr. Armstrong lifted your trunk out of his wagon without any assistance. He certainly has strong arms for a man of his age. Now just recall the trunk episode when you want to think of his name. And that other man, Mr. Amlong, who is quite tall, when you can not recall his name, remember he could very consistently say, 'I am-long,' for that is his name." Then she named several more neighbors on the street in a similar way; and from that time to this I can always call them by name at once. I think it is done by the association of ideas, part by "suggestion," as the memory folks call it. Now another way: Few people can remember which months have 30 days and which have 31. In my childhood somebody taught me the little stanza below, and from that time to this I can tell instantly which months have only 30 days.

Thirty days hath September,
April, June, and November;
All the rest have thirty-one,
Save February, which alone
Hath twenty-eight; and one day more
We add to it one year in four.

Now, I have stored away in memory's pigeon-holes, ready for use, a great number of names, facts, dates, etc., that I recall in just that way. For instance, for a long time I had a great deal of trouble in recalling the name of the beautiful and delicious Gravenstein apple. Finally I told myself that I must think first of Gravenhorst, the great teacher in bee culture; and then I was to think of the word "stein," which is the German word for stone. In the same way the name of the Northern Spy would get away from me; but to catch on I had only to recall a little incident that happened several years ago. A woman across the way kept a boarding-house, and occasionally sold liquor on the sly. The Anti-saloon League detectives went there one day to purchase. But the lady of the house was suspicious of them, and called them "spies." So when I want to think of that beautiful apple with greenish-red streaks I think of the detectives who were called "spies." Of course you can keep a memorandum-book; but an alert and trained brain is better than all the books, and it improves by use. Perhaps I might suggest that in old age we should avoid loading down either brain or body with too much or too many burdens. I am getting on very well nowdays by pushing away a great multitude of things I should like to take up if my busy life would permit. I keep saying I am going to do a *few* things, and do them thoroughly and well; and the world must excuse me if I persistently hold fast to the course I have laid out.

DRAGON-FLIES, MOSQUITO-HAWKS, "SNAKE-FEEDERS," "SNAKE-DOCTORS," ETC.

I was out in the yard the other day watching my bees fly to and from the hives, and a snake-feeder, or dragon-fly, sat upon a telephone wire close to the hives. This snake-doctor would catch a bee, make it drop its load, and then turn it loose. I watched this insect for 15 or 20 minutes, and it was quite easy for him to catch a bee both coming and going from the hive but would let it go again. I wondered if the bee stung the fly or if he was after pollen or wished to kill the bee.

Pleasant Hill, Mo., June 1. FRANK A. THOMAS.

Friend T., this insect has been considerably discussed in years past. When I was on the island they came in such droves as to catch a large number of bees, and in queen-rearing time we had great trouble from the loss of young queens, we presumed from the ravages of the mosquito-hawk. I suppose our friends understand that these various names refer to one and the same insect. Our apiarist, Mr. Marchant, tells us that they have at times had much trouble (in his home down in Northwest Florida) during queen-rearing, from this insect. But, fortunately, they are gone in a few days. Some years ago some bee-keeper in the South said he succeeded in driving them away by setting the children after them with whips. I think likely the fly-

killers now for sale in our stores would answer a good purpose. After you have killed a few they will take leave, and I think they are very easily frightened away. Of course, the loss of a few *bees* does not amount to much; but, like the king-bird, as they generally grab for the largest bee they will probably pick out the drones and queens.

Poultry Department

HINTS TO POULTRY-KEEPERS, FROM THE MAN WHO HAS GIVEN US THE "NEW DISCOVERY."

I am just glancing over the pages of your March 1st issue and would like to comment.

TWENTY-ONE DAYS NOT ALWAYS THE RULE.

People who think chicks should always come out on the 21st day, and then break up the hen, or open, find many dead in shell, which, if left or placed in a machine after the hen had gone off with her chicks, would have hatched later. Two weeks ago a hen abandoned her nest. Eggs were put in the machine, and they have been coming out for the past four days—probably according to the amount of chill each got.

FILLING THE EGG-TRAYS ON THE START WITH THE SMALL END DOWN.

About placing the small end down, I once, in an eight-tray machine, stood 2 trayfuls on small ends, wiggling them a little twice daily. I left them this way, the whole hatch untested—*big* ends always up—and these two trays seemed to beat the others; but I have no figures now. There was not a cripple, and Ertel says cripples come from small end being up.

OVERHEATING, THE CAUSE OF INFERTILE EGGS.

Your lady who bought your Buckeye and eggs, and found 28 infertile, likely overheated at the start. I had a thermometer which was 8 degrees too high, and, though I ran it at 102, I was actually running at 110. Result, every egg tested out clear. It takes a hen one week to heat eggs to the center to 100 degrees: 10 days to 101. The machines heat to 100 at center in 24 hours.

SULPHUR FOR NEWLY HATCHED CHICKS—A CAUTION.

I fed sulphur to one lot of newly hatched for a few feeds, with ground dry food, and then heard that would hurt them, so I stopped. There were 13, and there are now seven, one quite large, and the rest, except one, small, and that one medium. The two larger are the only lively ones. Those that died showed no outward sign. Liver spotted. They went off very quick—weak one day, dead the next. They were on range. No others acted the same. Was it sulphur?

SALT-WATER BATHING A REMEDY FOR REDBUGS.

Thirty years ago I found the remedy for redbugs on my limbs to be to go into the salt water (ocean), and stand in the sun to dry off. I never had any after that, while others scratched their legs raw.

OIL OF TAR FOR SOREHEAD.

Sorehead I have always cured quickly with oil of tar, removing the scab when soft, and applying vaseline. Oil of tar mixed in vaseline will get rid of jiggers.

FIRELESS BROODER—HOW TO MAKE A CHEAP ONE.

Feathers in bagging-down, or mosquito-netting draped over a round form of thick paper felting, with a hole inside, is a very good fireless brooder.

St. Augustine, Fla. C. W. LEONARD.

CHICKENS POISONED BY EATING TOADSTOOLS.

Mr. Root:—I had a peculiar thing happen to some chickens which I thought very much of, as they were Barred Plymouth Rocks. As I was working with my bees yesterday two of my little boys came to me with some toadstools and asked me if they were mushrooms. I told them they were not, and to throw them away; but I didn't notice where they threw them. This morning, the 29th, I went to my chicken-yard, and, to my surprise, I found six of my fine chickens dead. I went to the house and asked my wife what she had been feeding the chickens. She said she had given them nothing but cracked corn, so I made an inspection of the yard and found the boys had thrown the toadstools to the chickens, as the stumps were still there; so I concluded the chickens had been poisoned by eating them. The chickens that were not dead were staggering around the yard like a lot of drunken men. Have you or any readers of GLEANINGS heard of such an occurrence before?

Rhinecliff, N. Y., June 29. PETER WHEELER.

Friend W., I have never heard of any thing like the above before. We have a sort of mushroom in Florida that the chickens eat, and it does them no harm; and my impression is that if these toadstools had not been thrown down and probably broken to pieces the chickens would not have touched them. I formerly supposed that a poison mushroom would not prove palatable. A lady in Michigan, however, was made very sick by just tasting of a poison mushroom, and she assures me that the taste was just like, or very much like, that of the edible mushroom. If this is true, it is not any wonder that the chickens were fooled like human beings. One should be very careful in handling or even throwing away poison toadstools.

INDIAN RUNNER DUCKS; CROWS, ETC.

Mr. Root:—I have noticed so much on the favorable side in the many reports of Indian Runner ducks that I will offer a little discord. Early in 1910 I bought a setting of eggs from a prominent breeder in Massachusetts, but hatched only two ducklings, and these were very weak, and lived only a few hours. I obtained a second setting of 12 eggs, and instructions to sprinkle the eggs slightly a week before due to hatch, and hatched five, all of which lived to maturity—three drakes and two ducks. None of the eggs could be called pure white, and several were decidedly green, but the ducks were handsome fawn and white. They were hatched in June, and one egg was laid in March, and five or six weeks later I sold them in disgust. I sold one of the drakes last fall, and the other two made life miserable for my White Wyandotte hens; and it was this, as well as their lack of egg production, and color of eggs that caused me to go out of the Indian Runner duck business.

You mention using potatoes for feeding chickens, and think it may be necessary to boil them and mix with bran mash in the North. I have not found it so—at least in winter and spring. But I crush them with a mallet or my heel, and find the hens eat them better than mangels or sugar beets. I save all small and scabby potatoes for my hens, you may be certain, and believe them more succulent, and better for them, than if they were boiled.

Your sympathy for crows I deem misplaced. They are a great curse in this section, and yet from reports I judge they are far more abundant in other parts of New England. One of my neighbors, a man of good judgment, says corn is damaged on an average fully five dollars per acre by crows; and if we count the time spent in hunting them, the twine used to frighten them, the poison and loss of sleep, the estimate should be much higher. And if we add the many other indictments that may be justly made, the account is decidedly against the crow. It is well known that crows eat the young and eggs of nearly all other birds, including domestic fowls. A grower of poultry on a large scale near here last year estimated that fully one-fourth of his young chicks were carried away by crows, and my nearest neighbor lost many. They are far

worse than hawks here. I am a lover of birds, and have put up boxes for their nesting for nearly half a century, and my love for good birds is too great for me to love crows also. In my opinion, bird-lovers should exercise discrimination; but this is just what lovers are little inclined to do, love being blind. I lived in Iowa and Ohio before coming here, and it is strange to me that the farmers of New England should suffer a yearly tax and great annoyance when probably one year's loss would, if offered as a liberal bounty, exterminate the crows. I have little doubt that crows do much good by destroying insects injurious to crops; but other birds, the lives of which would be spared by killing the crows, would do this work far more effectively, and be a pleasure and joy for ever while doing it, instead of a curse and aggravation as the crow now is. All corn scattered on fields to prevent crows pulling should be soaked and softened or they will not eat it, and will pull the soft grain from under ground.

Packerville, Conn. E. P. ROBINSON.

Health Notes

TERRY'S WHEAT COFFEE—HOW TO MAKE IT.

So many have asked me for explicit directions for making Terry's wheat coffee since our remarks in regard to it in Health Notes for August that we have decided to give it in full as it appeared in the *Practical Farmer* for Jan 28; and I want to say I very much prefer it to any *real* coffee. It agrees with my health, and it agrees with my *conscience;* for one who drinks it can rest assured that there is nourishment but no stimulant about it. Here, we prefer honey in place of molasses.

OUR WHEAT DRINK—26 CUPS OF COFFEE FOR A CENT.

J. L. Long, of Yadkinville, N. C., asks that full directions be given again for roasting the wheat and making our "wheat coffee." Not long ago I made a fire in our range one cold morning. An oil-stove fire is not hot enough. I put 5 quarts of wheat into two iron dripping-pans, half in each one, and then placed them in the oven. These pans are 9 x 15 in., and 2½ in. deep. When the wheat was hot enough to begin to roast I opened the oven-door and stirred it quickly with a large iron spoon every minute and a half by my watch. I put on thick gloves to protect my hands. Great care was taken not to let the wheat burn at all. When it is burning, it smokes; when roasting properly, it does not smoke. When the wheat was roasted real brown—almost black—I put two teaspoonfuls of New Orleans molasses and a heaping teaspoonful of butter to each quart of grain, and stirred well. Then it was put back in the oven, and roasted and stirred as before for 15 or 20 minutes. I let the oven get slightly cooler, as it burns more readily after molasses and butter are added. When it is done, the molasses has gone into the wheat. The butter prevents the wheat sticking together much.

It should be dark and rich in color—almost black—remember. I left it in the pans until cool. It is all in one cake then, but is readily broken up fine with the hands. Better rub it until no grains stick together. After that it will not cake. It was put into fruit-jars, sealed up, and stored in a cool spot. I would not make as much at once in hot weather. The bulk is increased by roasting. Five quarts of wheat made six quarts.

Now, the above is a job that should be done with care if you want perfect results. We use a heaping teaspoonful for two cups of drink. This makes it as strong as we like it. Allow a little water for boiling away. We measure it before grinding, and then grind fine. If the mill gums up after a time, pour boiling water through it. The drink is best made in a percolator. It should be made to pump or boil in the percolator 20 to 30 minutes, until it has a dark rich color, the same as the best coffee. If it does not have this color, and the flavor is lacking, it was not roasted or boiled enough. Use sugar and cream to your liking. Drink moderately at any meal, in small sips, if you want to, so long as you have no food in your mouth. It is well to take it with a teaspoon.

Do not use it to wash down food, and it will be wholesome and slightly nutritious. It has come to stay at our house. I like it very much. We use nice plump wheat of our own raising, cleaned as for seed. The cost of this "coffee" is about 3 cents a pound for the materials. The cost of the fire was nothing, as it helped to warm the house. Two and a half teaspoonfuls weigh one ounce—enough for 5 cups. A pound makes 80 cups, and costs 3 cents. Let them put up the price of coffee we don't care. If you were to come here and not know any thing about it you would hardly suspect that you were not drinking real coffee. I have drank much coffee at hotels that was not as good. But the saving in cost is not worth considering by the side of the benefit to health. Every cup of coffee you drink, as ordinarily made, is putting as much poisonous caffein into your blood as doctors give for a dose of medicine. This poison helps to bring on several troubles, such as rheumatism, hardening of arteries, etc. Terry's "wheat drink" is absolutely free from any thing that can harm you, and contains a little real food. He could make a fortune by advertising heavily and putting it up in paper boxes at 25 cents each. Are you tired of drinking so much water? Take part of it in this wheat drink at meal times, and enjoy it as we do.

"UNCOOKED" CORN AS WELL AS UNCOOKED WHEAT.

I have Terry's book, and I think it is the best one I have on that subject. I have been cured of what is called Bright's disease, and others, by natural living. My principal diet now is raw whole wheat (dry kernels), nuts, and fruit. As a test I have lived for many days on dry field corn and water, with the best results. It cost me about a cent a day to live. I have won some great victories over Satan on the power of appetite, and have overcome some passions to which I was once a slave. I intend to devote my life to missionary work in some way. I have been much helped by what I have read in GLEANINGS.

Silverhill, Ala., Sept. 8. P. W. PAULSON.

"ROASTED CHESTNUTS."

For some little time back I have been made happy by the abundance of my favorite nut, the chestnut. At our golden wedding, the children were discussing what they would give me for a present. Somebody suggested a "gold-mounted meerschaum pipe;" but if I remember correctly, *several* of my good friends thought it would not be just *the* thing for A. I. Root, and so they finally gave him a bagful of brown chestnuts, as they were then just coming into market. Nothing in the whole realm of presents could have pleased me more, and I have them now both for breakfast and dinner. My supper is still beautiful luscious apples. The reason why I mention chestnuts is that there seems to be a great crop this year. The Morganthaler Co., of 635 Broadway, Cleveland, have just sent me a quotation that reads, "Chestnuts are dull at 4 to 5 cts. per lb." Of course, the above is wholesale. The retail price is probably more. I still think they are one of the most healthful and delicious foods that the kind Father has provided for the children he loves. I am taking quite a bagful down to my Florida home.

Temperance

THE BREWERS' INDUSTRY OFFICIALLY RECOGNIZED; SEE PAGE 544, SEPT. 1, AND PAGE 610, OCT. 1.

In spite of the tremendous protests from all parts of our land, Secretary Wilson pushed ahead and delivered his address. As we go to press the papers are full of it, and we have room for only the following extracts from quite a lengthy article in the *Farmer and Stockman*, of Des Moines, Ia.

Notwithstanding the protests of thousands upon thousands of Christian men and women, Secretary James Wilson, of the Department of Agriculture, has accepted the honorary presidency of the Brewers' National Association, has delivered an address at the international convention in session in Chicago, and is hobnobbing with men (to quote the resolution of protest adopted by the Ministerial Association of Des Moines, Iowa): "Whose business debases morals, corrupts men and women, and robs children of the parental protection which is their due." Secretary Wilson has persisted in taking this action against the advice of personal friends and leading church-workers throughout the entire country, regardless of denominationalism. Nor did they confine their attention solely to the eminent Secretary of Agriculture, for there is a general belief that the real culprit is President Taft, and that the real reason of Secretary Wilson's actions is, as one Chicago pastor explained to his congregation in the course of his sermon, "a play on the part of the administration for the support of the brewers."

Secretary Wilson is thus left stranded high and dry without even the tentative noncommittal defense which he has attempted to foist upon the public in explanation of an action which he, as a product of a good old Scotch Covenanter family, and himself a prominent member of the Presbyterian Church, must in his heart of hearts have realized from the very beginning was not only an official recognition of a pernicious business which traffics in human souls, but an affront to decency and a setback to good government.

May God be praised for the clean and high moral tone of the agricultural press of our land.

TEMPERANCE, RELIGION, ETC.

I like GLEANINGS first rate. It is a good bee-journal, and helps me in some ways. I can see the different ideas bee-keepers have; but I don't think there is much sense in Our Homes and the temperance page. It will only make more fools in this this world. Your journal should be free from politics, religion, and temperance, so everybody could read it, "wet" or "dry," Jew, Christian, or Turk. Excuse me, I am an old German, without an English education, and have probably other ideas than yours. Still, it won't hurt you to know what folks from a *not* free country think of *your* free country.

Conneaut, O., Sept. 18. C. KLABUHN.

Thank you, my good German friend, for your outspoken and honest criticism. My impression is that you have not been in our country long enough to get acquainted with our good people—especially our Christian people. We may differ in our idea of religion; but, friend K., I think all humanity and all nations love honesty and truth. If what you have seen of religion has not meant an honest and square deal, I am afraid you have not seen the genuine thing. And in regard to temperance, if you will visit our saloons, especially those in the great cities, where gambling and crime and the ruin of our boys and girls are going on, I think you will agree with the good people who are united just now to put a stop to these evils. It certainly is a grand thing to live in a free country; but the kind of freedom that you would permit, and allow our just and righteous laws to be trampled under foot, is certainly not the kind you would indorse; and I am sure, my good friend, that you yourself would not want to live in a country where there is no law, or where the laws are not enforced.

If you and I were next-door neighbors, we should be excellent friends, even though we might disagree in some things. With the chickens and gardening and bees we could find a common ground where we would think alike.

To illustrate how differently people look at things I will give you a glimpse of another letter that was put into my hands together with yours. I confess it seems a little extravagant, and I should not have used it for print had it not been to show the contrast.

Mr. Root:—Your journal has been both helpful and interesting, and I can hardly wait till it comes. I like to read Our Homes, Temperance, and Travels. Your views are as nearly correct as they could be for a human being. Write more on the above subjects. You will not tire good people, and it doesn't make any difference if sorry people do get tired of them. Just keep the good work going, and may God give you ample reward. I wish there were 10,000 men like you in our country. Long live A. I. Root.

New Light, La., Oct. 11. CARL LEWIS.

May I say just a word to our dear friends who will be likely, as I know by experience, to write to our friend who wrote the first letter? Whatever you say to him, dear brothers and sisters, please keep in mind he is a comparative stranger in our land. He is a guest of ours, and should be treated with courtesy and respect, no matter if he differs widely from some of us. Remember what I said a little while back about entertaining angels unaware.

A TEMPERANCE TALK AND SOME WISE SUGGESTIONS BY THE EDITOR OF THE AMERICAN BEE JOURNAL.

Dear Bro. Root:—I have read with a great deal of interest your last "sermon," on pages 410 and 411, July 1. I notice that you have put it in pamphlet form, and will send copies for distribution. You might send me 25 copies, and I will try to place them where they will do some good.

For a long time I have been thinking that the temperance women of our country might do a great deal more toward the overthrow of the liquor-traffic if they would clip out from the newspapers all items that give the results of drink. There are a great many accounts of such results, and many cases where husbands abuse their wives and families, etc. Now, my idea would be to have the women cut out these items and mail them to the wives of the saloon-keepers and brewers, calling their attention to the results of the business their husbands are in, and asking them to try to persuade them to get out of such a damnable business. Of course, these letters should be written in a sisterlay way, and not be in the least offensive. They must not be too strong, so as to anger. I am persuaded that, by the time Mrs. "Brewer" Busch begins to get about 500 such letters her "crown of diamonds" would rest rather uneasy on her head. I believe that wives of the saloon-keepers and brewers would soon have no rest themselves, and cer-

tainly would give their husbands no rest until they gave up the miserable business.

I think there would be no trouble for the W. C. T. U. to secure a list of the names and addresses of practically all the brewers, distillers, etc., in this country. And no doubt the good women of this country would be able to find plenty of such names and addresses right in their own towns and cities. For instance, we have over 7000 saloons in Chicago. Nearly all of them have telephones, so their names and addresses are in the telephone-books. Now, if the good women of Chicago would clip from the daily newspapers all the heart-rending items that are published as the result of drink, and send them to the wives of the saloon-keepers, with tender touching letters, calling their attention to the awful result of the business their husbands are in, I believe that they would so get after those husbands that they would soon begin to get out of such a wicked business. What do you think of this scheme? I have thought about it for nearly a year, and was going to present it to the W. C. T. U. with the suggestion that they try it and see what the result will be. I think if every saloon-keeper's wife could have a copy of your booklet it would have a good effect. It ought to place upon the heads of those engaged in the drink-traffic such a burden, such a sense of the *awfulness* of the drink traffic, that their sense of shame and honor (if they have any left) would cause them to turn to some other business. Mr. Hallock certainly got off a good thing in that paragraph referring to the brewer's wife's crown of diamonds, etc.

I have just been wondering whether the leading brewers have ever been talked to by the preachers and the best men in the city, where they operate their breweries. I don't believe that J. Wilbur Chapman, when he was in Chicago, even thought of attempting to convert Mayor Busse. It seems to me that every preacher in Chicago or in any other city ought to begin at the top, for the example that is set by those in authority goes a long way in almost any thing.

Chicago, Ill., July 8. GEORGE W. YORK.

CARRIE NATION, ETC.

Dear Mr. Root:—I have been trying for several weeks to write and thank you for what you wrote about Carrie Nation. In this imperfect world there are no saints; but Mrs. Nation struck her blows at the evil she saw. You seem to have an erroneous idea about her getting into jail. It was not for destroying liquor. That is contraband in Kansas; but when she broke windows and destroyed furniture she violated property rights.

Perhaps you do not know that in a city in this State, where she lived, Eureka Springs, the laws relating to fornication punish the man and not the prostitute. Last summer three men were serving jail sentences for being inmates of houses of prostitution as visitors. I can not help believing we could accomplish something in stopping liquor if we punished the buyer instead of the one who supplies him.

Nashville, Ark., Oct. 26. A. M. VANAUKEN.

Special Notices

By A. I. ROOT

In my column of special notices, last issue, I asked for an offer on toward $500 worth of Conkey's standard poultry remedies. At the present writing, Nov. 6, no offer has come in; and if we do not get any better offer, whoever speaks first can have the whole lot for $100, even. The remedies are all good, so far as I know; in fact, if they are not as represented they will not cost you any thing. In making this offer I had a curiosity to know how much faith poultrymen generally have in prepared remedies.

"A GLORIOUS VICTORY."

The above is the title of a little tract of four pages that our good brother R. F. Holtermann, of Brantford, Ont., is sending out free of charge. It is such a beautiful story that I would gladly give it space in our Home papers were it not for the great amount of matter that is already crowding for a place to be heard. If you are discouraged or downhearted—if you are afflicted with an incurable disease, or if you are troubled in any way, send for friend H.'s little tract. It not only opens the way for a "glorious victory" here on earth, but for a victory that goes beyond the grave.

OUR NEW A B C OF POTATO CULTURE.

This book is finally off the press; but I have made so many additions to it that it was clear up into November before it was done. There are about 100 pages of new matter and quite a number of new engravings. I worked hard for three or four months in trying to have our potato-book clear up to date. It contains 380 pages, so it is nearly a 400-page book as you will notice; and there are 40 engravings, the greater part of them new. In compiling the book I consulted our leading potato-growers, called on our Ohio Experiment Station several times, and now the book not only includes potato-growing in the Northern States but in Florida, Bermuda, and the Isle of Jersey; also something about growing potatoes under glass. It tells how to grow potatoes for 75 cents a bushel as well as when they are 75 cts. a peck in the market. As I have said before, a careful look through this potato-book will help you in growing almost *any kind* of farm crop. In getting material for it I scanned carefully the leading agricultural papers of our land—not only the reading-pages but the advertisements as well.

Right along in this line I discovered a handy top box with flaring sideboards that can be put on any wagon in an instant. It is pictured and described in this potato-book. You can get particulars of the Lucas Mfg. Co., Slater, Mo., and I think this one thing might be worth the price of the book to anybody who uses any sort of wagon. Although the book is much enlarged, the price is but a little more than that of the old edition. The present price is 50 cts., in paper; by mail, 57; in cloth, 75 cts.; by mail, 85. We will send the paper edition, clubbed with GLEANINGS, for $1.25 postpaid; the same in cloth, $1.50.

WHITE INDIAN RUNNER DUCKS; CALLING A PRICE LIST A BOOK, ETC.

You will notice what I have to say about the White Indian Runner ducks in our last issue. Well, they are being extensively boomed just now. They claimed that the white duck that lays the white egg lays ever so many more than the other kind. This may be true; but I do not know how we are to prove it until our experiment stations or some other disinterested party takes it up. You may recall that I have twice, at least, criticised the high prices for the small amount of information contained in the Indian Runner duck-books. A few days ago one of our readers advised me that the Woman's College Poultry Farm, of Meridian, Miss., had put out an Indian Runner duck-book for only *ten cents*. Now, this commended itself to me in two ways—first, ten cents is enough for a book on these ducks at the present stage—of course I mean for a little book or pamphlet. Second, we usually expect a *woman's college* to be the next thing to an experiment station in charge of the State. One can not well imagine that the women belonging to a *college* would be parties to extortion. Well, I sent for this ten-cent duck-book. The very first page was devoted to telling how superior *their* ducks are to the common run of the Indian Runners. In fact, the writer says there are Indian Runner ducks on the market that do not lay enough to pay for their feed, and every one of the dozen pages in this book is devoted to booming their stock more or less; and right in the middle of the book is a price list which says, "The Fishels are selling White Indian Runner duck eggs for $10.00 for 12. We charge only *$5.00* for 12, cash with order."

On the back cover there are several questions and answers, and the answers are valuable and probably correct; but many of them are such as might be found in any price list sent out free of charge.

While reading the book I tried to imgaine that it was gotten up by a woman or party of women; but it sounds to me very much as if some man thought people would have more confidence in him if he called his farm "Woman's College Poultry Farm," or something like that. If you urge that these price lists contain a good deal of information, I reply that the catalogs sent out by the manufacturers of incubators contain a *vast amount* of information. The Cyphers catalog and others are really as valuable as some of the poultry-books that cost 50 cents or more. I leave it to you, friends. Is it the fair thing to put a *price* on a catalog, of things you have for sale, and call it a book?

Gleanings in Bee Culture

Published by The A. I. Root Company, Medina, Ohio

H. H. Root, Assistant Editor
A. I. Root, Editor Home Department
E. R. Root, Editor
A. L. Boyden, Advertising Manager
J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX DECEMBER 1, 1911 NO. 23

Editorial

OUR COVER PICTURE.

The winter scene on the cover of this number shows a part of the apiary of J. F. Diemer, Liberty, Mo., there being in all 101 colonies in ten-frame hives. The picture was taken last February by Mr. Diemer's daughter, after a heavy fall of snow, as shown. The fence, seven feet high, is along the west side of the apiary, and affords good protection, in connection with buildings, trees, etc., on the north and east.

HELPING TO SPREAD THE GROWTH OF SWEET CLOVER.

We would call attention to the article by Mr. Henry Reddert, on page 726, showing how his Association is spreading the gospel of sweet clover among the railroad companies and farmers. Every individual bee-keeper should seek to remove the unreasonable prejudice that now exists against the plant. Our booklet on sweet clover gives a large amount of evidence showing that it is one of the most valuable forage-plants that can be grown—valuable because it will thrive on waste lands unfit for growing any thing else, and because it prepares other land for the successful growing of alfalfa.

BEE-KEEPERS ADOPTING AUTOMOBILES GENERALLY.

As an indication of the extent to which bee-keeping is carried on by producers in Colorado, it is interesting to note that there are between twenty and twenty-five automobiles owned by bee-keepers in that State alone. There are many others who are buying or considering the purchase of automobiles, and it would be helpful to all such if those who have purchased machines would tell something of their experience with them—what make they have, and why they bought it. We ourselves are convinced that there is no other class of people among whom the automobile is so great a necessity as bee-keepers, for its use in and about extensive apiaries has increased to such an extent that it is now almost indispensable.

"HONEY-PLANTS OF CALIFORNIA."

There has just come from the Agricultural Experiment Station, College of Agriculture, Berkeley, Cal., Bulletin 217, entitled, "Honey-plants of California," by M. C. Richter. We presume it will be sent out free to any resident of California by writing to the Superintendent of State Printing, W. W. Shannon, Sacramento.

This bulletin contains 65 pages, giving a complete list of the honey-plants of California, classified in three groups; first, honey-plants giving a surplus during the average season; second, honey-plants occasionally yielding a surplus; third, honey-plants not known to yield a surplus, but which the bees visit more or less.

In the introduction it is stated that this bulletin "is the result not only of a compilation of all literature obtainable on the subject, but also of field work in different parts of the State during the past four years."

In speaking of *Salvia mellifera*, or what we know as black sage, it is stated:

> Honey, water-white and of a rich and delicious flavor; of heavy body, especially north of San Luis Obispo; does not granulate; moderate amount of yellow pollen. This is the best honey-producer on the coast, the flow being dependent upon winter rains with a warm spring quite free from cold winds and fog. When in bloom a certain amount of warm weather is required before it will produce nectar. As a general rule, every fifth year an excellent crop is obtained, and every third or fourth year a total failure is experienced. That which is commonly known as "California white-sage honey" throughout the United States and Europe is not from the white sage, but the black sage. The white sage yields comparatively little honey as compared with either the black or purple sage. The sage-worm, in cloudy weather, often becomes abundant enough to destroy much of the bloom. Dodder and a rust (*Puccinia*) also do damage in certain localities. There is a cross between this species and *S. apiana*. For the correct botanical history of the melliferous sages, see H. M. Hall, *Pacific Rural Press*, February 22, 1908.

California bee-keepers, doubtless, will be interested in this bulletin, not only for its technical but practical value as well. Residents of other States can probably obtain it by paying a small sum. Address State Printer as above.

SHORT-WEIGHT HONEY AND UNCLE SAM.

The Department of Agriculture is keeping a most alert watch of the labels used on various food products, and cases of misbranding and adulteration are being prosecuted right along. Shortages in the packages are being corrected repeatedly, and we believe that it will not be long before packers

will come to realize that they are treading on dangerous ground if their labels do not state the exact truth.

The following, issued by the United States Department of Agriculture, September 18, 1911, shows that even a slight variation in amount will get the packer into trouble.

MISBRANDING OF HONEY.

On May 13, 1911, the United States Attorney for the Southern District of Iowa, acting upon the report by the Secretary of Agriculture, filed information in the District Court of the United States for said district against Albert A. Deiser & Co., a corporation, alleging shipment by it, in violation of the Food and Drugs Act, on June 15, 1910, and November 14, 1910, from the State of Iowa into the State of Nebraska, of a quantity of honey which was misbranded. The product was labeled: "Mrs. Morrison's Brand Pure Food Products Honey Net Weight 8 Ounces Prepared by A. A. Deiser & Company, Des Moines, Iowa."

Examination made by the Bureau of Chemistry of the United States Department of Agriculture of two packages of this product taken from the shipment of June 15, 1910, showed an average shortage of 4.86 per cent in weight. An examination of six packages by said Bureau from the shipment of November 14, 1910, showed an average shortage in weight of 3.45 per cent. Misbranding was alleged for the reason that the weight of the product was not plainly and correctly stated on the outside of the package.

On May 22, 1911, the defendant pleaded guilty, and was fined $10 and costs. W. M. HAYS,

Acting Secretary of Agriculture.

Washington, D. C., Sept. 18, 1911.

SHADE FOR HIVES IN SUMMER.

In respect to the matter of shade or no shade, as discussed on page 725, there are four different classes of bee-keepers. First, those who leave their hives out in the open without natural or artificial shade; second, those who use natural shade, either trees or shrubbery; third, those who employ shade-boards during the hot days of the year; fourth, those who use overhead trellises so arranged as to shade the operator and hives during the middle or hot hours of the day as shown on the cover of our last issue. Each of these classes is influenced by climatic conditions. Some of them believe that an excess of shade or sunshine is detrimental.

Most bee-keepers in the Northern States are attaching less importance to shade than they formerly did; indeed, it has been shown that colonies in the shade of trees or buildings do not do as well as in the open, and more and more we see a tendency to locate apiaries in clear spaces. Shade-boards are then employed during a small part of the season.

The article by Mr. E. S. Robertson, page 725 of this issue, goes into this question of a variable or intermittent shade. There can be no question that the entire absence of shade during some of the hot and oppressive weather that is experienced in many of the Northern States is conducive to loafing and swarming. During such a time the bees should be given a little protection from the sun. A light cheap shade-board answers the purpose very nicely.

The question may be raised whether it is advisable to place the shade-board to one side of the hive so that it will shade the entrance. During the height of the season, when bees are going to and from the field, the changed aspect of the shade-board from the top to the side of the hive would have a tendency to confuse the workers.

In the illustrations on page 725 it is clear why Mr. Robertson can use a light shade-board that will not be blown off the hive. Apparently the apiary is surrounded by woods, breaking off the force of the wind; therefore if one desires to use shade-boards he should locate the apiary where it will be protected from the prevailing winds. In prairie countries this may be impracticable. Resort is usually had to a 15 or 20 lb. stone.

A MODIFICATION OF THE M'EVOY PLAN FOR TREATING FOUL BROOD.

In a conversation with Mr. H. Trickey, of whom mention was made in our last issue, the subject of foul brood was touched upon. Mr. Trickey emphatically believes in a man being his own foul-brood inspector, for "if he keeps watch of his bees, and does not let the disease get the start of him, it is not such a serious matter after all. When foul brood gets into a locality, it is not an easy matter to get rid of it entirely; and even if it gets into a large apiary it seems bound to crop out later occasionally, even though there are no other bees near. But this is no reason for being discouraged. Almost as much honey may be produced as if there were no disease. It means a little more work, that's all."

When asked what method he followed for getting rid of the trouble he said that there is but one sure cure, and that is the McEvoy. We asked if he considered it necessary to shake the bees on to foundation the second time, and he said that he did not. "But," he added, "I do not follow exactly the McEvoy plan. When I find a diseased colony I remove every comb that contains no brood, leaving only the combs with brood in the hive. I move these together in the center of the hive, and then leave the colony that way from five to eight days."

"What is your object in doing this?" we inquired.

"You'll see if you wait long enough. Now, if I did any thing more to this colony, the bees might become disgusted and swarm out, so I wait from five to eight days, as I said in the beginning, then, just as carefully as possible, I lift the brood-chamber from its stand so that hardly a bee will know any thing of what is going on, and then put a new hive in its place. Then, just as quickly as I can, and without the use of smoke, in less time than it takes to tell it, I brush the bees off those old diseased combs into the new hive, the frames of which have starters of foundation. It does not take half a minute to do this brushing, and the bees do not have time to fill up on that diseased honey left in the few combs. If I had left the full set of combs in the hive, it would take much longer to brush the bees off, and they would have time,

some of them, to fill up on the diseased honey. This McEvoy plan should never be practiced, of course, unless there is a honey-flow. Now, if more honey is coming in than the bees need, such honey stored in the combs is not likely to be diseased."

Mr. Trickey remarked further that the colony could be built up after this shaking was done, in any way, provided the cluster of bees was not disturbed. He said if the cluster were broken they would very likely swarm out in disgust.

By removing all combs except those that contain brood at the very beginning, it takes so little time to brush the bees off those remaining, eight days later, that practically no diseased honey is carried into the new hive; and when the new combs are built, there is no taint of disease left, and the bees have a new chance once more with no handicap before them. In this way the removal of the first combs built, and the shaking on to full sheets of foundation, with all the attendant danger of swarming out, is done away with, and still there is no danger of the cure not being complete. In fact, after practicing the plan for fifteen years without change, Mr. Trickey believes it is safe enough to give to the public. It must be remembered that our friend is one of the most extensive bee-men of Nevada, and his plan is not a new one, nor one that has not been thoroughly tried by him.

AMOUNT OF WAX IN DRAWN COMB.

HAVING occasion recently to answer a question relative to the amount of new wax that bees use in building a comb, we selected three combs for comparison, all of which had been in a hive. The three frames had originally contained a full sheet of medium brood foundation. The foundation in the first frame had apparently not been touched by the bees, although it was somewhat travel-stained. That in the second frame was about half drawn out; that is, nearly all of the cell walls were lengthened somewhat, and nearly half of them were almost full depth. It would, perhaps, be safe to say that this comb was half drawn out. The comb in the third frame, while not an old one, was fully drawn out, and had had several generations of brood reared in it, in the lower portion especially. The comb was straight and of uniform thickness, the frame being a metal-spaced Hoffman, and the upper part of the comb was no thicker than that part where the brood had been reared.

Weighing the three frames we found that the first one tipped the scales at $8\frac{3}{16}$ ounces; the second, $9\frac{5}{16}$ ounces; and the third, $13\frac{1}{8}$ ounces. We then cut out the comb from the third frame, broke it up, melted it, and, after pressing out the wax and cooling it, we found that we had almost exactly three ounces. In other words, only one ounce more wax had been used than was contained in the full sheet of medium brood foundation, which originally weighed two ounces. In this particular case, then, only one-third of the total amount of wax used was new wax, or, stating it in another way, the bees had added a half more in drawing out the comb.

Not entirely satisfied with the result of the above experiment, feeling that the chance for error was too great, we threw aside the third comb that we had tested before, and used the first two together with two others fully drawn, but which had had no brood reared in the cells. The first frame, therefore, contained a full sheet of medium brood foundation which had been on the hive, but was untouched by the bees except slightly travel-stained. The second comb was, perhaps, half drawn out, as mentioned before. The third as well as the fourth comb was fully drawn, and was as near like the others as possible.

On weighing these four combs we found, as before, that the first one weighed $8\frac{3}{16}$ ounces; the second, $9\frac{5}{16}$ ounces; the third (that is, the fully drawn comb, together with the frame) weighed $10\frac{14}{16}$ ounces; and the fourth one, $10\frac{3}{16}$ ounces.

Analyzing this last set of figures we find that the bees added two ounces of wax in drawing out the comb—the difference between $8\frac{3}{16}$ ounces and $10\frac{3}{16}$ ounces. We regard this result as the more accurate one—that is, that bees in drawing out a comb from medium brood foundation add about the same amount of wax in completing their work—in other words, that medium brood foundation furnishes half the wax necessary.

Fearing that the difference in weight in the wood of the frames might cause an error we cut a full comb out of a frame and weighed it, getting, as a result, exactly four ounces, thus supporting the former figures. We also proved the figures by weighing a number of different combs; and while there was a slight variation, we believe it is safe to say that the average comb of Langstroth dimensions, built in a self-spacing frame that has never had brood in it, weighs not far from four ounces. This would make 40 ounces for 10 combs, or 2½ lbs. We admit that, in rendering wax from old combs, over three pounds of wax per ten combs has more than once been obtained; but it is our belief that such combs were either thicker than ordinary *brood* combs or else larger, possibly. We should explain that the combs we used lacked half an inch, approximately, of reaching the bottom-bar, and they were also thinner near the lower edge.

These results should go a long way toward proving conclusively that bees do "draw out" foundation in spite of the fact that some have stated that they do not alter the foundation, but build on with entirely new wax. We might mention here, too, that we have seen comb built from nothing but a thin sheet of wax peeled from a board that had been dipped in melted wax, and on holding such comb up to the light it was almost impossible to distinguish between the part built naturally and that built over the plain sheet of wax.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

HOLD UP, Mr. Editor. *Please* don't send that silk hat, p. 698. I'd rather admit that a virgin emerges a week before the prime swarm than to be compelled to wear a stove-pipe.

YEARS AGO, at the home of the late Jesse Oatman, Dundee, Ill., I saw packing-cases for four hives like that picture, p. 694. If I'm correct, some of them were two stories, with eight hives. He called them a success.

DAN WHITE'S story about putting poor honey on the market, p. 684, recalls that, years ago, a man put on the Marengo market jars of honey-dew that was very poor. In spite of protests he insisted it was all right, for the bees had made it. "How could any man be such a fool?" Well, I was younger then than I am now.

A. I. ROOT, get ready for a lot of free ads of Early Joe apples. If you're here next summer you can eat Early Joe apples off a tree I planted 45 years ago. I don't wonder you liked them. Two miles away on the prairie, Early Joe is ever so much redder than here. You'll find it in the list of apples in Standard Dictionary. It was common in catalogs 50 years ago.

FOR DINNER to-day we had chicken roasted in a paper-bag. Tried it yet? Good thing. [It is all the rage around here; but some have suggested a caution that it is not wise to confine the gases in a chicken pie. For this reason many housewives make a practice of pricking holes through the upper crust of the pie. The other day we heard of a case where a chicken was cooked inside of a bag, and it made several members of the family sick. There is no question that bag cooking adds to the richness of the meat, but does it not also place an additional burden on the organs of digestion? We don't know.—ED.]

ABBE PINCOT, by using foundation containing 736 cells to the square decimeter, instead of the usual 854, has bees that are about 8 per cent larger every way than bees reared in ordinary cells, and he claims they store about a fourth more.—*L'Apiculteur*, 373. That he has these larger bees has never been questioned, that I know of, but it has been questioned that they store so much. [Like yourself, we question very much whether larger bees would store more honey, and we venture the opinion that, if the thoraces or waists of those bees reared in larger cells were carefully calipered, there will be found no actual difference in size. In other words, we believe that bees reared in large cells will pass through standard perforated zinc just as readily as bees reared in normal cells. We do not believe that the laws of nature will be changed very much by a single environment in one generation. —ED.]

SOME MARKING for a queen that will be permanent, easily seen, and harmless, is asked for in the *British Bee Journal*, and *Review* repeats the request for some harmless chemical with which the queen's thorax may be painted. Since 1900 the Swiss have used a rapidly drying lac—white, yellow, red, or blue. The queen is held by a little net pressed down upon her; and the lac, which must be neither too thick nor too thin, is applied with a pointed stick. Learn how by practicing on workers. Full particulars, occupying four pages, may be found in Dr. U. Kramer's excellent book, "Die Bassenzucht," page 109. [In some cases we should be inclined to believe that this artificial coloring would impart a foreign odor to the queen to such an extent that her subjects would ball her. In many and probably in most cases no trouble would follow.—ED.]

MR. TRICKEY, p. 677, doesn't know about corrugated paper on top of sections in shipping-cases. Same here. What possible use? He's right, too, in wanting uniform tare. Variation in tare is owing chiefly to difference in glass. I don't care so much for the difference in weight, but I don't like to have my temper splintered into little pieces trying to force into its place a piece of glass too thick for the groove. I never got any yet without this fault. [We advocate corrugated paper on top and bottom of shipping-cases for several reasons—first, it adds but very little to the expense; second, freight-handlers, truck-men, and commission men very often handle comb-honey cases upside down. If corrugated paper be used on top as well as in the bottom, it cushions the sections, no matter how the cases may be piled. The slight additional cost will be more than made up by the saving in leakage and breakage. In the third place, even if the cases are not piled upside down when there is no corrugated paper on top of the sections, the wooden cover comes in direct contact with the sections, and any blow or pressure on the cover comes upon the sections. Commission men have complained how their employees, railroad, and truck men will put their big clumsy feet on top of the covers of the 24-lb. cases. The weight of a man weighing 150 or 175 lbs. in the center of the case is quite sure to do damage to the sections beneath, unless there be a cushion of corrugated paper under the cover. Fourth, corrugated paper at top and bottom will hold each individual section firmly in place—not by an unyielding pressure, but by a soft cushion. If the shipping-case is too shallow or too deep, the sections are bound to suffer more or less. When too shallow, the mere act of nailing on the cover will break some sections. When too deep, the sections will have more or less shuck up and down.—ED.]

NOTES FROM CANADA

J. L. Byer, Mt. Joy, Ont.

DRY SAWDUST FOR WINTER PACKING.

After starting with sawdust as packing for hives for winter, and trying leaves and almost ever thing else recommended for the purpose, I now prefer dry sawdust to any thing else. About four inches of the material in a sack, over an open quilt on top of the frames, is pretty nearly an ideal top protection for bees in our climate.

ALSIKE NOT A DROUTH-RESISTER.

Usually alsike clover is given the palm for being the hardiest of the clovers. While this may be true for wintering, the past season clearly demonstrated that it will not compare with the other clovers as a drouth-resister. Alfalfa clearly heads the list in this respect, as many fields seeded this spring are looking fine at present. Red clover comes next; and since the rains a number of fields have improved greatly, and have a nice stand of healthy plants. On the other hand, out of hundreds of acres of alsike seeded I do not know of over half a dozen fields left within five miles of us.

PROSPECT OF CLOVER FOR 1912 AS A RESULT OF MUCH RAIN.

Here in Ontario we have had an abundance of rain this fall too. However, we shall have no such benefits therefrom as the editorial in Nov. 1st issue, p. 643, forecasts so hopefully. What is said, no doubt applies to the white-clover sections; but so far as alsike is concerned, when it is dead that ends the question for the present season. The great drouth killed the plants, and no amount of rain can resurrect them again. While many sections in Ontario have white clover in abundance, just through here we have little, and the outlook is decidedly poor for a honey crop for us next year.

THE ONTARIO CONVENTION.

At this date, Nov. 10, many of us are looking forward with pleasure to attending the Ontario convention, next week. Before this is in print the convention will be over, and at present it looks as though we would have a record attendance and a very profitable meeting. While the season has not been good, and prospects are none too rosy for next year, in many localities, yet bee-keepers are a hopeful bunch, and all seem to be as enthusiastic as ever. It takes a lot of real downright trouble to give a true bee-keeper the blues — in fact, the calling is of such a nature that pessimists soon get knocked out early in the game.

ALFALFA IN UNIRRIGATED REGIONS.

Alfalfa at S. D. House's in New York State (page 543, Sept. 1), and yielding *heavily* in a region not irrigated—what is the explanation of this unorthodox procedure on the part of this well-known plant? Even in its favored localities it is classed as a rather *slow* yielder if I remember correctly. Here in Ontario it yields a little honey *sometimes*, oftener none at all. Then, again, the farmers cut it too soon to allow the bees to get much from the blossoms, even if it was in a nectar-yielding humor. Is the crop left for seed around Syracuse? If so, and the plant yields as described, surely friend House and the other bee-men in that place have fallen in "pleasant places." What about the buckwheat that will be in bloom then? Do not the bees mix the honey from different sources? If I remember correctly, friend House has told me that he usually gets a buckwheat surplus.

WHY BUCKWHEAT YIELDS ONLY IN THE MORNING.

In a recent issue of Gleanings an answer is given to a correspondent relative to buckwheat yielding nectar. It is said that buckwheat secretes in the afternoon as well as in the morning, but the bees have all the nectar cleaned up before night, and for that reason cease working on the blossoms. It is not so here in Ontario; for whether there be one dozen colonies or 200 colonies on a range, it makes no difference in the matter, as about noon the bees stop working on buckwheat, showing clearly that nectar secretion stops during the heat of the day. On the other hand, when we occasionally have a day that is warm and damp—muggy weather, as we call it—then the bees will gather buckwheat honey all day. [At the Alexander yard, where there is such a large acreage of buckwheat, the bees worked all day when we were there, if we remember correctly, and the day was not warm and damp either. Possibly this is a matter of locality.—Ed.]

OUR BENEVOLENCES.

I am surprised that the author of the Home papers allowed that model (?) budget to be printed, page 23, Nov. 1, without commenting thereon. I note that to the church was contributed the *magnificent* sum of $10.80 during the year, while under the heading of "amusements" credit is given for $50.40. Possibly the sum given represents too nearly what the most of us give toward church work, and then we wonder why the cause of missions, etc., goes forward so slowly. The Jews gave a straight tenth, besides many freewill offerings. Surely we have much to learn from the Jews, even though they are despised by many. This is hardly in line with bee-keeping, but Gleanings is not strictly a *bee* journal, so I hope to be pardoned for turning aside from business for once. A contribution of $10.80 to the church, out of an income of $1800, struck me as being incongruous, and I wondered that the item was given at all.

Bee-keeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

THE COLORADO CONVENTION, FOR DEC. 12 AND 13.

We have work to do at our convention to be held in Denver, Dec. 12, 13, at the Auditorium Hotel. Freight and express rates will be discussed, and a plan outlined for the association to work on.

A comb-honey-grading contest will be held, and this will be in the line of an educational test. Every comb-honey producer should make preparations to take part. There are a few minor changes in the grading-rules that will be considered. The discussion of the foul-brood situation in Colorado will be a very important one, and the drafting of several amendments to be introduced at the next meeting of the legislature will be taken up. The exclusion of shipments of diseased bees should be made easier, and the fixing of penalties for failure to treat diseased colonies should be incorporated in our present law. Railroads will give rates on account of the convention of the American National Live-stock Association.

COLORADO HONEY AND THE EASTERN MARKETS.

Colorado's bee-range is spreading rapidly, and it is probably true that there are not more than half the bees in the State that could be kept profitably. There are three causes for this unoccupied territory: First, failure of the honey crop in northern Colorado, and the removal of the bees, or death from starvation; second, the ravages of American foul brood on the western slope, where some quite extended districts have been rendered destitute of bees, or nearly so; third, the new irrigation projects now in operation, and not old enough yet to be fully stocked with bees. Colorado should treble her honey shipments within the next ten years; and if the older irrigated districts "come back" as honey-producers this trebling of the crop will be probable.

The most successful bee-keepers in Colorado are averaging only 40 to 60 lbs. of extracted honey, and 25 to 35 lbs. of comb honey. They make up on the number of bees operated. There are about 25 bee-keepers in Colorado who operate more than 500 colonies each; four or five who have over 1000 colonies, and one or two who have over 2000.

A STRONG PLEA FOR NATIONAL GRADING-RULES.

Now that the National Association has adopted the Colorado double-tier shipping-case and 4¼×4¼×1⅞ section as the standard, why not have National grading-rules? Shall we hereafter designate the double-tier 24-lb. case as the Standard, the National, or the American shipping-case? Now, if we can only get together and adopt National rules, a big advance will be made. Here in the West we feel confident, of course, that the Colorado rules would meet with the same approval as have the double-tier case and the 4¼×4¼×1⅞-inch section.

We are bound to have one universal distributing system before many years, the same as the orange-growers, and the move for unity in supplies points the way. It is but a stepping-stone to more economical and direct dealing between producer and consumer.

For some reason much more extracted honey was produced in Colorado the past year than formerly. The slow flow that has been the rule for the past few seasons may have had an effect in driving bee-keepers to extracted-honey production. Extracted honey can be bought in Colorado for 6½ cents on the western slope, and for 7½ to 9 at Colorado common points in eastern Colorado. The freight rate (fourth class) from the western slope to Denver or Pueblo is 75 cts. per hundred, which accounts for the lower price in western Colorado.

Comb honey will remain in favor so long as it sells so readily, and so long as extracted honey sells so slowly.

IMPORTANCE OF REINSPECTION OF DISEASED APIARIES.

One of the greatest mistakes made by the average bee-inspector is in neglecting the reinspection of the diseased apiaries. The inspector should be able to show the owner how to treat his own bees; and, although his work is largely educational, he should see that the bees are promptly treated according to directions. It does far more good to the industry in the development of capable bee-keepers to take time in showing how to cure foul brood than to burn up a whole lot of bees; but one must be firm in demanding that thorough treatment be given within a reasonable time.

Every bee-inspector should pass an examination as to fitness for the work. There are inspectors who are capable in every way except eyesight. Others do not have an adequate knowledge of the sphere of an inspector's work, especially on the educational side. Some are too easy and others too severe, and I have known several who did not know foul brood when they saw it.

Politics has played too large a part in the appointment of inspectors. One inspector so appointed told me that we had no bee-inspection law that amounted to any thing, but at the same time he was drawing pay from the county for work that was supposed to be done, to the extent of several hundred dollars a year.

Mr. Demuth, of the Bureau of Entomology at Washington, sent an excellent paper to the National convention entitled "Methods of Bee Inspection," which every inspector and bee-keeper should read.

Conversations with Doolittle

At Borodino, New York

SHALL WE USE QUEEN-EXCLUDERS?

"One of my bee-keeping neighbors told me that he considers queen-excluders of no value, as they shut the bees out from the upper story, to an extent which diminishes the crop of honey. What do you advise on this point?"

"I have used the queen-excluding metal for years. When it first came into use, most bee-keepers believed in having all the open space possible between the brood-nest and the supers above. For this purpose many of the boxes which were used before sections came were without bottoms save a small stick or two to hold the sides in place, while many sections were made in a similar way, so that the bees could have free access to the honey-receptacles, for in this way only could the best results be obtained. Soon after came the idea of a small brood-chamber—one of a size suitable for the needs of the brood, thus leaving room for all of the surplus white honey in the sections, while the brood, being less late in the season, the dark or fall honey could be stored in this brood-chamber for the wintering of the colony. This idea spread like wild fire, inasmuch as this white honey brought from five to eight cents more per pound in market than the dark. But with these contracted brood-chambers, much pollen and considerable brood went into the sections, damaging them for market to an extent that would make a loss greater than would result from a smaller yield of white honey caused through using a brood-chamber large enough to accommodate the brood, pollen, and some honey.

"About this time the queen-excluding zinc was introduced. Some went wild over it; others were opposed to it, especially those who had left the bottoms off their surplus boxes so that the bees could have free access to the supers. As I was one of small-brood-chamber users, I procured some queen-excluders, using these on ten colonies of as nearly equal strength and ability as were ten other colonies that were worked as before. At the close of the season I had as many completed sections from colonies when queen-excluders had been used as from those not having them, while all of the sections were without either brood or pollen, and almost without travel-stain, so that the next year found me using excluders with fully half of my colonies. In this way I kept on until I was convinced that the claim of less honey through the use of queen-excluders was a fallacy.

"When I came to work for extracted honey, I again went through with the same experiments to find out what would be the results of their use as to the yield. For example, several strong colonies were taken. Some were worked without and others with an excluder. At the commencement of fruit-bloom both needed an upper story. Those without the excluder allowed the queen to go where she pleased, which was usually into the comb of the upper story, resulting in more or less brood in them. But when it came to a close examination and comparison, it was very seldom that I found more brood in both of these stories before the harvest from white clover was on than the lower one would hold, especially in case of a ten-frame Langstroth hive. And this brood, which would easily go into one hive, was scattered all through the combs of the two. With the white-clover flow, the bees soon needed more room; and as there was nothing in either story in suitable shape to extract, there was nothing to do but add another story. Five times out of six the queen would go into this third division with her eggs, rather than keep her brood-nest down in the first, where it was before any supers were put on. As three stories is about as high as it is safe to go with hives in this locality on account of our high winds during sudden storms, it is necessary to begin to extract soon if the flow keeps up, as the hives are boiling over with bees—old, young bees, drones, and a queen, with pollen and honey mixed with brood in all stages. So if we don't extract from frames having brood in them we do not get much honey; and if we do so extract there will be more or less larvæ thrown out with the honey, go as careful as we may.

Now let us take the colony which had the excluder. When the bees need more room we put the hive having the combs to receive the surplus honey over the excluder, and know that the queen is and will stay where she belongs—in the brood-nest. The bees commence to store honey in the upper story as soon as any comes in from the fields, while the queen spreads her brood clear to the corners of the frames in the lower hive. When the harvest from clover comes on, we put another under the first one; and by the time the colony needs more room, the combs in the first super will be filled and sealed nearly solid with beautiful white honey, without a cell of brood when the time comes for extracting.

"The second super is now raised, if there is promise of a further yield of nectar, and another filled with empty combs is put underneath. If there is danger that the harvest may not continue much longer, it is better to put this last super on top. Thus it continues to the end of the season, and it is fun to extract these full combs freed from bees by a bee-escape. By the old way each comb had to be handled separately to brush the bees off; for bees having brood will not go from that brood down through a bee-escape. For fifteen years I have not worked a colony for extracted honey without the use of a queen-excluder; and I use them when working for section honey, in every place where I think they are needed."

General Correspondence

A BRIEF REVIEW OF THE AUSTRALASIAN BEE MANUAL.

BY DR. E. F. PHILLIPS.

Mark Twain is authority for the statement that there are four things that you do not know, and that there are but four or five people in the world who possess this knowledge. One of the four is the answer to the question, "Where is New Zealand?" Every American should know his Mark Twain well enough to know what the other three unknown facts are. However, bee-keepers have of late years been led to learn something of New Zealand because of the activity on those islands along the line of bee-keeping. We may still labor under the impression that New Zealand is close to Australia or Asia or somewhere, and that it is reached by means of a bridge, but we know now that bee-keeping is an important industry there (wherever it is), and that Isaac Hopkins is largely responsible for the present importance of the industry.

Mr. Hopkins, late Chief Apiarist to the New Zealand Government, has recently issued a new book with the title which heads this notice. This is an extension of his "New Zealand Bee Manual," and is issued as a fifth edition. The book is written in an extremely able way, and contains much of interest to bee-keepers on all sides of the globe. It will, perhaps, shock an American bee-keeper to read in the calendar in Chapter XIX., "*January.*—In average seasons a goodly proportion of the crop of honey is secured this month . . . . ." "*June.*—This should be a quiet month in the apiary . . . ." However, either the New Zealander or the American is upside down, and we must believe that in Australasia the times are out of joint.

The discussion of races of bees, natural history, bee products, apparatus, and honey production read quite naturally to an American, for Mr. Hopkins was instrumental in introducing the Langstroth hive into New Zealand in 1877-'78, and he states, "In Australasia we fortunately have the Langstroth as practically the standard hive; in fact, there is no other kind in use in New Zealand." We must take off our hats to New Zealand in this matter. He also introduced the Italian bee in 1880, and it seems to be almost "standard" also. Many of the illustrations are of apparatus of American manufacture.

Mr. Hopkins is a firm believer in the desirability of ripening honey outside the hive in shallow tanks, and he discusses this subject at some length. Chapter XVIII. is an important discussion of the subject, "Bees in Relation to Agriculture." This chapter presents the claims of bee-keeping for recognition as an important phase of agriculture in a manner which leaves room for little doubt in the mind of even an outsider.

While Mr. Hopkins has done much for apiculture in Australasia, there is probably no room for doubt that his best work has been in connection with the control of brood diseases. He was chiefly instrumental in the passage of the New Zealand Apiaries Act in September, 1907, and for two years had charge of the inspection. This law is unique in that it is the first to prohibit the keeping of bees in any thing but movable-frame hives. Mr. Hopkins firmly believes that any law which lacks this provision is faulty, and that this provision is the chief factor in the marked success which has attended the enforcement of the law. In the introduction he states, "I feel certain that little or no headway against disease can be made in any country unless power is given by legislature to abolish all fixed-comb receptacles as domiciles for bees." In Chapter XVI. he states further: "The result of this provision in the diminution of foul brood throughout the Dominion has exceeded all expectation." It will certainly profit those of us who are interested in disease control to consider carefully the experience of New Zealand.

Mr. Hopkins has recently entered his seventy-fifth year. He has resigned his former position as Bee Expert for New Zealand, but still retains the management of the government apiary. The bee-keepers of New Zealand and of Australasia are to be congratulated on having received his long years of service in their behalf.

Washington, D. C.

CARBOLIC ACID IN THE APIARY.

BY A. W. YATES.

With reference to what friend Crane has said, page 419, July 15, my first experience with carbolic acid for apiarian purposes dates back 25 or 28 years. An article which I read in one of the bee-papers at that time recommended its use instead of smoke for handling bees. I was a young man at that time, and, I might add, born and raised in Mr. Crane's State, and curiosity led me to try it. My bees were all blacks, and the consequences were that I took a good stinging and skipped.

It *can* be used for driving the bees from the supers; but unless one is very careful not to let it come in contact with the sections it had better not be tried.

It was not until recent years that I undertook to make any practical use of carbolic acid around the apiary. One day a can of honey was accidentally upset in a little outhouse having no cellar under it; and as it ran down through the floor the bees were soon there in force — thousands of them. What to do I did not know. I tried smoke and then water to no avail. Finally, in des-

peration I happened to think of carbolic acid, and made a strong solution in water, pouring it on the floor and letting it follow the honey down. In a very short time the place was rid of them. This was an eye-opener as to what could be done with the stuff.

CARBOLIC ACID IN CASE OF ROBBING.

About as lively a time at robbing as I ever saw was at a fellow bee-keeper's house one day. I happened to arrive after the bees were thoroughly aroused, and in a short time it would have been too late. I procured a cloth, soaked it in a strong solution of acid and water, and stuffed it into the entrance so that only one bee at a time could pass. The trouble was soon over. I gave instructions that the cloth should be kept soaked until the next day, however, to drive away the prowlers, and the colony which otherwise surely would have been lost was saved.

IN TRANSFERRING, OR IN TREATMENT OF FOUL BROOD.

I keep carbolic acid constantly on hand for cases of robbing, but use it to the best advantage in the treatment of foul brood, or in transferring from old box hives where it sometimes happens that little particles of honey have dropped, and where, during a lull in the honey-flow, robbers are bound to be about. With a liberal spraying of the mixture around the hives to be treated I have no trouble.

I am pleased to see that friend Crane has taken hold of this, and feel sure that he will find it a great help. The atomizer may be all right, but I prefer the sprinkling-can. Acid is cheap, and I like to use plenty of it. I treated ten colonies this fall without a particle of trouble in an apiary of 28, when no honey was coming in.

OPEN-AIR FEEDING IS WASTEFUL.

Much is said about stimulative feeding, but I do not remember having read any thing in regard to dry sugar—that is, sugar that has been moistened, but not enough to become dissolved. Two years ago I fed 500 lbs. of sugar by the open-air method as an experiment. I was busy away from home at the time, and would feed before I left in the morning. At night it would be all gone, and I thought I had struck something rich. Imagine my surprise later on, when examining the hives, to see scarcely any perceptible change in the amount of stores in any of them.

Not long ago I discovered what had become of that 500 lbs of sugar. In liquefying some candied honey, some of it ran out in the steam-vat; and, rather than throw it away, I set it out for the bees. It was a sunshiny day, so it was not long before they were living up to their reputation, going in and out as fast as their legs and wings would take them. About 4 o'clock I went out to see how they were progressing, standing so that they were flying between me and the sun, and so I could see the little drops falling like rain. My theory is that they gorged themselves so that they could not carry it to the hives, and dropped it on the way. No more open-air feeding for me.

Hartford, Conn.

BEE-KEEPING EXTENSION.

The Bettering of Bee-keeping in Belgium.

BY DR. BURTON N. GATES.
Massachusetts Agricultural College, Amherst, Mass.

During the last decade particularly, an effort has been made to bring within the knowledge of the laymen the most recent results of agricultural investigation. In the United States various methods have been tried. Many agricultural colleges now have special departments devoted to this kind of teaching. Some educators are skeptical as to the ultimate outcome of these methods, yet the results of agricultural-extension work are not new in Europe. Belgium particularly has developed the method and given it a long trial. As never before, most concentrated attention is turned toward the discovery of the most effective and economic methods of extending agricultural education.

As a new subject in this instruction, there seems to be an opportunity to present bee-keeping to the public, and thereby accomplish a greater organization, better bee-keeping, larger production, and more handsome returns for the apiarists. For years the subject of bee keeping has had attention, even in Belgium, one of the smallest countries in Europe, where most astonishing results followed. These are set forth in detail in a recent paper entitled L'Agriculture Belge de 1885 á 1910.*

The results as presented in this paper have been translated by Jas. A. Stedman, Assistant Farmers' Institute Specialist of the Office of Experiment Stations, United States Department of Agriculture, and presented under the heading, "The Results of Agricultural Extension in Belgium," in the annual report of the office of Experiment Stations for the year ending June 11, 1910.†

It will be well to consider that Belgium is about equal to the States of Vermont and Delaware combined, and has a population equal to that of the six New England States. About one-fifth of the people are engaged in agriculture, having small holdings. The measures which have enabled agricultural-extension work were adopted in 1885, since which time the most remarkable increase in agricultural productivity and valuation of lands is apparent. This remarkable improvement, it is maintained, is attributable to the measures adopted in 1885. The report gives a summary of the results of several phases of agricultural industry during

*L'Agriculture Belge de 1885 á 1910. Monographies publiées á l'occasion du XXV. anniversaire de l'Institution du Service des Agronomes de l'état. Louvain: Imprimerie Fernand Giele, rue de la Station 15, 1910.

†Washington, 1911, pages 425 to 447.

this period in Belgium's different provinces. Among these industries is apiculture.

As a brief indication of Belgium's effort to advance bee-keeping, a few extracts may be made.

In the province of Antwerp, it is reported that 147 courses, comprising 601 sessions, with an average of 40 in attendance, were given during the past ten years. In the province of Flanders, having eleven societies of apiculture, 252 courses in bee-keeping, comprising 1008 sessions, with an attendance of 22,176, have been held since 1890. The province of East Flanders, giving courses in horticulture and market gardening, floriculture, aviculture, and farriery, besides instruction in other agricultural pursuits, has offered occasional courses in apiculture. The province of Hainault, Liége, and Hamur have apparently given less attention to the interests of bee-keepers, which may be attributed, possibly, to the differences in agricultural interests in these localities. The province of Limburg, however, it is reported, has held for adults 110 courses in bee-keeping, comprising 509 sessions.

Since the tables in the report show remarkable increase in farm valuation and in the average production per acre in the various crops, and since these are attributed to the methods of extending agriculture, it is also fair to presume that bee-keeping has benefited in proportion.

BEE-KEEPING IN CUBA.

Climatic Conditions and their Effect on Apiculture.

BY D. W. MILLAR.

Both my partner, Mr. Curnow, who for 14 years has studied and experimented with bees in the tropics, and myself find many rules and regulations for handling bees discussed in GLEANINGS, which would be of no value here, more than would many of our methods be in the North. However, of late there has been much discussion on swarming, foul brood, increasing, etc., where we believe our methods would apply; and while they may be old and worn out they are the best we know about here, and we have read nothing similar. On account of the difference between bee-keeping in the North and in the tropics, about all we know we have had to figure out for ourselves. So far as I know there is nothing published on tropical bee-keeping. This is why many Northern bee-men, and the best, have had difficulties in this country. Possibly what I have to say may start something that will help us.

All our new blood, which we believe in introducing regularly, is pure Italian, although we prefer the dark leather-colored bee, which comes from a pure queen mating with a hybrid drone. They have the three distinct bands, but can not be pure, although they pass as such. However, we make no special effort to breed for them, as we keep our apiaries as nearly pure as is possible, where there are so many black bees in the country. We make our hives, after the pattern of the ordinary American single-walled hive, out of native cedar, and all other wood parts the same. For rabbets we use a piece of No. 24 galvanized iron, ⅞ wide by 14, fitted into a slot sawed to slope a trifle inward, in the dapping of the hive-head, the slot being just deep enough to allow the proper height above for the frame to rest on. This, we find, saves time and nails, and gives a smaller surface for the frame to stick to. The ten-frame-size hive is our preference; but in the honey-super, only eight are used. These will, if properly spaced, be filled with as much honey as ten; and as we go in for extracted honey almost exclusively, there is less work in extracting.

MOVING SHORT DISTANCES AT NIGHT.

Many long methods for moving colonies from one location to another have been given, but we find here the simplest and best way is to move the hive at night, and to place a bottom-board or some noticeable object in front of the entrance for the next day. The bees' attention will be called to the change in this way, and the new location marked. This we got from Anna B. Comstock in "How to Keep Bees."

REMOVING BROOD TO CONTROL SWARMING.

We avoid swarming, if increasing, by removing surplus brood with adhering bees to a new hive, giving them a new queen. If we do not care to increase, we place a super of foundation on the bottom below the honey-board; place the queen in this, and the bees will come down and get busy. We then destroy queen-cells if there are any above. After the brood above has hatched and cells are cleaned, honey will be stored, and they will have had enough to do without swarming until they forget about it.

FOUL BROOD NEED NOT BE EPIDEMIC.

Foul brood is contagious but not epidemic here, and we consider ourselves negligent if it gets beyond one colony. When we notice symptoms of any kind we place a small sack of moth-balls between the frames. If it is of the European variety, we then remove the diseased brood to the honey-super, where the unaffected portion will hatch, and the other will be cleaned out by the bees. We do not consider this contagious. If American foul brood, we get a new hive and place it entrance to entrance with one diseased. We place in the new hive a full healthy frame of hatching brood, shaking off all old bees and the queen, filling the rest of the super with foundation. An escape is placed on the entrance of the old hive, and left for 30 days, then what remains is burned in the old hive. A sack of moth-balls is placed in each hive.

RAPID INCREASE.

Recently we noticed that some one wanted to know how best to increase his bees

rapidly. We should like to know how to keep them from doing so, or, rather, what to do with them as fast as we can increase, at a profit. If we want a hundred or so to increase, we take from the strongest colonies of hatching brood one or two frames, or whatever we can without debilitating the old colony in the least. We place one frame in a new hive between two of foundation; add foundation as fast as needed, and usually in six weeks we have a strong colony. Of course we do this way only when we have nothing else to do, and can sell the increase without weakening our working colonies.

CLOTHING IN THE TROPICS.

We use but little smoke, and try to raise quiet bees. If we have a bad colony we kill the queen and try another. Of course, all our bees *will* sting; but we mean by this an exceptionally cross family. Queens of our own rearing are cheap, and are good for only about two years here, any way. We have been using the Swarthmore system for two years, and prefer it for queen-rearing. In working here we dress for comfort regardless of bees, and our outfit consists of short-sleeved undershirt, duck or linen trousers, low shoes, and a panama. Veils, gloves, etc., are in the way for fast work, and too warm. When, through our negligence, oversight, or overwork we have a swarm, it is brought back on our arm or in our hat. Don't understand that we are immune to bee-stings, but they are few, and of no consequence except for the instant; and a few stings occasionally are very good for one's health. We don't have rheumatism.

We do not shade our hives except in locating an apiary. We select a place where there are a few young palms, and perhaps some other small trees. Hives are placed on two bricks, flat, one at each end. Every thing is removed from the apiary, and Bermuda grass planted. It grows fast, is short, can not be killed, and ants dislike it.

CREOLINE TO STOP ROBBERS.

For robbers we use pure creoline, applied with a feather at the ends and on sides of the hive. For brood-rearing, with our Italians we note no difference day in and day out except that they usually let up for about 30 days from the middle of January to the middle of February.

About what is the average yield of extracted honey per colony per year in the cold countries? We figure 30 gallons here—the lowest I know about being 15 and the best 45. Unless all signs fail, this will be a good year for us. Cuban honey has had a black eye in the past; but it is not all alike, for we can market as good as there is. There are few modern bee-keepers, with modern machinery, here, the larger per cent of bees being still kept in logs. Consequently, in the past a lot of honey has been shipped in very bad shape; but present pure-food laws should tend to remedy this.

Los Pasos, Oriente, Cuba.

[See Stray Straws, p. 678, Nov. 15.—ED.]

J. L. BYER'S PLAN OF REQUEENING.

BY GEO. W. MOORE.

Mr. J. L. Byer's method of requeening as outlined on page 619, Oct. 15, is a good system. For several years I have used this plan with all kinds of bees. I place an excluder between two empty hive-bodies; and as fast as I can look them over I put frames of comb and bees in the upper hive-body. If I fail to find the queen on the combs I look on the bottom-board; and if she is not there I shake the bees from the combs to the excluder, and by this time I can usually locate the queen. As a rule, about half of the black queens are to be found on the bottom of the hive.

I received my Italian queens the latter part of August, this year, about a week before the blue-curl began to yield. After removing the old queen I placed the queen-cage between the frames of brood, having taken out the cardboard in cases where the candy was not more than a third gone. I then closed the hive and left it alone for at least three days.

I received another lot of queens one week later, and went with them to the out-apiary, where I had put the queens the week before. When I looked into the hives that had the new queens I discovered queen-cells capped, which were being torn down, for the new queen was beginning to lay. The bees, too, were storing honey.

One hive had a fine lot of cells, and no sign of a queen, so I destroyed the cells and gave them one of the queens I had brought with me. Three days later I visited this colony. The queen was in the cage with all the candy gone, and a dead bee wedged in the opening was holding the queen in the cage. A fine Italian queen was lying on the combs next to the cage.

About a week passed before the first lot of queens began to lay, as there was little or no honey coming in. The second lot, on the other hand, was laying within three days, as there was then a good honey-flow.

I had always thought that capped queen-cells in a hive were proof that the queen had not been accepted; but I now know better.

There can be no mistake about these queens, for the bees were all blacks, and now there are but a few blacks left in any hive, but plenty of fine Italians.

Paicines, Cal.

NOTES ON QUEEN INTRODUCTION.

BY ARTHUR C. MILLER.

The following notes add to the evidence we already have that the reception a queen receives is dependent very largely on *her* behavior.

Four queens were received by mail, one perfect, and three crippled by loss of one or more legs or feet, and apparently ailing—that is to say, they were sluggish in their

movements. A colony was split into five parts, the old queen and a frame of brood being left on the old stand as one part. The cage method of introduction was followed. The perfect queen was killed, the others accepted. A week or so later the cripples were removed, and new and perfect queens in cages given to the four small colonies. Three were killed.

The three cripples were taken to another yard, run directly into the parts of a similarly divided colony, and still were accepted. Later, good queens were substituted. The bees and queens were golden Italians. The nectar-flow during all the time was light.

The bee-keeper who did the work is fairly skillful, and has had quite a number of years' experience.

A queen's behavior may be influenced by her personal condition, such as being hungry, crippled, ailing, or actively laying, etc., or it may be influenced by external conditions, as by the noise or odor emitted by a highly disturbed colony, by being daubed with honey or dusted with flour, or some similar treatment. Or she may be quietly trying to pursue her normal duties as when under a wire cage pushed into the comb, and she continues thus when the bees cut the comb away so she can walk out. This wire-cage plan, the "pipe-cover cage," the English bee-keepers call it, perhaps brings the new queen to the most nearly normal condition of any method we have. It is old, and it is good.

Providence, Rhode Island.

FINDING QUEENS WITH CARBOLIC ACID.

Driving the Bees up through an Excluder into a Wire-cloth Cage Above the Brood-chamber.

BY GEO. H. BEDFORD.

The plan mentioned by J. L. Byer, for finding black queens, page 619, Oct. 15, although effective, as he says, is unnecessarily laborious. With the following system he would have saved half the work and would have made much quicker time.

Make a crate of 1×2-inch lumber, same dimensions as the hive-body. On the four sides tack wire cloth, and on the bottom queen-excluding zinc. For the top, make a frame of inch stuff, of the same size as the top of the hive (or crate), and tack on wire-cloth. Next, remove the cover from the hive to be searched; take out two combs, and after shaking or brushing the bees back into the hive place the combs in the wire crate and put on the wood-bound wire-cloth cover, and place the crate on top of the hive. Put three or four drops of carbolic acid in the smoker on top of the fuel; light it and smoke at the hive entrance. Immediately the bees will rush up through the excluder into the wire-cloth fresh-air chamber. When they are about all up (which takes less time than to write it) the queen will be found under the excluder after tilting up the wire crate. If she is not detected at once, glance on top of frames, and, failing to find her there, the frames can be taken out and examined quickly, as they are practically clear of bees. However, it will be seldom that the queen is not discovered trying her best to get through the zinc, and possibly wishing she could return to her original virgin slimness.

The beauty of this method is, first, that it requires very little labor. Second, there is but small chance for robbers to work, even without a tent; and, third, by using wire cloth on the sides the bees are kept out of the way of the operator. It was found easier to drive them up than down; and the fumes, naturally rising, were more effective than smoking downward.

At first I used an ordinary hive-body with zinc on the bottom and wire on top; but with a strong colony the bees covered the wire on top, preventing the smoke from escaping; and since it was stronger there than lower down, they ran back to the frames. With wire on top and sides, the air is comparatively fresh on top, and there they will cluster.

The crate should be nailed rather strong; for, after finding the queen the wire top is lifted off, and the crate turned upside down and given a bump on the ground in front of the hive, and it is ready for the next.

A note of caution should be sounded regarding the amount of carbolic acid to be dropped into the smoke. Just enough to give a rather rank odor should be used—usually three or four drops, according to strength. Too much is liable to kill very young brood.

East Stroudsburg, Pa.

[This seems like a simple and rapid method. We should be pleased to hear from any who may have an opportunity to try it.—ED.]

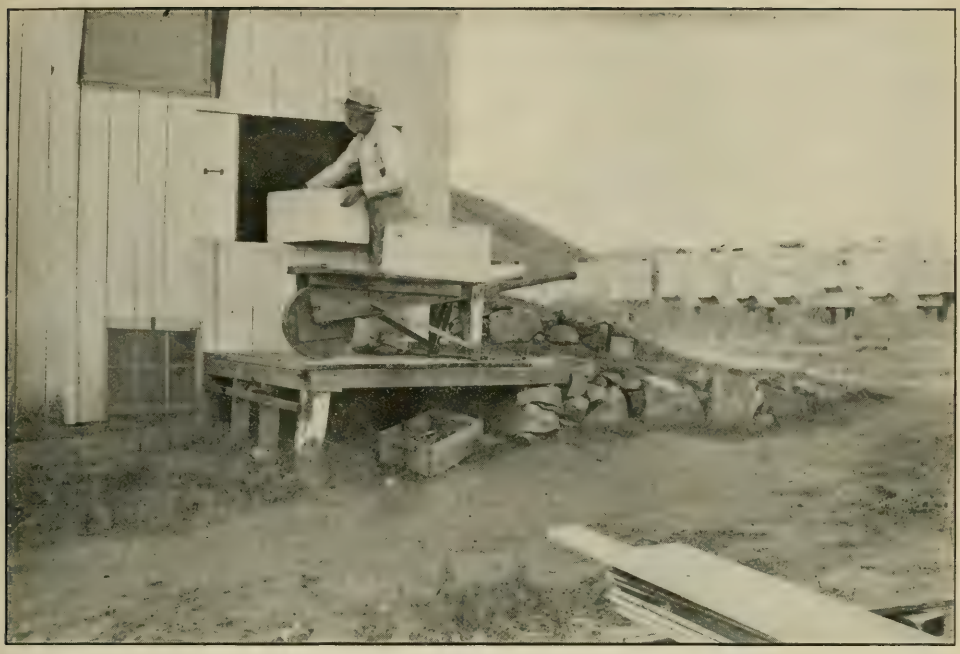
Do Bees Rest Between Trips to the Field?

In the Oct. 1st issue, p. 602, the editor states that he does not know whether bees take a rest between trips to the field. There was a very interesting article in GLEANINGS on this subject at least ten years ago. It was an account of an observatory hive. The observer had colored several workers differently, so that he could identify them. If my memory serves me, he found that his bees rested one or two hours between trips.

CROSS BEES AS HONEY-GATHERERS.

That gentleness in bees is a great thing, everybody will admit; but I have been gradually coming to the conclusion that bees with an edge to their temper are usually the best honey-gatherers. The three colonies that did best for me this year are the only ones that I do not care to handle without having a smoker near. Two of them strike as soon as the cover is off. The third seldom stings, but bluffs. As soon as one touches a frame the bees crawl over his hands, up the sleeves, and make frantic dashes everywhere, stopping just before they hit; and after the hive is shut up, a number will follow a person all around the apiary. The bluffing bee is a nuisance. In my experience, the bee that keeps following one around is practically always a bluffer. I have put up my veil and stood quite still to see if it would sting, but I have never known it to do so. I think this pest is quite often a bee that has lost its sting.

Hatzic, B. C. WM. L. COUPER.



E. M. Gibson's scheme for avoiding lifting as much as possible.

DECAPITATING BROOD TO PREVENT SWARMS.

BY E. M. GIBSON.

My opinion has been asked in regard to decapitating brood to prevent swarming. I will say most emphatically, and without fear of contradiction, that my bees do best with their heads left on. I am reminded of a story of two young doctors who were boasting of their success in surgery. One of them said he had a patient with tuberculosis, and he just cut out the diseased lung and inserted a sponge, which worked all right. The other said he had a case of softening of the brain, and he simply removed the man's head and put on a pumpkin, and the patient was doing well at last reports. When we get so skillful with the knife that we can remove the bees' heads and give them non-swarming ones I may advocate decapitating, but not before. There is not a shadow of doubt in my mind, however, that, if commenced early enough, and persisted in long enough, the process would prevent swarming; and so will any other method that will destroy enough bees.

I encourage my bees in every way possible to make brood, not for the purpose of cutting their heads off later, but for the purpose of gathering honey, building up weak colonies, making nuclei, etc., and that is just what I have been doing the past week or more. I look into the brood-nest of each colony to see that there is plenty of stores; and when I find one that is weak I mark it; and when I find one with five or six "slabs" of brood I find the queen, put her to one side, and take out a frame of hatching brood with the adhering bees and give it to the weak one. In two weeks I do the same thing again, and try to get brood enough to start nuclei. I do not rear all my own queens, but I do not think an apiary is complete without a few nuclei to call on during the summer, when one needs a queen badly.

If colonies so depleted of brood still look too large, and show signs of swarming, I take two frames more of brood from the largest ones and start a new colony, giving the bees of such new colony eight frames of brood and a laying queen, and they will not be far behind the best of them in honey production in the fall. I have but very little swarming. In fact, all my increase for the past fifteen years has been made by dividing or buying.

If, after doing all that I have mentioned above, bees still persist in swarming I unite two or three after-swarms, or any number that will make a rousing colony, into one just before the main flow begins. I am aware that some do not approve of this plan of robbing Peter to pay Paul; but this is another instance in which the word "location" may be consistently used. In localities where bees have only about two months to build up by the foregoing method, perhaps it would not be wise; but in other portions of the country, such as this, where bees have five and sometimes six months to build in, this plan can be worked to advantage.

It is claimed for the process of decapitating brood to prevent swarming that it keeps the live bees busy carrying out the dead, and

they forget about swarming. Well, yes! if that wouldn't make them forget about every thing they ever did know, I don't know what would. If I thought my bees needed exercise I would give them two or three frames of foundation to draw out, which would be of benefit to me, and I believe much more pleasant work for them.

A WHEELBARROW FOR CARRYING 120 LBS. OF HONEY TO THE EXTRACTOR.

I am sending a photo of my method of getting honey into the extracting-room. I have seen pictures of men carrying honey to the honey-house, and it gives me that tired feeling to think about it. Each one of the honey-boxes shown on the wheelbarrow holds 60 lbs. of honey, and I can wheel the two (120 lbs.) easier than I can carry 25 lbs. Yes, I use the wheelbarrow. I have tried other things, but have found nothing quite so handy to get into all the nooks and turns as the wheelbarrow.

The slide door to the honey-house is hung on barn-door rollers, so that it works easily; and it is large enough to give plenty of room to manipulate the boxes comfortably. When a box is slid inside, and one side of the lid opened (the lid is double), if there are any bees in the box they will all fly out toward the light. The picture shows the honey-house at one of my apiaries, where the location is ideal for convenience—just slope enough to the ground so there is no wheeling honey uphill to get into the extracting-room, and one can walk into the cellar without having to climb any steps. It is not difficult to find locations like it in this country; but they are not so plentiful where other conveniences exist, such as water, good roads, etc. I do not like to have the bees go far for water, especially in cold weather.

IS THERE A PARTICULAR TIME OF THE YEAR FOR CERTAIN DISCUSSIONS?

Not wishing to be too critical, I should like to ask those contributors who start their contributions by saying it's a little too early to write of swarming, queen-rearing, ventilation, or whatever the subject may be, if they do not forget for the moment what a big old world this is, and that the journal they are writing for reaches to the very limit of its four corners. It may be too early to write on a certain subject in the six-mile square of the township in which they live; but in some other portions of the earth it may be too late. It sounds as though this paper were being run for their special township, or, at most, the county or State in which they live. By no means as a reflection, but simply as an illustration, I mention the controversy between the editor, Dr. Miller, and our Canadian friend Mr. Byer, that took place last year. By the time they got that winter brood-nest all fixed and in running order we were harvesting our crop of honey on this coast.

WHY IS THE APPEARANCE OF HONEY THE ALL-IMPORTANT FACTOR?

I should like very much to know how honey ever came to be sold by sight instead of by taste. I have seen vile stuff sold at a better price than good honey because it was lighter in color. Why not sell maple syrup by sight instead of by taste? I have heard that there were 1000 carloads of English walnuts shipped from this State annually, and I did not know until a short time ago that they were bleached. Wanting to buy some, and noticing that those the grocer had in stock were darker than any I had ever seen, I inquired the cause, and he said, "Oh! those are unbleached. I never keep the bleached ones, because these are so much better." And he is surely right. The unbleached ones are much better, and also cheaper. Both time and money are wasted to injure an article of food to please the eye.

Jamul, Cal.

PHOTOGRAPHY FOR BEE-KEEPERS.

BY HORACE LIBBY.

Bee-keeping is very fascinating to me, especially since I have retired from the business life of former years. It is occupying my mind, and at the same time brings in a small income. At the present time I have 68 colonies, and when put in the cellar they were in good condition.

I think the camera is something that most bee-keepers would enjoy. I do my own developing and printing, which, to the real photographer, is the most interesting part. I am not a professional, for I have owned a picture machine only a little over three years; but the amateur can learn much if he goes bravely ahead, making mistakes and profiting by them at the same time. Books tell us lots of good points, but experience is the best instructor.

I remember one man in some journal (I think it was GLEANINGS) who wrote a very interesting article on the subject. I was much interested, and hoped to see more of such articles from those who are either professionals or amateurs. It is a fine thing to have our summer pleasures and views on paper to look at in the future; and our stationery can be made interesting by a little scene at the top which will be of interest to those receiving the letters.

May the bee-keepers who have picture-machines come forward and make GLEANINGS a help to the photographer as well as to him who keeps bees.

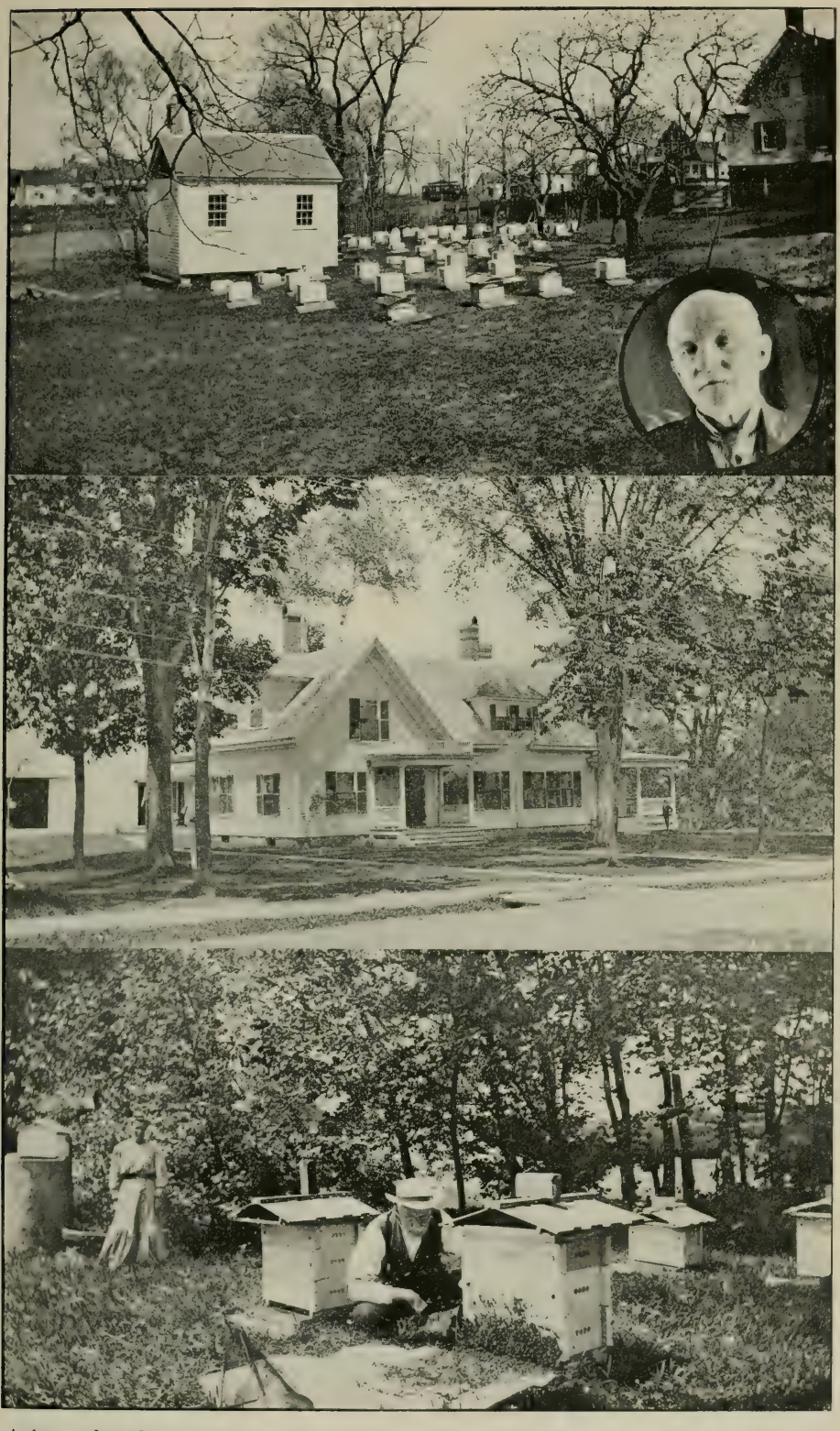
Lewiston, Maine.

THE SEVERIN CAPPING-MELTER.

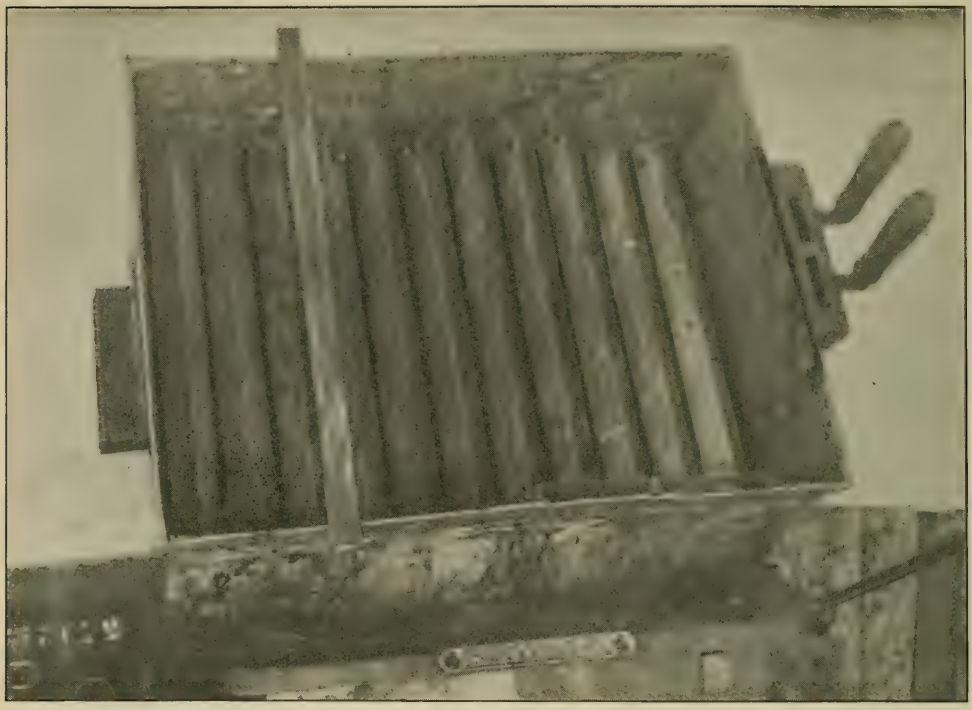
How it is Made.

BY F. J. SEVERIN.

My capping-melter, as referred to in previous articles, stands on a two-burner gasoline-stove, the gasoline-tank being outside the building, where it can be easily filled while the stove is burning, and, in case of fire, instantly shut off. Some of the fea-



Apiary and residence of Horace Libby, a bee-keeper who believes in using a camera, and doing with his own hands the work of making pictures.



F. J. Severin's capping-melter, showing the melting surface made of square tubes, the metal scraper for the knives, and the slots for heating them.

tures of this melter are taken from those used by E. F. Atwater, Meridian, Idaho, and F. A. Powers, of Parma, Idaho; but I have added a number of improvements myself to perfect the outfit.

The can outside is 23 inches long, 18¼ inches wide, 8½ inches deep, outside measurements. The tubes shown in the engraving are 16½ inches long and 1¼ inches square; they are placed nearly ¼ inch apart, turned with one corner up to give a better melting surface. Being square they hold more water; and, besides, the melting of the cappings is more quickly done than if the tubes were triangular. There is 5 inches of space from the top of the tubes to the top of the melter, and a ¾-inch space underneath, this latter opening into a spout ¾ inch deep, 5 inches wide and 3 long, extending through the water-jacket to the outside. The water-space between the bottoms is one inch, and between the sides 1¼ inches at the bottom, running up to nothing at the top. The projection of the water space for the knives at the side is 6 inches long, 1 inch wide, 8¼ inches deep. A piece of wood with two holes cut for the knives rests in this projection of the water-space, leaving the handles of the knives all cool and clean from steam and honey. A shield just inside the knives keeps the water from boiling over into the honey and wax.

The tubes are made of copper instead of heavy tin or galvanized iron, for they last longer, and they have, in my opinion, a much faster melting surface, and retain the heat longer. I use a galvanized rubbing-iron for my knives instead of rubbing them on the wooden cross-bar, as nearly every one else does. I can clean the blades better with one stroke for each side than I can on the cross-bars, as this scraper projects ¾ of an inch, and is ⅛ inch higher than the edge of the melter.

I have found that this melter is large enough for two operators. I use only one burner, but the stove is made for two. The first time I used it I tried to overload the melter with cappings, but failed. Even if one were to employ two operators continuously, and had all of his honey brought in at once, being freed from bees by escapes, I venture to say that this machine could never be "balled up" if two burners were going.

San Diego, Cal,

CHEAP AND EFFECTIVE SHADE-BOARDS MADE OF LATH AND SHINGLES.

BY E. F. ROBERTSON.

I have always been an ardent advocate of shade in our hot months. We take our industrious little workers out of some shady forest home or some cool rocky crevice, and compel them to live in the blazing sun, covered by only some ⅞-inch lumber, and think it natural for them to work when the thermometer placed on the hive registers 120° F. Vast numbers of bees cluster out-

side to save the combs from breaking down, and a great force remain inside to fan and ventilate the hive. This condition is a direct loss to the bee-keeper, to say nothing of the torture he is inflicting on those who are so industriously working for his dollars. The material and method of construction of shade-boards are of vital importance. I have tried all kinds of material—½-inch boards nailed to cleats, but they are too expensive as the mill men charge for inch boards. I have used frames with canvas nailed on, but they are too flimsy, and blow off too freely. I have been using for eight years a board made of builders' lath and shingles that gives me the utmost satisfaction both in cost, durability, and ease of construction.

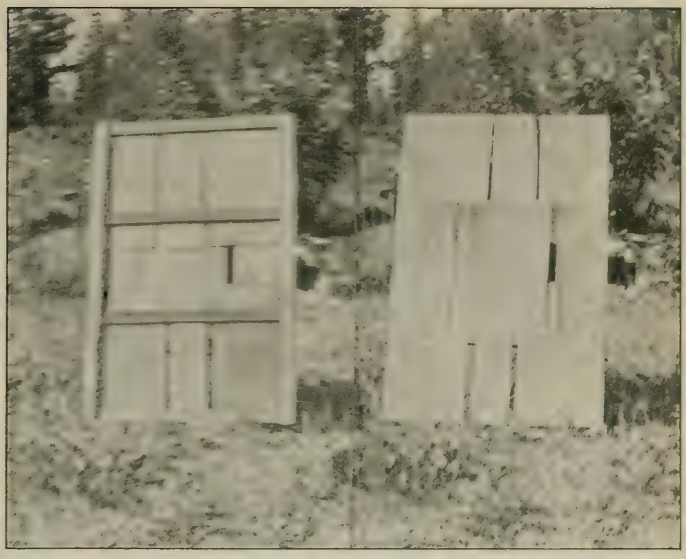


FIG. 1.—Robertson's shade-boards, constructed of lath and shingles, showing manner of nailing.

I use six-foot lath, and cut two three-foot lengths for sides, and four two-foot lengths for cross-pieces. I nail these together with inch wire nails like the left-hand illustration in Fig. 1, as shown above. I turn down the nails and clinch tightly; then nail shingles on as in the right-hand picture, Fig. 1, turning the thick end of the shingle to the outside edge of the board, except the center ones. These I put on any way, as it does not matter.



FIG. 2.—Shading the fronts of the hives and the entrances in the morning.

The cost of these boards runs about 10 cts. apiece, aside from nails and labor. The lath cost, at 40 cts. per 100, one cent: and the shingles $3.00 per 1000, which, with ten inches to the weather, would cover 200 square feet; and as there are 6 feet of surface in each shade-board the cost for shingles is 9 or 10 cts. complete. My boards made eight years ago are as good to-day as when they were made.

Now as to the mode of using them. My hives face the south, as we have a strong local east wind during May and June. At night I walk round and place a shade-board on the east side of the hive, a little to the front, as in Fig. 2. This shades the entrance up to 11 o'clock. Then I put the board on top of the hive,

projecting 1½ feet over the front, as in Fig. 3. This shades the entrance from the noonday sun till 1 o'clock; then I put the board on the west side of the hive eight or ten inches to the front, where it shades the front and west side till night, when the boards are shifted over to the east side, ready for the morning. This makes three moves a day, and keeps three-fourths of the hive in perfect shade, much to the comfort of the bees, keeping them all working, and reducing swarming to a minimum. There is thus no loss, but a probable increase in yield of honey. I find these boards a great help in keeping off bad winds in spring by standing them against the hive on the windy side; and just now, Aug. 8, they are of great benefit to the bees, as we have a terrible plague of wasps. The entrances have to be contracted, which would make the hives so hot that the bees would cluster out, much to the satisfaction of the wasps. As it is, the hives are in shade, and few bees are out in front of the hive.



FIG. 3.—Shading the tops and fronts of the hives during the hottest part of the day.

Some may object to the time it takes to shift the boards. I find it takes just five minutes to shift 25 boards, or 15 for the 25 hives each day, or one hour per hundred. Surely no bee-keeper would begrudge giving this small attention. If the hives face the east, only two moves are needed.

Victoria, B. C.

[As to the value of shade-boards in many localities, there can be no question; but except in very extreme climates we presume most bee-keepers would consider one position of the board sufficient for all day.—ED.]

SOWING SWEET CLOVER ALONG WASTE GROUNDS.

What the Hamilton County Bee-keepers' Association is Doing to Promote the Spread of this Useful Plant.

BY HENRY REDDERT.

[One of the liveliest organizations in this whole country is the Hamilton County Bee-keepers' Association, located in Southwestern Ohio, and near Cincinnati. Its secretary, Mr. Henry Reddert, is an enthusiastic believer in the value of sweet clover to the bee-keeper, the farmer, and the railroad companies, who need something to hold up their embankments. It seems that the Hamilton County Association is sending out to all its fully paid up members, on the basis of $1.50 per member, 5 lbs. of sweet-clover seed, recommending such members not only to scatter seed in waste places, but to preach the value of the plant to the farmers. Would it not be well for other bee-keepers' societies to follow their example? In acknowledging the receipt of the editor's membership fee, and saying he had sent on 5 lbs. of seed, Sec. Reddert writes:—ED.]

At the last meeting of the Southwestern Ohio and Hamilton County Bee-keepers' Association, Sept. 29, the question of sowing sweet clover in waste places in the vicinity of our fellow bee-keepers' homes caused quite a spirited discussion. We gleaned that sweet clover had been cut down in many localities before it went to seed. This was especially true on the railroad banks. About five years ago the slopes of railroad banks were filled with sweet clover for miles and miles, but the companies cut it down from year to year before bloom, endeavoring to destroy it entirely. We wrote to them explaining the good the long roots would do in holding up the ground during heavy rains and washouts, A few replied that they would look into the matter, but others paid little attention to our requests.

Of the last named, the B. & O. and Big Four let it bloom until about the 18th of June. The Norfolk & Western agreed not to cut it down at all. The C. H. & D. destroyed it as soon as it began to bloom. They thought that if it was left to go to

seed, and dry, it probably would be set on fire by sparks from the engines, and do damage. I have read that the roads in some parts of the country welcome it, and urge the sowing of seed along their lines.

At our last convention we discussed the sweet-clover question — that is, how to get the farmers to use it; but some farmers are too hardheaded to see the value of it, hence we have concluded to do the sowing ourselves. Here in my locality are hundreds of acres of hillside used for nothing but pasturage. I have permission from one of my neighbors to sow as much seed as I wish on his 25 acres of hillside. This, we believe, is the best way out of it; and consequently in the near future we will put the new plan into practice in Hamilton County.

Cincinnati, Ohio.

GETTING A STAND OF SWEET CLOVER.

Its Value for the Soil.

BY GEO. SHIBER.

The experience of C. R. Dewey, page 571, Sept. 15, in growing sweet clover, or, rather, getting the seed to germinate, is decidedly different from mine. I have never tried to raise a lot of it, but have always had several small patches around our premises. It has come up almost as quickly and as surely as radish seed, whether I have sown it in spring, summer, or fall. About Aug. 15 we gathered some seed (stripped it off by hand), some being black and some green. I sowed this where I had had a small patch of early potatoes, first going over the ground several times with a hand cultivator. In a little over a week the ground was all evenly covered with young plants. I doubt whether they will winter; but as the seed was put on fairly thick I think there will be enough that did not come up to make a stand in the spring. The seed was unhulled, of course, and the white variety. My experience, although on a small scale, is that it has never been praised too highly as a fertilizer of the soil.

About six years ago one of our neighbors gave us a small handful of sweet-clover seed for our flower-garden—perhaps a tablespoonful. I sowed it in a shallow trench and covered it with about half an inch of soil. It came up all right and made a rank growth. The next spring, after it bloomed, I dug out the dead roots, spaded it well, and planted a row of sweet peas in the same spot.

We have always had very pretty sweet peas; but these were a marvel—great sturdy stalks, large dark-green leaves, and the bloom was wonderful—the finest sweet peas I ever saw. I puzzled my head trying to find out what I had done to those peas to get such fine plants; then after a while I "tumbled." It was the sweet clover of the year before.

Randolph, N. Y.

ITALIAN SWARM FLIES 15 MILES OVER DESERT.

BY C. H. MILLER.

I am sending a view of a juniper log in which I am wintering a swarm of bees. I have often read articles by writers who claim that bees have their new home located before they swarm. Now, the only Italians I know of are at least twenty miles away; so these bees, being Italians, surely must have come from there, over about fifteen miles of desert. I don't think any swarm ever sent scouts that far to look for a new location.

Redmond, Oregon.

[We believe no one has claimed that bees *always* send out scouts before swarming; that they sometimes do has been proven many times. This is an interesting case as it seems to be clear that this swarm actually traveled all this distance.—ED.]



An Italian swarm that is being wintered in this juniper stump flew fifteen miles over a desert.

THE PRIME MOVERS IN DISEASE LEGISLATION IN INDIANA.

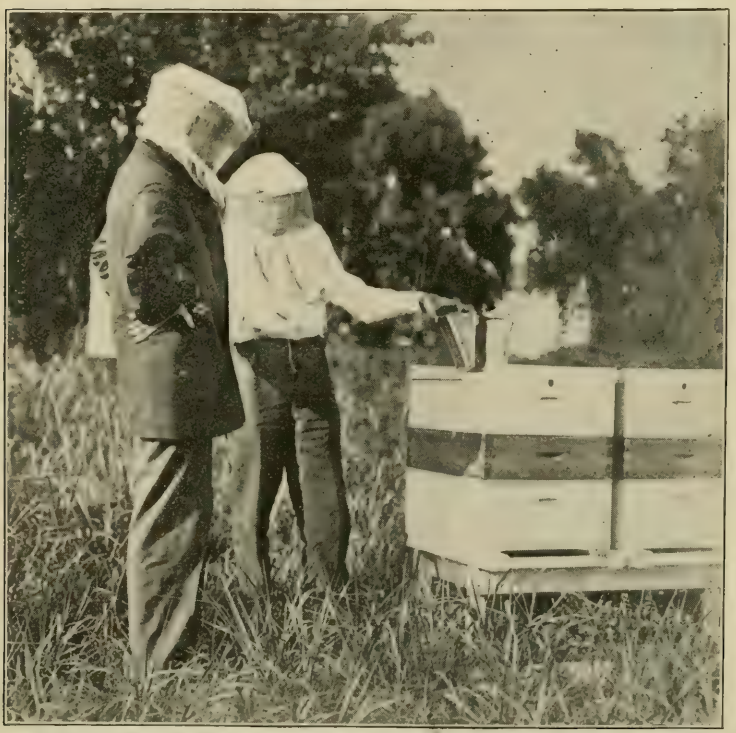
BY JAY SMITH.

I enclose a picture which I think will be an adornment to the pages of GLEANINGS. These men are not White Caps nor members of the Ku-Klux-Klan, neither are they physicians administering to sufferers afflicted with bubonic plague. The further gentleman, having more latitude and longitude than altitude, is Hon. Mason J. Niblack; and, although he is a bachelor, yet he is the father of our Indiana foul-brood law. The other gentleman, having considerable height as well as depth, is Benjamin W. Douglass, State Entomologist, and Inspector of Apiaries of Indiana.

Mr. Niblack prides himself on the fact that the veils they are wearing are a home product; but there are certain features about them that might lead the casual observer to infer that they were made in Germany.

Vincennes, Ind.

[The Indiana law is a good one, and the father of it is to be congratulated. The excellent work that Mr. Douglass has done entitles him to a better picture—one without a veil. The State may well be proud of him and his record.—ED.]



Benjamin W. Douglass, State Entomologist of Indiana, and Hon. Mason J. Niblack, who fathered the excellent foul-brood law of that State.

WHY I PREFER A TWO-INCH GLASS IN SHIPPING-CASES.

BY R. L. TAYLOR.

It seems to me worth while to say something further in elucidation of the case of two-inch glass vs. three-inch, and I am moved to this now more especially because of the manner in which Dr. Miller makes use of quotation-marks in inclosing guesses of his own, which, on a cursory reading, are apt to leave the impression that the words inclosed are mine, and I am confirmed in this view from the fact that the printers suffered them to remain—Oct. 1, p. 582.

Now a few words that the doctor may be informed as to why I think the narrow glass looks the better; and, first, what is the purpose of using glass?

Plainly, it is not primarily to exhibit the quality of the honey, for at most a two-inch glass shows only about $\frac{1}{2\frac{1}{8}}$ part of the surface of the honey in a single-tier box of 28 sections, and a three-inch glass only about $\frac{1}{1\frac{7}{8}}$ part. At most the glass shows only a sample strip; and isn't the two-inch strip about as satisfactory, as a sample, as a three-inch?

But who would buy a lot of honey from such a sample, even as shown by a three-inch glass? No one, certainly. Either a knowledge from inspection of the honey in the interior of the case is demanded, or a favorable knowledge of the person selling. I once offered some fine-looking honey to a grocer in a city where I was not known. He said he would like some honey if it were as good as it looked. "But," said he, "I once bought some honey from a man just as honest-looking as you; but when I came to look inside the boxes, the combs were mostly crooked, and some of the sections were bound together by combs running from one into another." Now, I should like to have the doctor say what difference it would have made if it had

been three-inch glass. So, as I have said, the object of the glass is not primarily to exhibit the honey, but it is to notify the handler that the box contains honey and not soap.

Now, a three-inch glass would perform this function as well as a two-inch, but no better; and against it, it must be said that there is, as it seems to me, a marked misproportion between the amount of glass and the amount of wood—a want of symmetry, a straining for effect, and therefore not artistic; and in another way it violates a canon of art; and that is, in the appearance of lack of strength. I would not affirm that the box is not, as a rule, sufficiently strong for practical purposes, but there is no denying that the narrow strips of wood suggest frailty, and that is an unpleasant blemish in the appearance of the box.

Finally, the doctor propounds as a poser this question: "If two-inch glass looks better than three-inch, why does any one prefer the wider glass in single-tier cases?" I must try to answer it, and my answer is this: Because men who are supposed to know a good deal about bees and honey persist in preaching with persevering energy the doctrine that the wider glass looks the better. False doctrine seems often to be imbibed more readily than sound teaching.

Lapeer, Mich.

THE TEMPERATURE INSIDE A HIVE IN WINTER.

BY O. S. REXFORD.

I have just been reading Mr. A. C. Miller's article, Nov. 1, page 663; and the fact that there are several statements which I doubt, because of my experiments along this line, does not make it less interesting.

Mr. Miller says, p. 664, "In winter the temperature within the hive and outside the cluster is within one or two degrees the same as it is outside the hive." While he has good authority to back him in the statement, my experience has led me to draw a different conclusion.

In packing my bees I have always followed the principle that an effort should be made to retain in the hive as much as possible the heat which I believed radiates from the cluster.

Well, I experimented with thermometers in a hive with a glass cover, and proved to my full satisfaction that, in my yard, and packed as my bees were, the cluster of bees did warm the space inside the hive and away from the cluster.

If his statement regarding the slight difference in temperature is correct, why so much trouble with moisture condensing on the walls of the hive? Surely moisture would not condense on the inside of hive-walls and cover if it were only one or two degrees warmer inside than out, for moisture never collects on windows in the house when the temperature within and without are nearly equal. It is only when the room is warm and the atmosphere cold outside that water drips down or forms a coating of frost on the glass.

Winsted, Conn.

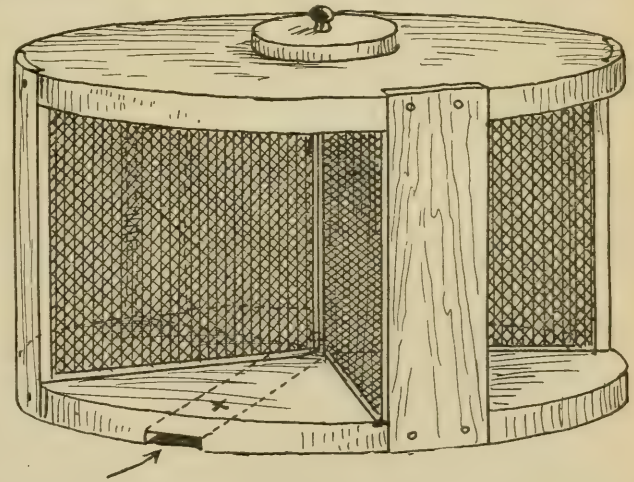
A NEW FORM OF OBSERVATORY HIVE.

Semi-closed-end Frame.

BY WALTER CHITTY.

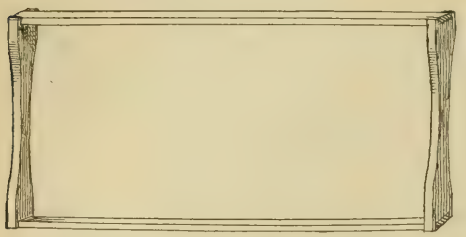
My observatory hive consists of two circles of inch wood made exactly the same size, and with a three-inch hole cut out of the center of each. At the bottom of one of the circles a bee-entrance is made which reaches as far as the center hole. The bees can run along to the center, and then ascend. Four pieces of wood, about three inches wide, are firmly fastened with screws, as shown, and three grooves are cut in each of these pieces, and corresponding grooves in the two large circles. The center grooves are for foundation, and the other grooves for glass. The foundation could be wired if desired; but if good thick foundation is used I find wiring is not necessary.

The hole at the top may be used for feeding or supering. Special supers could easily be made, another hive of the same sort put on top, or a bell-glass, as fancy dictates. I find this a very useful and handy hive for observation purposes, and the making and material are not at all expensive.



All the doings of the bees and queen can be seen; and to keep them in the dark I merely put corrugated paper around it, and keep the paper in its place with a piece of

elastic. In winter time, three or four folds of paper could be used to keep the bees warm. These hives would do well for indoor observation, or in a bee-house.



A REVERSIBLE FRAME.

The sides of the frame shown are so made as to be self-spacing. They are not intended to stand on the floor of the hive, as the bees would then fasten them down; but they could stand on metal runners, and these runners would not interfere with ordinary hanging frames—that is, special hives would not have to be made for these frames, as the ordinary hives would answer both for reversible and hanging frames.

High Street, Wiltshire, Pewsey, Eng.

[This form of standing self-spacing frame is quite old. It has been shown a couple of times in these columns, but has never been very popular. We regard a full closed-end frame as warmer and better.—Ed.]

HOW TO SECURE A STAND OF SWEET CLOVER.

BY FRANK COVERDALE.

PLAN NO. 1.

Sweet clover must be sown on land well supplied with humus or lime, or both, as it will not grow well on ground badly worn, nor in soil that is strongly acid or sour. In order to start sweet clover on such land, plow the ground to a fair depth; pulverize, and top-dress heavily with manure. Then sow the seed and harrow in the manure and seed together. A light application of lime would be of great benefit; but a good catch can be secured without the lime.

PLAN NO. 2.

Another way to secure a stand is to plow a field that has been seeded for at least two seasons to timothy, clover, or both. While it is better to plow in the fall, the spring will do. Before seeding, work the ground just as you would for corn; sow the seed, and cover, using a common harrow, and your success will be sure. Many have old hog-pastures that are overgrown with bluegrass. Those fields, when broken up, make very excellent ground for sweet clover. Sow one-half of such fields to sweet clover, and note what nice green succulent feed the pigs will have all summer long, when the bluegrass is dead and of no use to the pigs.

PLAN NO. 3.

Any field that has grown fifty or sixty bushels of corn an acre can be sown to Early Champion oats, barley, or wheat, and still make possible a stand of clover. Sow 1½ bushels of oats and one-fourth less of either barley or wheat, taking care that the ground is fairly smooth. This nurse crop will work well provided there is not a severe drouth to spoil the clover. This seldom happens in the corn belt. The clover should be well up in the grain at harvest time. If the grain is cut high from the ground it will be better for the clover. Often a fine cutting of hay will be secured later in the fall, about Oct. 1, or a fine pasture for stock. There is much to recommend this plan.

COMMENTS.

The seed can be sown any time between early spring and the last week of July; but as it makes such a strong growth the first summer, seeding should be done when convenient in April or May, using 20 lbs. of hulled seed per acre. The seed should be hulled. If unhulled seed is sown, about one-third of it fails to germinate the first season, and doesn't come up until another year. Then, again, the unhulled seed often results in uneven growth, too thin in some parts of the field and fair in others. The sower should bear in mind that proper elements of the soil are necessary at first, because of the lack of sweet-clover bacteria in the fields. Just the right conditions are required to start the nodules on the sweet-clover roots, which in time burst and multiply and fill the soil.

Do not make the mistake of trying to grow two or three crops of corn and then sow to sweet clover, as the land has not yet a supply of the bacteria required to grow it. After it has been growing on the land for a few years, and the bacteria are started, you will notice how much better it thrives. Many hundreds and perhaps thousands of bushels of this seed have been thrown away because it was not sown on the right kind of ground. The bluff deposits of the Missouri River basin seem to grow sweet clover at once under any conditions, and in all of the more recently settled parts of the United States it appears to have much less trouble in getting a stand. Sweet clover succeeds on lands so filled with alkali that nothing else grows well.

Delmar, Iowa.

BLACKS VS. ITALIANS.

BY H. D. TENNENT.

W. C. Mollet, page 100, Feb. 15, complains of the excessive swarming of the Italians in his locality, and suggests that it is in some way due to the kind and quantity of honey-plants. Having had a similar experience here, I would suggest that it is not so much a matter of honey-plants as of an over-supply of early pollen which marks this difference between the blacks and Italians.

SOURCES OF EARLY POLLEN.

The country here is rough, with considerable timber, and the average number of wild flowers. The fall flow from goldenrod and aster, though not usually giving any surplus, leaves the hives well supplied with pollen. In the spring a few good warm days suffice to bring into bloom the hepatica, or liverleaf anemone, from which the bees bring in whitish pollen. This often comes two weeks before the earliest fruit bloom. This is followed by the dandelion, with its unlimited pollen. Fruit-bloom usually does not give enough honey to start comb-building; but it does start cell-building. From this time the spring beauty, dandelion, buckeye, oak, gum, blackberry, and various wild flowers give a constant supply of pollen without any appreciable amount of honey, and the Italians abandon themselves to reckless propagation.

SUPERIORITY OF BLACKS WHERE POLLEN IS ABUNDANT IN SPRING.

The blacks would seem to be naturally adapted to such conditions, for they do not usually "lose their heads" in this way, but defer swarming until there is enough honey to justify increase, and may usually be induced to forego it entirely by giving room for surplus, and that without the baits and full sheets of foundation needed to coax the Italians into the sections.

When the breeding of bees shall have become further advanced it will no doubt be found possible to interchange the characteristics of different races when desirable, just as the different combs and color patterns, and the sitting and non-sitting dispositions of poultry may be so combined by the skillful breeder. It is evident that the same combination of traits will not suit everywhere.

The only points which I have found in favor of the Italians are their quietness and better defense against robbers; but these are more than balanced by their reluctance to enter sections, and their swarming proclivities.

McConnelsville, O.

DOES IT PAY TO HUNT BEE-TREES AND TO SAVE THE BEES?

BY ELIAS FOX.

W. C. Mollet, of West Virginia, Oct. 1, p. 590, says the trouble and expense of bee-hunting amounts to more than the bees are worth. In the last few years I have saved from trees (principally of my own finding and cutting) 22 good swarms, and in most instances have had to feed them over winter. Up to the present time I have taken from these and their increase at least 5000 lbs. of choice honey; and two years ago one of them gave me 450 lbs., and I had enough left to winter the bees. Some of the others have yielded 150 to 200 lbs.

I will admit that, while hunting these bees, I felt that it looked a little shiftless; but I never spent an hour at it when I neglected my work. All together, I presume I may have spent a month, a day or two at a time. Sometimes in my busy and solitary life (for I live alone) I have felt the need of recreation, and have taken a stroll in the woods when I have finished all of my work. I have been a hunter all my life; but there is a fascination about bee-hunting that is not surpassed even in the fox-chase. I am the only bee-hunter in this community who saves the bees. Does it pay? Some hunters have been kind enough to tell me where they have cut a tree and have left the bees, which they have tendered to me if I would go after them. In every instance I have gone, even when I did not want them.

Two years ago a farmer came to town and told me that he had cut two bee-trees on his land the day before, and said the bees were left in good condition, and I could have them if I wanted them. He keeps a few colonies too. The next morning I hitched up my team, drove to his home, put the team in his barn, and we went to the woods. In a short time I had them in my boxes, and under the buggy-seat. I reached home before noon. One of these swarms was black and the other Italian, so I killed the black queen and put all together in a ten-frame hive and fed them 30 lbs. of good syrup. Last year they made 100 lbs. of honey, and this year an equal amount, besides casting a large swarm.

Even if it did not pay to save the bees, there should be a law in every State in the Union with a penalty of $5.00 fine and costs for each offense of robbing a bee-tree and killing the bees or leaving them to perish from starvation and cold. I have cut trees and have saved the bees as late as the 24th of November, and have carried them and their honey, my ax, and saw, home on my back, walking a distance of two miles. Here was a case where I really felt that it was a dearly bought swarm, but they made it right the next summer.

Union Center, Wis.

Bees do Not Seal Poisonous Substances in their Combs.

In the Aug. 1st issue for 1909, page 476, mention is made of poisonous honey. In December, 1900, I visited a missionary in Sikkin, a native state in the Himalayas. A preacher was just recovering from a severe sickness caused by poisoning from eating honey. My friend told me it was quite common there; and as she described the symptoms, they seemed the same as poisoning from belladonna or datura, commonly known among us as jimson weed. The night-shade is also common here, yet I never heard of poisonous honey here in Colorado.

When I came home I inquired of a bee-man as to why honey from these flowers is not poisonous, and he said bees never seal any poisonous substance in their cells, and that doubtless the honey the natives of the Himalayas use is wild honey, and they gather it without regard to whether the cells are capped. I am sure that the honey the native preacher ate was wild honey, and I think the other cases my friend mentioned were also caused by eating wild honey.

La Junta, Col., Aug. 19. E. F. EDGERTON.

Heads of Grain from Different Fields

Can Foundation Carry Disease?

About the middle of May I inspected my bees for foul brood. Four colonies were found diseased. Two of them were in a very weak condition, so that it seemed best to unite them, and, later, to shake them on full sheets of foundation. The third colony was dequeened, and the fourth was shaken on full sheets of foundation. These are now in good condition.

During the latter part of May, and through June, several swarms issued. Some of these were hived on drawn combs, and others on full sheets of foundation. In August they were again inspected, and it was discovered that the three that had been hived on full sheets were infected.

My neighbor caught a swarm of bees the previous summer, and hived it in an ordinary box. During fruit-bloom this year he called on me to transfer them. No trace of disease was evident at that time. They were transferred on full sheets of foundation, from the same batch that I used for my own bees.

These bees built up well during the summer; but in August, when I examined them, they were infected.

So far as we know, these colonies did not rob other bees, as there was no robbing in my yard; and my neighbor, having but one colony, was not annoyed in this way. There are some bees scattered through the country within a mile and a half or two miles, but the condition of these is not known to us.

The infected colonies that were transferred in May were shaken on a different lot of foundation than the June swarms and my neighbor's colony. These facts have led me to think that the full sheets of foundation may have been the cause of the disease, together with the knowledge that some beemen render their combs in solar wax-extractors, the heat of which is probably not sufficient to kill the germs.

Thayer, Ind., Oct. 30. A. De Koker, Jr.

[If diseased combs were rendered in a solar extractor, and foundation made from the wax with a hand mill, we can see that it *might* be possible for such wax to carry the disease, although we regard the possibility as exceedingly remote. Sunlight alone is a powerful disinfectant, and then the wax has to be heated again before sheets can be made, even by the dipping process.

Foul brood may exist even in bee-trees; and since a little robbing might not be noticed by the apiarist, it is easy to see how the exchange of infected honey (the medium by which the trouble is known to be carried) could spread the disease broadcast.—Ed.]

Gnats; do Bees Start Quicker in Comb or Extracting-supers?

Dr. C. C. Miller:—Do flies and gnats do any harm in a colony of bees? Last spring, in looking over a new swarm I was surprised to see foundation that had not been drawn out covered with black gnats; and now I see them quite thick around the entrances of the hives. They vary in size from gnats to common flies. Are they an enemy of the bees, or is it just a freak abode for them?

Will the bees start work in a super with full sheets of foundation in the section boxes as soon as they would in an extracting-super with only foundation?

Everett, Wash., Oct. 17. Grover Hays.

[Dr. Miller replies:]

I don't believe gnats do any harm unless it be to annoy the bees by their mere presence. Probably there is something to attract them, although one can hardly think of any thing to attract them in undrawn foundation unless honey or something else attractive has been used as a lubricant.

Sometimes the bees will commence work immediately upon foundation just as soon as it is given, in which case there would be no difference. Sometimes they are more slow about it, in which case they would be likely to begin sooner in the extracting-super than in a section-super with the sections separatored. The difference might lead to the result, in some cases, that work would be begun on extracting-combs, and not at all in supers. But a proper bait should always be used, and a bait will be accepted as readily in one as in the other.

The Disposal of Cappings.

In the Nov. 15th issue for 1908, p. 1381, I gave a description of a cheap and easily constructed capping-melter. The continued use of this melter has demonstrated that it is a good one for an apiary of moderate size. I have learned a few things in the operation of the machine which may be of use to some who have not as yet tried this method of handling their cappings. Because of the fact that I drain my cappings when the white-honey harvest is on, there is not very much honey left in them to go through the melter. When extracting the fall crop, which is dark, and is sold to the cracker-factories, I run the cappings directly into the melter. My melter is made by placing one pressed-ware dishpan inside of another a size larger, holding them apart one inch by means of little bridges soldered in by the tinner, this one-inch space being for the water. I work this on a Harrison blue-flame oil-stove. A small flame is not sufficient, for the cappings melt quickly and pass out through the tube which runs from the inner pan. The important kink is to know when to shut down and clean the pan. The black slumgum will accumulate, and it is not good policy to run all day, as we did at first, without cleaning it out. Let the melter drain down close, then use a large spoon to take out the black residue, which should be placed in a receptacle to go into the rendering-vat. It is the *cooking* of the honey in this slumgum that has a tendency to color and give the honey a bad flavor.

Here in Wisconsin we can seldom get the late amber honey extracted without using a good deal of heat. We stack our supers in the shop and keep the temperature up to 90 or 95 all day. Where this is done, the ordinary uncapping-knife works very well, and the honey comes out quite clean.

Bridgeport, Wis., Nov. 2. Harry Lathrop.

Will Bees Start Cells if their Queen is Merely Caged in their own Brood-chamber?

I want to get queen-cells early next spring to divide with. Will the bees make queen-cells if I cage the queen and leave her caged in her own hive?

If I have to take the queen out to get the bees to make queen-cells, what can I do with her? Will they kill her if I cage her over another hive of bees? If I can cage the queen and leave her in her own hive, will I have to introduce her when I go to turn her out? or can I just open the cage and let her out?

If I have to cage the queen over some other hive, will I have to introduce her when I go to put her back to her own hive?

Courtenay, Fla. L. LaRoche.

[You will have no difficulty in getting queen-cells started if you cage the queen in another hive; but you can not be very sure of getting bees to start cells if you cage their old queen in the middle of the brood-chamber. They will start cells sometimes if this is done, but not very often. For this reason it would be better to cage her in another hive, placing candy in the cage with her, for you can not always be certain that the strange bees will feed her.

Some follow the plan of caging the queen of a swarm when, for some reason or other, the swarm will not remain in the hive where placed, and in some instances cells are started. While we are not sure, we rather think that the bees of the newly hived swarm would be more likely to start cells under such conditions than those of a normal colony where nothing else had been done except to cage the queen on one of her old combs.—Ed.]

Drone Brood Found above an Excluder in Combs that had Contained No Eggs.

Mr. Samuel Simmins questions, Aug. 1, 1910, p. 481, whether bees move eggs. I had three or four cases this year that seemed very unusual to me. I put half-depth extracting-supers on all colonies in the spring as fast as they became strong enough to take them. In each case queen-excluders were put on at the same time; but later I found a small amount of drone brood — perhaps three or four square inches—in three of the extracting-supers of three colonies. There was at no time any queen or

any other brood above the excluder. The drone brood in each instance was at the lower edge of the comb, and just above the zinc.

Last year, in rearing queens I shook a queenless colony on to some combs that had been partly filled with honey, placing a queen-excluder beneath the bees, and giving them at the same time a single comb of eggs and larvæ just hatched. Later I found four fine large queen-cells on the face of the comb next to the one which I gave them, and which contained the only brood or eggs in the hive. Mr. Simmins might claim that the drone eggs, above the queen-excluder, were laid by a worker bee, though I never heard of a laying worker in a colony containing a vigorous young queen, such as each of the three colonies mentioned had; and in the latter case, laying workers would be out of the question, for the cells developed fine young queens.

Battle Creek, Mich. FREDERICK H. HARVEY.

More Wasps Going in and Out of a Hive than Bees.

I was interested in reading the letter from Mr. Hand, p. 514, Sept. 1, on outdoor feeding and the comments following, as I had put out two pans of syrup a few days before, and I had the annoyance of seeing it practically all taken by wasps; so, until I have further information, I have stopped feeding this way and am feeding inside the hives.

We have had much trouble with wasps this year, and they seem particularly bad just now, attracted, probably, by the honey extracting. With one of three queens which I bought this season I formed a nucleus; but found, a few days after, that there were more wasps going in and out of the hive than there were bees, and on the alighting-board a very considerable number of bees' legs. I opened the hive and found in it numerous wasps. One of the frames of drawn-out foundation holes had been eaten, and the hive-floor was strewn with bees' legs. The capped brood given to the nucleus had the cappings stripped off, and the brood was mutilated. The queen with a few bees was between two frames.

I added another frame of bees, and closed the entrance with grass. To-day, 48 hours after, the bees have eaten through the grass and seem to be all right. Yesterday, while the entrance was closed I put a bottle of syrup on the hive-cover, and by this means caught a lot of wasps. We find the wasp a serious nuisance. I am unable to find out what becomes of the bodies of the bees. I saw several young bees emerge from the hive in a crippled condition. Had they been stung? Can you give me any information that will help me in my troubles?

Okanagan Landing, B. C. K. PETERS.

[Wasps making so much trouble is unusual. See our reply to C. Isaac, p. 636, Oct. 15.—ED.]

Carbolineum to Drive Ants Away; Spiders a Source of Annoyance.

Ants have annoyed me in the way complained of by Mr. Muth-Rasmussen, page 634, Oct. 15. Last spring I painted my bottom-boards with Avenarius carbolineum, and no ants appeared. Later in the season I put out an unpainted bottom-board, and the space between the super and outer covers was soon occupied by thousands of ants, but they did not seem to object to the carbolineum which had been used on the alighting-boards.

Various kinds of spiders have troubled me very much in other seasons by building webs and nests under my alighting-boards, and lying in wait for any returning bees that, missing the entrance, chanced to fall to the ground. After the treatment with carbolineum the spiders were also conspicuous by their absence. This is my experience with carbolineum for one season only. I give it for what it is worth. Speaking of spiders, the big yellow and black fellows seem to me to show as much calculating intelligence as any insect I ever came in contact with. Every fall, morning after morning, I have to tear down the great webs which they have built in front of the hives. In order to suspend their webs in proper position to catch the bees in flight they frequently string their supporting cables from a high fence to small fruit-trees several feet away, showing considerable engineering skill.

Referring to Mr. Rinehart's question, p. 635, Oct. 15, I never see a picture of an apiary with shade-boards on the hives, and weighted down with bricks and stones, without wondering why more bee-keepers do not use the deep cover. I do not see how it can be more expensive or more trouble to handle than the flat cover with shade-boards and weights, and in this climate it is good for both summer and winter, with no change except the addition of a few inches of packing between the super and outside covers for winter.

Louisville, Ky. W. C. FURNAS.

Wintering a Surplus of Queens; a Plan for Requeening After the Honey-flow.

Some time ago GLEANINGS published a few reports on the question of the wintering of a number of queens in one brood-nest. Apparently it did not attract much attention, as we have heard but little about it lately. Next to better methods of raising queens, I consider this the most promising field for investigation in all beedom.

I wish to requeen every year; so, as soon as the honey-flow ends I divide the brood-nest in halves by inserting a close-fitting division-board. Out of this board I cut a space 6 x 12 in., and cover it with wire cloth. To each half I give a select cell from a choice breeder. After each queen has been laying, I take frames, bees, queen, and all from one side of the division-board, and place them in the upper story, putting in their place empty frames of comb or frames of foundation, at the same time removing the division-board. Between the upper and lower story I place a queen-excluder. The result is, two queens breeding strong colonies which are sure to winter. Then if I can not carry both queens over the winter I have a choice of two that have had a good long time to show their worth. But if I can winter both, I have two queens laying in one hive, and large quantities of brood early for the harvest.

At the beginning of the honey harvest, pinch the head of one queen and let the other one survive. Now, what is the matter with that proposition? I wish to avoid useless experiments, and have been very much pleased with the idea. Will it work?

Toronto, Can., Nov. 6. CHARLES E. HOPPER.

[Your plan is all right if it will work; but so many have met only failure when trying to work two or more queens to the hive that the prospect for others to make a success of it is not assuring, to say the most. The same failures in trying to winter a plurality of queens to the hive is equally discouraging. We do not wish to throw cold water on either proposition, and therefore we commend your zeal in going at the matter as if you *expected to succeed*. It is that spirit that makes success. We should like to hear from you next spring and summer. If you or any one else can evolve a plan whereby two or more queens can be wintered so as to be available the following spring when they are so scarce, you will place the bee-keepers of the world under great obligation to you. It is well worth the trial.

We know there are some who say they have succeeded; but apparently no one has been able to duplicate their success.—ED.]

How Many Colonies will a Square Mile of Alfalfa Support?

Can you give me an estimate of how many colonies of bees can be kept profitably per square mile of alfalfa in an irrigation project, where it is produced for hay, and blooms twice, being in bloom about a week each time? I consider a yield of nearly 100 lbs. of extracted necessary for success here.

Garland, Wyo., Oct. 26. JOHN HENDRICKS.

[This question is one that can not be answered definitely. Those who live in the alfalfa region have said that, when conditions are just right, as many as 1000 colonies might be kept on 40 acres of alfalfa. Of course, conditions are so rarely just right that this number is all out of proportion with the average. The truth is, there are times when only 40 colonies would starve on 1000 acres. There is really no way to tell except to start with a few colonies, and cautiously increase. We should say that it would be the exception rather than the rule when more than 200 colonies at the very most could be kept in one location — the average number being, perhaps, not far from 100 colonies.—ED.]

Can a Bee Fly Backward?

A few days ago as I was coming in with a load of hay a bee met me and proceeded to investigate. It tumbled down in the hay; but after a minute's rest it rose and hovered over a bunch of dried flowers. It kept about three inches above the hay, and at a spot not over a foot from my knee, so I could observe it closely, and I am sure it was not touching or holding to any of the hay, yet it remained motionless (relatively) except for the buzzing of its wings, the motions of which were not very rapid. In fact, it reminded me of a hawk floating in the air over one spot, and flapping its wings slower than in ordinary flight. The point is, my team was moving at a brisk walk; and as the bee's head was toward the rear of the load it must have been flying backward; and as it kept its distance of about three inches above the hay while the team went 100 or more feet on level ground, it did not "slide" down and back either. So we must conclude that what a bee ordinarily does and what it *can* do are different things. Not only did this bee fly backward on a level, but it seemed to do it easily; and when it finished its investigation it turned with a sharp buzz and left us behind.

LOCALITY.

Locality is one of the biggest words in the bee-keeper's vocabulary. Much that we read is misinformation for us because nine writers out of ten do not allow enough for its influence. Every apiarist must know his own location, and use this knowledge as a sifter of all that he reads. For a long time I thought Wesley Foster's conditions at Boulder, Col., ought to approximate mine here at North Platte; but I keep getting rude jolts of difference.

To bring it closer home, just across the river (Platte) from me is a man who harvested this year a lot of honey with a distinct pink tinge, such as I never saw before. A few miles to the west the honey is all the regulation water-white alfalfa and sweet-clover. While I got over 800 lbs. of Spanish-needle honey, and the people in this locality "howl" for it, in both section and chunk form, it would have been a mistake to extract it. If I had been in some locality where the bees are often confined to their hives for months at a time it would probably have been a mistake to leave it in the brood-chamber for winter stores; but in this locality the bees get a flight nearly every week. They are doing well, and I think the honey is the best yet, as it does not granulate as badly in the hives as sweet-clover-alfalfa does.

YOUNG QUEENS.

The pressure of opinion seems to be so strongly in favor of year-old queens that even Dr. Miller does not try to stand up against it, but simply says that the bees have sense enough to attend to that in his locality. I find that in six of my best colonies three had two-year-old queens, one a three-year old (clipped, so I know), and two had one-year-old queens.

NO NEED OF PREVENTING ALL SWARMING.

The only system I have any use for is the Demaree or Allen, and I don't use that very much. No "slaughter of the innocents," and no cumbersome manipulation for me. In my locality I have had no trouble so far in keeping swarming down to 10 or 15 per cent, and I would rather let them swarm that much than to break my back. Of course, there may come a year that will fool me.

My methods? Nothing new; shade in the heat of the day; plenty of ventilation, and when they get full below I bait them up into a 5⅝-inch frame super with a few shallow extracting-combs, or, what I think better, a few nice new unfinished combs, started at the close of the flow the fall before. As soon as they have made a good start in earnest on these, I put on a section-super; then when this is well started the frame-super (bees and all) goes on to a sulker if I have one, and I generally find it is irresistible. As I use only two or three bait-combs in the first super, the other frames have only narrow starters, and, when filled out, these sell as chunk honey in the frame. The customer cuts it out and gets sixteen ounces to the pound, net weight, and that's irresistible too.

North Platte, Neb. LOUIS MACEY.

Time Required by Bees to Make a Trip.

As an old bee-hunter, I can say, in answer to the questions of Mercie R. Williams, p. 602, Oct. 1, that when bees are being fed and making regular trips, it will take them 8 minutes to go from a third to half a mile, unload, and return. If they are gone from 13 to 15 minutes they are a mile away. They will not often vary more than half a minute. As to their resting, I am sure they sometimes do so, for about once an hour a marked bee will fail to put in an appearance, and will be absent about twice as long. When a bee-tree is no more than 20 rods away, the time used in going, unloading, and returning, will not vary much between four and five minutes. The distance the bee must crawl before it can deposit its load causes some variation in the time required for the trip. It takes much more time for loading from flowers than from diluted honey. Bees working on a buckwheat field a mile away could not possibly gather and carry home more than three loads per hour.

Jamestown, N. Y. J. W. WILSON.

If Combs are Frozen, No Moths will Develop.

In regard to the controversy relative to combs and moths, p. 582, I would say that, if combs are stored in an outside building, and subjected to a winter's freezing, no moths will develop or hatch in them the following summer unless the millers come in contact with them and deposit eggs—at least this is the case in this locality. There will be no moth-millers here until they are developed from moths hatched from eggs that are laid in the brood-chambers late the preceding season before the bees are taken to the cellar: and unless combs are stored in an absolutely tight building, some of these spring-hatched and developed millers will sometimes find their way in and start a crop of moths about July or August.

EIGHT-FRAME SUPERS ON TEN-FRAME HIVES.

In reply to J. W. Lowry, of Texas, page 584, Oct. 1, relative to using eight-frame supers on ten-frame brood-chambers, I will say I have no trouble in using them that way by setting the eight-frame right on top of my wood-bound queen-excluders.

Union Center, Wis. ELIAS FOX.

Preventing Bees from Storing Pollen in Supers Containing Bulk Comb Honey.

I should like to work about ten colonies of bees for bulk comb honey. I had two that I worked for that purpose last season, using extra-thin foundation of full size. In one I got nice white comb that I could sell easier at 10 cents per lb. than I can sell sections at 16; but in the other super there was pollen mixed in so I could not sell it. Would a queen-excluder prevent this?

I also wish to use extra-thin foundation for 4 x 5 sections. Can I put some in full size to fit exactly all around, cementing with wax on all four sides? Would the bees commence work in the supers sooner if I put two or more bulk-comb frames in with the sections?

Leonardsville, N. Y. C. L. CRANDALL.

[A queen-excluder will help somewhat in keeping pollen out of the supers; but prevention is better than cure. Ordinarily the bees will store their pollen as near the brood as they can; and if you take care to provide a couple of combs containing some pollen on the outside of your brood-chamber, making sure that there is empty space for more, the bees are not so likely to show a tendency to take the pollen upstairs.

You can put full sheets of foundation in 4 x 5 sections in the manner you suggest; but we believe you would get better results by fastening the foundation at the top, and only two-thirds the way down at each side of the section, rather than fastening it all around. This saves some work, and results in rather better honey, as bulging is thus prevented.

Super work would be begun sooner if you used a couple of frames for bulk comb honey as baits; but we do not know that they would begin any sooner than if you used unfinished sections for bait.—ED.]

Large Italian Queen whose Eggs were Not Fertile.

I once had a queen, only about 20 per cent of whose eggs were fertile. I gave her brood several times; but that did no good, so I gave the queen to a neighbor and told him to try her. He killed a black queen in a strong colony and introduced mine, and he said very few of her eggs hatched. She was an extra-large Italian queen.

Walla Walla, Wash. C. A. MCCARTY.

Our Homes

A. I. ROOT.

But one thing is needful: and Mary hath chosen that good part, which shall not be taken away from her.—LUKE 10:42.

I suppose my readers all have a Bible of their own. In our Sunday-school down in Bradentown our good friend E. B. Rood is superintendent. He is not only an enthusiast on bees and gardening, but he is an enthusiast in Sunday-school work. I wish you could all be present and hear him open up our Bradentown Sunday-school. One of his special points is to make everybody bring a Bible—young and old. Just as soon as Sunday-school is opened he asks the question, "How many of you have Bibles? Hold them up." And he has finally succeeded in having almost every man, woman, and child hold up a Bible every Sunday morning. I think that on one morning I was almost the only one without a Bible; and when I ventured as an apology, "*Mrs. Root* forgot to bring our Bible this morning," there was quite a little merriment, even if it was Sunday morning and in Sunday-school.

Well, now, friends, I want each one of you to get your Bible and turn to the closing words of the tenth chapter of Luke, beginning at the 38th verse. Jesus himself, our Lord and Master, was making calls. How would you like to have him step into your little home some bright morning? If you only knew he was coming you would have every thing brushed up, the porch scrubbed off, things put away, and every thing in apple-pie order; for we read somewhere that "order is heaven's first law." I am not quite sure that it is in the Bible you are holding in your hand, but there is something in the Bible, from the pen of Paul, saying, "Let every thing be done decently and in order."

The place where Jesus was going to call was the home of Mary and Martha and of their brother Lazarus—the one we are told about later on. I suppose that, when the Saviour called, he took a seat and began speaking. Martha was busy in picking up things, or in making some preparations for refreshment; but Mary—bless her heart—dropped every thing and sat at his feet to drink in his words—"Blessed are they that do hunger and thirst after righteousness, for they shall be filled." Mary was *hungering* for his precious words, and we can imagine how eagerly she drank in the Master's teachings. Now, these women or girls—we do not know how old they were—were both good women. Martha was one of those busybodies who must have every thing just so or they can not live, or at least live and be happy. She was a good housekeeper—a model one, and there are many of them left nowadays. May God be praised for them. I do not know what we should do without them. Marys and Marthas are both needed in this world of ours. Martha, however, was not satisfied to bear her particular burden alone. She reasoned, naturally, that Mary might come and help; and after they had got things in order, and the dinner going, perhaps they could both sit down and listen. But our good friend Mary was so delighted with the opportunity of listening to the great teacher she forgot all else. We are not sure she knew just then that he was the Messiah, but she had wisdom enough to know that he was a wonderful man and a prophet. She dropped every thing and forgot all in her devotion, and left Martha, as we are told, to serve alone. Poor busy Martha! I am afraid she got a little cross, as such women often do. She finally made a protest to her guest, and asked him to send Mary to her that she might assist just a little while she was engaged in the necessary household duties. I am glad that we have a record of this little incident. What did the great Teacher, *God's only begotten Son*, think about it? Listen to his reply: "Martha, Martha, thou art careful and troubled about many things."

We may be sure that his words of address were loving ones. Even though it was a rebuke, the words were tender and kind. And now come the words of our text. I do not know but it is a sort of lack of faith, but some way it does seem to me that the Savior at times spoke extravagantly. These very words, "but one thing is needful," seem to poor humanity almost too strong. If he had said "comparatively," from our human standpoint it would seem more natural; but he replies to that busy, efficient house-keeper, that only *one thing* is needful. Did he mean that this word should apply to your busy life and mine? Did he mean that we should neglect the children, leaving the porches looking untidy where muddy feet have thoughtlessly tracked over them just after they have been mopped off? Did he mean we should let the dust accumulate, the children go with dirty faces, soiled clothing? Oh, no! We are not to understand just that. But when we are thinking of the household cares we should remember that spiritual matters are of *more* importance than any thing else.

Down in Bradentown I am not only always on hand at Sunday-school and preaching, but I am also on hand, usually, promptly at the midweek prayer-meeting. There is always a good attendance at our prayer-meeting in Bradentown—often a better one than at our Medina prayer-meeting, where we have three or four times as large a church enrollment.

For several months past here in Medina we have had no pastor, and the prayer-meeting has been permitted to run down as a natural consequence. Others as well as myself have tried to keep it up; and when somebody said, "Why, there will not be over a dozen there," and gave *that* as an excuse for

staying away, I tried to remonstrate; but it did not seem to do much good. Well, last evening, Nov. 2, our prayer-meeting room was crowded. It was the second prayer-meeting since our new pastor has been with us, and he is getting a great hold on the people. At the close of the meeting I expressed my joy at seeing such a roomful, and exhorted them to keep it up during my absence of six months. I quoted the words of our text, and told them I knew what it was to be so tired when it came Thursday night that I felt as if I could not go out anywhere; but I added that I always felt glad when I overcame that feeling. I am glad to say that Mr. Calvert is also always on hand at prayer-meeting. He told us on one occasion that the prayer-meeting is the "power-house" of the church. Now, what I am getting at is this—which is the more important—the prayer-meeting or something else—worldly matters, for instance? When you come to die, and memory goes back over the long life God has given you to live, what will seem to be of the most importance at such a time? When you come to invoice and sum up all the cares and responsibilities of life, shall we not agree, or at least nearly agree, with the words of the Savior—"But one thing is needful"?

Bee-keepers are busy men. I think their wives, as a rule, are busy women. Perhaps their husbands' many enterprises help to make them busy. Well, I confess I have often felt sorry to see the bee-keepers I have visited having so many "irons in the fire." I am guilty myself, I know. In my old age I am trying to profit from past experience. A great many say to me, "Mr. Root, do you not keep *bees* in Florida?" They seem surprised when I tell them I do not. I just keep chickens (and *ducks*), and nothing else. I have been longing for some Hungarian partridges, like those so dear to my heart around the deserted cabin in the woods in Northern Michigan; but I am determined not to have too many things on my hands in my old age. Once last winter I did not prepare any Home paper, and there was quite a little complaint. I was so busy with the chickens and incubators that I did not have time.

Now, friends, when you are thinking of getting something on your hands to make money, or, if you choose, to have fun with, please do not forget the "one thing needful." I presume a large part of the world nowadays would think, at an offhand glance, that money—more money—is the "one thing needful." Money is a good thing to pay honest debts with. Be square before the world, of course, before you die, and let us beware about *having* such debts when death comes. Prevention is surely better than cure in such cases.

Finally, what *is* the one thing needful? Does the Savior really mean it when he just narrows down all the business of a human life? Here are his concluding words, found in the 42d verse: "Mary hath chosen that good part which shall not be taken away from her." Dear, good, wise Mary! All her thoughts and energies were absorbed in "laying up treasure in heaven where neither moth nor rust doth corrupt, and where thieves do not break through nor steal."

Let me mention once more a dear friend of mine who thought he had not had his share in the division of the parental property. He talked it over and thought it over, and it made his whole life unhappy, and yet he had money out at interest. He did not *need* that money that made his life unhappy, and he had no use for it. Finally a relative, who saw his state of mind, in order to relieve him gave him outright the sum in question. Did it make him happy? Perhaps it diverted his mind from that one subject. But the money was put out at interest; and as he had no use for even the interest, it just accumulated; and all at once, to the surprise of every one, he took a sudden cold, which developed into pneumonia, and he died with scarcely time for a thought about death. Such things are going on all around us. Dear friends, what is the use of fighting and quarreling over a little money, especially money we do not need, and for which we have no use? We are told that heaven and earth shall pass away; "but," says Jesus, "my words shall not pass away." Again, in I. Peter, 5:4, we read, "When the chief Shepherd shall appear, ye shall receive the crown of glory that fadeth not away."

A few years ago I bought quite a nice suit of clothes. As soon as I went out into the sun they began to fade, and in a little while they were "hardly fit to be seen," as Mrs. Root expressed it. If I am correct, there is quite a little trouble nowadays with cloth that "fades." Over ten years ago I paid a little more than usual for a suit of navy blue, and it has not yet faded a particle. When I brush it and clean it up, it still looks good, because it does not fade. Will it not pay us to invest in that crown of glory that fadeth not away? As I take it, the Savior meant that we should give less time to wordly affairs that fade and pass away, and more time to the things that not only make us happy through life, but go with us beyond the grave. We can not literally go and sit at the feet of the Savior as did Mary of old; but we can listen to the teachings of God's holy word. We can be prompt in attendance at the house of worship. We can be on hand at the prayer-meeting; and, furthermore, we can, with a little effort, take somebody along with us. That reminds me that, at the close of the first prayer-meeting led by our new pastor, he asked how many would try to come to the next meeting, and bring somebody along. All hands went up; and the consequence was, the prayer-meeting room was full to overflowing.

Now, if you are not interested in my talk about the one thing needful, you will surely be interested in another visit our Savior paid to the home of Mary and Martha. See the 11th chapter of John. It is a beautiful sequel to that part of the chapter we have

been considering, and to which I wish to call further attention.

This Home paper is dictated to-day, Nov. 3, just before Mrs. Root and I start out (with the birds) to our southern home for the winter.

BEE CULTURE AND SOME OTHER THINGS IN SOUTH AFRICA, REPORTED BY A MISSIONARY.

Dear Brother Root:—As I was returning from town the other day I stayed all night with Mr. Haviland, a neighboring farmer. I found he was interested in bees, and he said he was taking an American magazine on bee culture, by "A No. 1, Root." As I was an American, perhaps I knew him. It is not an unusual thing for some one out here to ask me if I ever met such and such a person of his acquaintance in America. As America is a pretty big place, I have generally had to confess that I never had that pleasure. But in this case I was glad to say that I did know him very well; that I was born and brought up within a dozen miles of where he holds forth, and I have also been to his hive establishment and talked with him face to face. This is not a solitary instance of my making friends through the honor of your acquaintance. I find that only the A. I. Root bee-supplies are to be bought in this part of South Africa. I found at the two government experiment stations, at Cedara and Weenen, that GLEANINGS is taken and read with interest. In fact, any one who has any thing to do with bees on the modern plan knows of "A. No. 1. Root." I did not know before that is what "A. I." stands for. But perhaps it is not altogether a bad title.

Years ago, when I first came to Africa, I wondered why more was not done with bees out here. You may remember my telling you how the natives at Inhambane do a thriving business with wax, making rude hives of the bark of a tree which they place in the trees for wandering swarms to occupy; and how in some places in the wilderness the only food we could get was honey, which was as clear as water, and of a delicious flavor. Now I see the business is being taken up in a scientific way, and one correspondent of GLEANINGS from Natal confirms what I have believed all along, that apiculture ought to be "A I" business in this country. The price of honey is twice what you get for it; there are plenty of flowers, and no cold weather nor diseases to contend against; and if feeding is ever necessary the price of sugar produced in the land is cheap. I have long thought of going into it myself, but I have been deterred by various reasons, among which are some unfortunate personal experiences.

The first was the loss of a fine mare. She was hitched with other horses near a hive of bees which the missionary with whom I was staying undertook to rob of its honey. The enraged insects drove the missionary away, and then lit on the horses. We managed to get the others loose before they suffered much hurt. But mine, being the nearest, received the most of the swarm. She was in terrible agony, throwing herself on the ground and pounding her head, and in about two hours was dead.

My next experience was with one of my children, a boy about six years old. A hive had been enraged by some schoolchildren, and the boy innocently ran among them. They settled on his head; and no doubt but for the heroic efforts of our governess he would have been killed too. She heard his screams, and ran and covered his head with her apron, receiving many of the stings herself. Then she carried him into the house. He went into a high fever, and for a day or two his condition was serious.

Another time I was visiting a missionary and the bees got on a rampage, so that no one dared go outdoors. They stung chickens, turkeys, and pigs, and killed some of them. Only lately I saw in the paper an account of a man who went out to take up some honey, and he was found dead beside his hives. The bees had stung him to death.

Yet ordinarily these bees seem to be gentle and docile enough. I have seen the natives nearly naked taking out honey from an ants' nest. The bees were all around them and over them, and they did not seem to mind it. Swarms often take possession of corrugated-iron houses, and establish themselves between the outside iron and the ceiling-boards inside, and they are often very hard to get rid of. But I have seen them located over the door in a railway station where people were constantly passing in and out, and no one seemed to get stung.

Now, can you explain these outbursts of rage? I saw in your pamphlet that it was because their food was taken away from them, or something of the kind. But that does not explain every case, as it seems to me. Sometimes they are very quiet when their honey is being taken up. I took up the honey from the parent of the swarm which killed my horse, without any smoker, and I did not get stung more than once or twice. Then I have known the bees to "run a muk" when they had not been disturbed at all. I have known swarms that could not be approached at any time. I encountered such a swarm in the wilderness on our way down from Gaza Land, hundreds of miles away from civilization. It was in an immense baobab-tree. The tree seemed to be hollow, and full of bees. But you could not go within a a hundred yards of the tree. My native carriers said it was because they had much honey in store. They had often taken up wild honey, but not one of them dared go near that tree.

Nevertheless I am going into the business. I am ordering a Danzenbaker hive and all the up-to date accessories. The mimosa-trees are full of blossoms which last a long time, and are swarming with bees. Then we can plant alfalfa and sweet clover, and there are many wild flowers which the bees seem to like. So, count me as one of your disciples.

I did not come out here to make honey or money. I came to bring the gospel of love and light to a people who are in great darkness. But the change from the life of a naked savage to that of a clean Christian is so great that, if there is not found some means of self-help, the converts are discouraged, and are tempted to fall back or get the means of the more expensive mode of life in a dishonest way. So I am ready to take up any industry which seems to offer the means of help for the benefit of these people. It appears to me that bee-keeping rightly managed should be one. At any rate, I am going to try it. Will you not pray for my success?

Bethany, M. S., March 20. W. C. WILCOX.

My good friend, I am inclined to think the bees in your region are a little more vicious than ordinary ones, if what you say is true. At certain times and under certain conditions we know bees are very much worse than at others. Where they are accustomed to see people and horses passing daily they seem to take it as a matter of course. I have before mentioned that our big heavy work horses go right through our apiary a dozen times a day; and although there are several hundred colonies on both sides of the narrow driveways, the bees never pay any attention to the team nor to the driver; and I am pretty sure that bees that have not been handled, and that have not seen either people or horses passing in front of the hives, are much more apt to be cross. May God speed you and hold up your hands in your attempt to clothe the naked savage and bring him to the foot of the dear Savior, where he can be taught Christianity and civilization.

CATCHING RATS BY THE DOZENS AND HUNDREDS.

The following, which we clip from the *American Poultry Advocate*, is something similar to what I saw years ago. As I understand it, you are to provide yourself with a wire trap, big enough to hold a score of rats or more all at one time. My impres-

sion is that such a trap costs from 50 to 75 cents. See the report below:

When one proves a good thing, I believe in passing it on to our neighbors—and we are all neighbors; therefore I want to tell you that the best "bait" for a wire rat-trap that I have ever found is a few good-sized live rats. I caught one in a new trap, concluding to leave it in there a few days, thinking it would probably scare the others away. Imagine my surprise the next morning to find seven or eight very large ones in the trap. This gave me an idea; and, killing a part of them, I left the others as "bait," putting a good-sized meat bone in with them. I made a good catch every night this way until I got all of them. I could not "stand for" rats killing my beautiful Buff Orpington chicks, so set about to get rid of them, and so I did.

I loaned a neighbor two of my catch for "bait," and the next morning he had sixteen—completely filling one end of a large wire trap. He caught over a hundred, using the live rats as "bait" every night. A good many have tried it with good success. If rats are bothering you, get a *new* wire trap and put in a fresh bone, and then use the bone and one or two rats, and you will get them.

Madison, Ga. DR. A. W. VICKERS.

On page 575 I mentioned an arrangement for catching rats. Well, shortly after, we swept up some corn mixed with dirt and chaff from the barn floor. I put this into a barrel in the poultry-house, intending to look after it later. This barrel had a hole in the bottom, and some of the corn sifted through it. Before I got around to see to it the rats had dug out quite a cavity under the head of the barrel, and were holding high carnival, apparently, in their snug retreat. I went and got a ten-cent wire trap, and placed it in that cavity, and, without putting any bait in it at all, I caught five large rats, one after another. In their efforts to reach the hole in the barrel of corn they stepped on the trap. I am ashamed to own up that we had as *many* as five rats on our premises all at one time.

GROWING CROPS IN THE NORTH IN THE SUMMER TIME, AND OTHER CROPS IN THE SOUTH IN WINTER.

We clip the following from the *Rural New-Yorker:*

As the weather grows colder, northern people begin to talk of going south. The following letter from Ohio is like dozens of others:

I understand your people spent last winter in Putnam County, Florida. I have a business which is not very lively in winter. Could I buy land in Putnam Co. and go there during winter and raise a profitable crop of vegetables, coming back to Ohio in late spring?

You can buy thousands of acres in Putnam Co., and much of it mighty cheap. As a winter home it is a delightful place. Many of the permanent residents there are well satisfied to remain. As for going there for a few winter months to grow a profitable crop, my advice is, do not attempt it. Go there first with the full price and spend a winter. Look around, examine soils, watch the growth of crops, and do your own figuring before you invest. We have tried winter cropping, and have been beaten by frost, drouth, flood, and disease. The last few seasons have been so dry in Florida that, unless one had an irrigating-plant, there was little show for a crop except on the low lands. Northern people somehow will not understand that farm conditions in Florida are entirely different from those in the North. The theory of "farming both ends of the country" by having a hay-farm or orchard in the North and a truck-farm in Florida is very pretty, but will not work well unless you have two families, one on the job at each end. Let this man spend a winter in the South, observing and figuring, and it is ten to one he will not buy land expecting to work it in winter and abandon it in summer.

The above refers particularly to Putnam Co., Fla.; and as we own 160 acres near there, we know the editor of the *Rural* has got his statement about correct. Now, please contrast the above with the boom stories ("Burbank Ocala," for instance, near by), that land speculators tell us, about getting rich on two or three acres of sweet potatoes, etc. With every thing favorable, and an experienced man in the locality, there are quite a few who do well. Friend Collingwood speaks of the frosts and the drouths. Our home in Manatee Co. is so far south that a killing frost is a rare thing; and in regard to the drouth, artesian wells are an almost sure remedy for dry seasons. If I am correct, Putnam Co. has a frost more or less every winter, and they do *not* have artesian wells.

ELECTROPOISE, OXYDONOR, KINDRED SWINDLES AND SUPERSTITIONS.

While it is true that the world is progressing to a point where most people begin to distinguish between sense and science on one hand and superstition on the other, there are some things, or perhaps I should say some follies, that "down" hard. The following clipping from the New York *Tribune* hits the nail on the head:

A veteran Philadelphia soldier, apropos of Lincoln's birthday, said at the Union League:

"Lincoln used to joke me about my superstitions. I carried, you know, a rabbit's foot for luck.

"'Look at this,' he said one day, and he took from his pocket a potato.

"'What's that for?' I asked.

"'For rheumatism,' he replied. 'I haven't had a twinge of rheumatism since I began carrying it.'

"'Wonderful!' said I.

"'Yes,' said Lincoln, with his whimsical smile, 'and still more wonderful is the fact that it's retroactive too; for I never had a twinge before I began carrying it either.'"

After I read it all except the closing sentence I said to myself, "Why, is it really possible that Abraham Lincoln, with all his breadth and comprehension of things, should cherish a senseless superstition?" But after I had finished the clipping I thanked God that Lincoln had wisdom enough to give such a sensible reply to his friend who insisted on carrying a rabbit's foot for good luck. "Retroactive?" Sure enough; why not?

THAT "HUNDRED-STORY" BUILDING IN NEW YORK CITY.

Mr. F. J. Root, of New York, calls my attention to the fact that the enormous structure is to be 55 stories high, and not 100. Of course I am glad to correct any false statements; but I am sure I read in some of the papers that the building was to be 100 stories high. I think said statement also added that it was to be 100 stories to the top of the tower surmounting it. Mr. Root adds that, while I have got the building a trifle (?) too high, within a stone's throw of the same place, says my estimated cost of rent is very low, and adds, "We pay $35.00 on the *fifth* floor." Our own rooms were on the third floor, about a minute's walk of the same place.

Poultry Department

FORECASTING THE LAYING HEN—SEE SPECIAL NOTICES IN OUR NOV. 1ST ISSUE.

Well, my laying hen kept on laying, something as I described about forecasting, until we had some severe stormy weather. Then she commenced laying every other day, instead of two eggs and a skip. Then she skipped three days, not laying at all. But Nov. 6 the weather moderated considerably, and she laid one more egg about 10 A.M.

Summing up the whole matter as the experiment stations do, this hen did lay according to the forecasting something like two weeks, two eggs and a skip, two more and a skip, and so on. Now, she may have been doing this some little time before I took notice. There are two reasons that may be put forward why she did not keep on according to the rule for forecasting; namely, the cold stormy weather I have spoken of, and that my whole flock are, most of them, in heavy moulting. I have not watched long enough to be certain she had finished moulting or had not commenced. Here at my Florida home I purpose making some careful experiments with quite a number of my best layers. It would seem pretty clear that ducks do not follow this program, for the 100 eggs I got last winter from a single duck were all laid in the morning, either before daylight or pretty soon after. My relative, Mell Pritchard—you know he is quite a chicken man—informed me that he once had a turkey that laid from sixty to seventy eggs consecutively, so far as he can recall, absolutely without a skip. Now, are chickens molded on a different plan from ducks and turkeys? I am sure it will be a benefit all around to have this matter thoroughly investigated by a number of observers. The better we get *acquainted* with our biddies, the sooner we shall be able to furnish a hen that will lay 300 eggs in a year, or something like it.

FORECASTING THE LAYING HEN, ETC.

Mr. Root:—Hens do not follow a fashion of laying an egg every so many hours. If you have not access to trap-nest records I will send you some leaves from mine so you may see for yourself. I have been breeding Barred Rocks for fifteen years for egg production, using trap nests; and while it is true that a pullet that starts out laying well is almost invariably a good layer, they will vary from one egg a day and skipping a day to laying every day for two or sometimes three weeks. I mean that every pullet varies in this manner. You say Mr. Stoddard's article is worth $10.00 to you. Well, it isn't worth 10 cts. to me, because it is only partly true. I agree with Dr. Bigham, p. 641, Oct. 15, about dosing chickens; but I have used the permanganate ever since I have kept chickens, using it as a preventive of disease, and I rarely have a sick fowl. When properly and carefully used, it is a valuable remedy.

Rushmore, Minn. C. E. BODDY.

FORECASTING THE LAYING HEN.

Seeing your remarks about the time it takes a hen to lay an egg, I would say that, when I was a boy in England, my father had a speckled Hamburg hen that would lay a little later each day, as you say, until she would miss one day entirely. But now, my good friend, hold your breath. The next day she would lay two eggs. She worked that way repeatedly. I also had a hen that I believe laid from 250 to 275 eggs per year. I think climate makes a wonderful difference in egg production, and I should not think the 300-egg hen would be a curiosity in that country.

Sloan, Ia., Oct. 27. LEWIS LAMKIN.

THE FLY AS FOOD FOR POULTRY, ETC.

Mr. Root:—Several years ago I had some trouble among my chickens, and appealed to the poultry press for aid. I was informed that the disease was commonly known as "timber neck," an intestinal disorder caused by eating putrid meat; but while I had, on previous occasions, allowed them access to meat that was more or less decomposed, at that particular time I was quite sure the chickens had had no meat of any description. My own reasoning classed the chicken as a scavenger, and hence built to care for such an article of diet; but I was not in position to contradict such distinguished talent, and I carefully guarded the yards against the trouble.

The disease still continued, even attacking peeps that had not been out of the brooder, my former opinion being thus confirmed; and as I have lately been feeding maggots (larvæ), without a return of the disease, I can fully assure the celebrated physicians among the poultry fraternity that they must seek further for the cause of the malady.

I obtain from the butcher, at intervals, the lungs of the smaller animals. These are placed in iron vessels, in an unused loft. They are thus out of the way; and as I use only eight or ten at a time, they are not annoying. Flies of many kinds are attracted, and deposit their eggs. When hatched, the worm proceeds to devour the meat, and to get fat. When thoroughly ripe I mix the mass with bran, which removes much of its offensive nature, and allows it to be handled easily.

There are several days after hatching before the worm begins to spin its cocoon. During this time it has no desire to escape, and I have abundant time in which to use the stuff, but am usually ready to use it in the beginning of this later stage, and can not be accused of perpetuating a troublesome pest.

When ready the article forms a poultry food that can not be surpassed, and is much cheaper than the food advocated by Briggs at 15 cents per bushel. Being live grubs it is sought eagerly, and eaten by the chickens with a relish. I make no attempt to remove the meat, and have had no trouble of any kind since I began to feed it. It must not be fed on the ground, as this allows the grub a chance to escape.

The procedure answers a twofold purpose. First, I obtain an excellent article of food. The supply, however, is of a limited nature. Twelve or fifteen lambs' lungs furnish what I give weekly to 150 or 200 chickens. Second, as a sort of by-product there is not a fly about my stable, which is directly under the loft, and none around my house, which is about 200 feet from the stable. My close neighbors, those within 200 yards, report no flies, while the neighbors at a greater distance report an abundance of the little disease-bearing pests; and were one to see the bucketful of grubs carried out by me four or five times each week he would imagine that I had relieved the whole county of flies.

I am not in position to ascertain definitely whether I am doing a harm, which does not appear; but if not, I am quite sure that I have solved a difficult problem, and a community may be rid of flies by having them breed where the young may be collected and destroyed, rather than to allow them to breed in indiscriminate out-of-the-way places just where the young may escape to torture the inhabitants, and to spread disease throughout the community.

Lake Roland, Md. BENJAMIN B. JONES.

My good friend, very likely your plan is an excellent one for furnishing chickens an animal food at small expense; and although it may be new to you, almost the same plan was used and described more than sixty

years ago in a book called "Miner's Domestic Poultry-book." It was the first poultry book I ever saw or heard of, and to my boyish imagination it was a veritable gold-mine. Miner advised putting a piece of liver in a stone crock and covering it mostly with bran, but allowing enough of the meat to be exposed so the flies could get at it. While down on Shumard's island, where they catch and clean great quantities of fish, he told me his chickens almost lived on the larvæ of the fly, and, if I am correct, he said he feared they neglected other food to such an extent that they stopped laying. I should be a little cautious about feeding chickens meat that smells bad, especially as so many of the poultry-journals have declared it *would* make trouble. As I take it, your plan of ridding the neighborhood of flies is to coax them all to some out-of-the way spot where they will lay eggs that will never be permitted to hatch out. In this way you secure a sort of race suicide. If a fly can not bring to maturity any offspring they will soon all be gone.

HIGH-PRESSURE GARDENING

POTATOES ON THE "HALF-SHELL;" ALSO SOMETHING IN REGARD TO "GILT-EDGE" POTATOES FOR QUALITY.

In my boyhood days we children (for I was one of a family of seven—three older and three younger than myself) were very fond of having a little fire outdoors for roasting potatoes. We not only got our fingers blackened, but I fear our good mother had quite a time in getting the black off from our faces. You see our potatoes that were served on the half-shell were not even "shelled" at all. You know how much is said nowadays about the beneficial effects of charcoal for chickens and other animals. Well, we children had the charcoal all right, as well as the delicious roasted potatoes. Now, this expression, "potatoes on the half-shell," came from an article in the October number of the *Farm Journal;* and it so vividly recalled to memory those childhood days I have been speaking about that I want to copy it.

POTATO DAY AT CARBONDALE; THE LAND WHERE PEACHBLOWS GROW TO PERFECTION.

One of the agricultural fete days of the West is "Potato Day" at Carbondale, Colo. It is celebrated each year on the last Saturday in October. On that day the Potato Growers' Association of the Valley, from a mammoth tent put up in the center of the town, serves thousands of visitors with Carbondale potatoes baked and stuffed in the half-shell. In booths near by are fancy Carbondale potatoes of many varieties on exhibition.

The Carbondale potato, although a more newly perfected product of Colorado soil than the Rocky Ford melon and the Grand Junction apple, is fast receiving equal recognition with them in eastern markets. It took its biggest jump into prominence last fall when in whirlwind succession it carried off the grand prize at the Colorado State Fair, the first prize at the Omaha Corn Exposition, and the first prize at the Chicago Land Show. There are several Carbondale potato-ranches of from 1000 to 3000 acres in size. One of these is owned by the Cleveland millionaire, H. W. E. Yeomans. Most of the valley, however, is in the hands of small growers who are applying intensive methods of cultivation to tracts of small acreage.

The land is economically irrigated from the Crystal and Roaring Fork rivers, which traverse the region. The soil is disintegated granite, and sandstone amply supplied with phosphates and potash. The wash from the neighboring mountains keeps its vitality constantly renewed. The climate, due to an altitude of 6000 feet, is ideally suited to the best development of the potato. Under these admirable soil and climatic conditions, by careful seed selection and scientific methods of cultivation, the Carbondale farmers have brought the Peachblow to a perfection that has not been elsewhere equaled. It commands top prices in New York and other eastern cities.

It is not only the quality of the potatoes raised at Carbondale that is making the region famous as the habitat of the spud; but in quantity produced it is breaking records. The yields are reaching enormous figures. Five hundred bushels have been grown on a single acre. Yields of 300 bushels are common.

Canon City, Colo. FLORENCE L. CLARK.

If Carbondale, Col., has succeeded in making its locality "famous" in the same way the Rocky Ford region has become famous for its *melons*, they are certainly doing a wonderful thing for the lovers of fine-flavored potatoes as well as setting a good example before potato-growers.

SWEET CLOVER COMING TO THE FRONT.

A few issues back I said a certain article in one of the poultry-journals was worth $10.00 to me; but some of my friends thought me a little extravagant. But *The Dakota Farmer* of Nov. 1 gives us an account of a single article that might be worth *$1000* to any good farmer. What do you suppose said article was about? Why, our poor abused old friend sweet clover We clip the following from the paper in question:

A THOUSAND-DOLLAR ARTICLE.

At the State Fair, at Huron, I heard a man say that on page 924 of the September 1st issue of *The Dakota Farmer* there was an article worth $1000 to any good farmer. The article was "Melilotus, or Sweet Clover," by F. H. Hoyt.

At first thought it seems ridiculous to think of a newspaper article being worth $1000 to one man; but let us look into this matter a little:

Can any farmer in South Dakota afford to practice wrong methods? Can he afford to think wrong for one year—or, what is just as fatal, be thoughtless? The next thing to doing wrong is thinking wrong.

What I am getting at is this: The farmers of the Northwest have wrong thoughts in regard to the plant known as sweet clover. Mr. Hoyt in his article has endeavored to set them right, and it's worth $1000 to any farmer who fully comprehends it.

In certain localities in this Northwest during the present year, farmers can be found who tilled 160 acres of land and didn't harvest a dollar's worth of crop. They will tell you it was too dry. Now, if a farmer had 40 acres of sweet clover—as dry as the season was—he could have put up two crops of sweet-clover hay, or 4 tons per acre—160 tons on the 40 acres—and that at $8.00 per ton would be worth $1280 from the 40 acres, giving him $1000 for his knowledge and $280 for his work on 40 acres. And besides this he could have followed it with wheat the next year, and been almost sure of a large crop.

All I can say is, read Mr. Hoyt's article again in the September 1st issue of *The Dakota Farmer*, and prove for yourselves the truth of it.

Vermillion, S. D. R. A. MORGAN.

Gleanings in Bee Culture

Published by The A. I. Root Company, Medina, Ohio

H. H. Root, Assistant Editor — E. R. Root, Editor — A. L. Boyden, Advertising Manager
A. I. Root, Editor Home Department — J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

VOL. XXXIX — DECEMBER 15, 1911 — NO. 24

Editorial

We have on hand at this time a large amount of copy which we hope to use later on. Some manuscript which we accepted over a year ago is just now appearing. This will explain why some matter in hand has not yet appeared.

The printing-house of Gleanings is now being crowded to its utmost capacity. We have just installed a $3600 typesetting machine (a Mergenthaler two-letter linotype) and a new printing-press. We shall have to run some of the presses night and day for a few months in order to catch up.

We would call attention to the beautifully written article on flowers in this issue. Mr. Lovell is not only a scientist, but an enthusiastic bee-keeper as well. His contributions have appeared in a number of the scientific journals of the country. He has spent much time in the field, and, unlike many scientific men, he draws information and knowledge direct from old Dame Nature herself.

NEW ALFALFA TERRITORY.

New alfalfa country is being opened up by irrigation in the West. Possibly there are some bee-keepers who would like to change their locality. Instead of going to some place already overstocked, better write to the Secretary of Agriculture, Washington, and ask for information concerning new alfalfa territory being opened up by irrigation.

OUR INDEX FOR 1911.

The index for this year will be sent out with the first issue of the coming year. It will be very complete, and we respectfully suggest that every reader of this journal carefully preserve it in order that he may be able to refer back to special articles that appeared during the previous year. A subscriber who does not bind his journals as he receives them will necessarily lose much of the benefit that he should receive from them.

HOLDING FANCY COMB HONEY FOR BETTER PRICES.

One large buyer of both comb and extracted honey has secured a lot of fancy comb honey. As prices on Western honey have slumped a little he is holding these goods, being sure there will be an advance. If the honey is a strictly first-class article, or fancy, it may be safe to do this; but it would be bad policy to hold most Western alfalfa, on account of the danger of granulation. While, of course, a fancy article will not granulate more than a poorer quality of the same honey, there is still a danger that, by the time the price of fancy honey advances, enough of that on hand will have candied to cut down the profits considerably.

IS CELLAR WINTERING GRADUALLY GIVING WAY TO OUTDOOR WINTERING?

There is a slight tendency on the part of bee-keepers who have been cellaring their bees to winter outdoors. The most conspicuous example of this is Mr. R. F. Holtermann, who for years has wintered indoors, notwithstanding he was very successful and notwithstanding he has had most up-to-date repositories built on scientific lines. We should like to inquire whether other cellar-wintering people lean toward the outdoor plan. We know that it takes much less skill and time to winter outdoors. The average beginner will succeed much better by it.

A NEW BEE-JOURNAL FOR SOUTH AFRICA.

The first issue of the *South African Bee-keepers' Journal*, published at Johannesburg, Natal, South Africa, has just reached us. The editor, Mr. Geo. F. Oettle, realizing the fact that a bee-journal is needed for the special conditions in his part of the world, has undertaken to supply the demand. We wish the new paper success, and we see no reason why it should not have it, because there is a bright future for bees and bee-keeping in South Africa. It is a comparatively new country; and it occurred to us that, if some of the bee-keepers of the United States, instead of crowding into localities already overstocked, would find pasturage new in other parts of the world, it would be very much betrer all around.

A BULLETIN ON BEES BY THE TEXAS STATE ENTOMOLOGIST.

We have before us Bulletin 142, entitled "Practical Information for Beginners in Bee-keeping," by Wilmon Newell, State

Entomologist, and Entomologist of the Experiment Station. From a hasty examination of this bulletin it appears to be one of the best treatises on bees for beginners that have been issued for a long time. Professor Newell is not only an entomologist but a bee-keeper. He has done much to advance the cause of apiculture in his State; and this bulletin, which we suppose is for free distribution to the bee-keepers of Texas, will do much to disseminate useful information. We presume that the bee-keepers of other States can obtain a copy by paying a small price—probably 10 cts. Address Prof. Wilmon Newell, College Station, Texas.

THE PHOTOS OF W. Z. HUTCHINSON ON THE COVER DURING THE COMING SEASON.

It is well known to our readers that Mr. W. Z. Hutchinson was a genius at taking beautiful photos. He took many hundreds of them, but used only a part of them in his journal. A short time ago Mrs. Hutchinson inquired whether we could use any of these old negatives. We requested her to ship the entire collection, and we would decide whether there were any that would be suitable for our work. To make a long story short, we bought the entire collection, and from the number we expect to use a few photos, some of which have apparently never been used in any publication. These will be used on the cover of GLEANINGS from time to time. In most cases, as in the cover of this present issue, we shall not be able to identify the picture; but most pictures will contain a lesson that is worth putting before the readers to-day. So here again Mr. Hutchinson's works live after him.

THIS MONTH'S COVER PICTURE.

THE cover for this month's issue shows a photo taken by the late W. Z. Hutchinson, illustrating one of the methods of putting bees up for winter under a shed. We do not know whose bees these are; but no matter; it illustrates a method that is used in some localities. The shed shown is doubtless arranged to cut off the prevailing winds. Dry leaves are packed between the hives, which are single-walled, and otherwise the hives are much the same as they are in the summer. The only difficulty with the arrangement is getting at the hives and frames in summer. It is possible, however, that the owner uses this shed only in winter.

A few years ago Mr. G. C. Greiner, of New York State, showed how he packed his bees in this way. It was his practice, however, to move the bees from their several stands in the bee-yard to a new position under the shed. This was done late in the season, and all at once. Contrary to what many would suppose, the bees are not lost. When they find that the old location is entirely changed, they will find their new location under the shed. In doing this they may mingle somewhat, and it is possible that some of the stronger colonies will get more than their fair share of bees; for the heaviest flyers—that is, those making the greatest showing in front of any particular entrance, will attract the most bees.

PRODUCING EXTRACTED RATHER THAN COMB HONEY; A CAUTION.

In the *Bee-keepers' Review* for December, Mr. P. C. Chadwick makes this observation:

> I believe the money lost each year working for comb honey would be sufficient to equip every apiary in the United States fully for extracting—not money literally lost, but time and supplies, which we all know have a money value, to say nothing of flat failures in comb honey where enough extracted could have been secured to pay expenses at least.

This question of comb or extracted honey depends largely on locality and on the market. As there is already an exodus from comb to extracted honey, it will be well to remind a number of our friends that those who continue to produce comb will probably secure extra good prices for 1912. Just before he died, the late W. Z. Hutchinson, observing that many bee-keepers were going from comb to extracted, offered a caution, to the effect that he believed many would be making a mistake if they made this change too hastily. There is wisdom in his words. Let the wise consider. One who is already making a success of producing comb honey may not be equally successful in producing extracted, notwithstanding that the production of the latter is considered simpler. Those who stick to comb honey are going to share in the increased price by reason of the possible reduction in the ranks of the comb-honey producers.

A RETROSPECT FOR 1911.

THE year 1911 will go down in apicultural history as the poorest for honey production of any year we have ever known. While some bee-keepers were fortunate in securing good crops, there seems to have been a light yield or almost an entire failure all over the United States and Canada. The Western part of the country fared better than either the South or East.

Several additional States have passed foul-brood laws, and great progress has been made in other States looking toward the needed legislation. The following are the States that passed foul-brood laws in 1911: New Jersey, Vermont, Kansas, Pennsylvania, Tennessee, Minnesota, Illinois, and British Columbia for Canada.

The Bureau of Entomology has secured $5000 additional to carry on apicultural work, or $15,000 in all. Dr. E. F. Phillips and his corps of able assistants have recently been doing some splendid work in combating disease. A number of bulletins on bees have been sent out, and Dr. Phillips and his assistants have visited many localities. We are greatly indebted to the Bureau of Entomology for what it has done for the industry all over the country.

There has been a marked tendency to favor the ten-frame hive more strongly than ever, and a corresponding inclination to drop not

only the eight-frame Langstroth, but all other styles of hives, both shallower and deeper. In other words, the standard ten-frame Langstroth is coming to be more and more the prevailing standard throughout the United States. When Langstroth settled on the dimensions of this hive be builded better than he knew.

During 1911 there has been considerable awakening as to the importance of better shipping-cases, and saner and safer methods of putting up comb honey.

There has been more and more a tendency this year on the part of bee-keepers to drop the production of comb honey and confine their efforts to extracted. There is danger of overdoing this. See editorial elsewhere on the subject.

Great strides have certainly been made in perfecting the various methods for taking honey from the combs. The steam honey knife and the power-driven honey-extractor have come to be recognized as great labor-savers. The capping-melter has been further tested to some extent, but as yet its future is undetermined. The automobile is coming more and more to be a part of the out-apiary equipment. There has been a great increase in the bottled-honey trade. More and more bee-keepers are beginning to find it possible to cater to the local retail trade.

The demand for queens, in spite of the very poor season, was probably the greatest that was ever known to beedom. A large part of this increased demand, if not all of it, was due to the fact that bee-keepers and foul-brood inspectors everywhere have come to recognize that pure Italians are much more immune to disease, especially European foul brood, than either the blacks or hybrids. We know of a number of instances where extensive honey-producers, fearing European foul brood, have Italianized largely, to prevent its introduction among their bees. Even for American foul brood, good Italian stock is to be preferred.

The year 1911 has seen an unusually large number of articles on bees in our popular magazines and newspapers. The bee-sting cure for rheumatism especially has been exploited, both in cartoon and story, in all the papers. Not a little has been said about honey as a food for young and old, for the sick and the well. All these help to popularize honey. We hope our contemporaries of the general press will keep this up, for honey should be eaten more generally.

During the year we have lost at least four prominent bee-keepers. First there came the sad news of the death of W. Z. Hutchinson, one of the ablest writers on bees we have ever known. No one was more sincerely loved by his fellow bee-keepers, and no one has died recently whose loss will be more sincerely mourned. He left his deep impress on the bee world. His works and words will live long after him.

One of the best-known bee-keepers in all Michigan, one who had done much to advance the cause of apiculture in his State, was Mr. Geo. E. Hilton. He was not only a big man among bee-keepers but a big man among his fellow-men generally. Twice he had been elected representative in the legislature of his State at Lansing; and while acting in that capacity was largely instrumental in bringing about two-cent railroad fare in Michigan. He was prominent in church affairs, and at the time of his death was postmaster at Fremont.

Mr. R. W. Herlong, details of whose death are announced elsewhere in this issue, made the most amazing progress in the bee business of any man we have ever known. He began with three colonies in 1898, and before he died he owned and operated in the neighborhood of 900 colonies in thirteen apiaries. He never wrote any thing for the bee-journals. Quiet and modest in his way, the bee-keeping world knew but little of the man until our special correspondent, E. G. Baldwin, told something of his capacities in a business way.

In Canada, no less a person than Mr. J. B. Hall, of Woodstock, died this year. Mr. Hall was the introducer of thick top-bars, both in Canada and the United States, and he was a prominent figure at Ontario conventions. He had a happy faculty of enlivening discussions; and while he rarely took much time on the floor, what he did say was to the point. He had a most delightful manner of expressing himself, and very often at the close of a few brief sentences he would bring down the house with heavy rounds of applause.

There has been no birth nor death among the bee-papers this year; but owing to the death of the editor and founder of the *Bee-keepers' Review*, that journal is now ably edited by Mr. E. B. Tyrrell. At the present time it gives every indication of being a force in the apicultural field.

The *American Bee Journal* is more than holding its own, and still holds the title of being the "Old Reliable." It is the oldest bee-paper in the United States.

The *Canadian Bee Journal* is ably edited by Mr. J. J. Hurley. The paper is well gotten up; and if it makes the progress next year that it has made this, it will crowd some of us old fellows who have been longer in the field.

Two notable bee-books have been largely rewritten and revised during the year—namely, "Advanced Bee Culture," by W. Z. Hutchinson, embodying all his late writings, and "Fifty Years Among the Bees," by Dr. C. C. Miller, covering the ripest experience of one who flourished in the days of Langstroth, Quinby, Wagner, Dadant, Alley, Cary, Grimm, Tupper, Gallup, and Hetherington, and who is still with us in the flesh. Dr. C. C. Miller, G. M. Doolittle, and A. I. Root are able to bridge the past and the present as almost no other living bee-keepers can. Of all those who helped to make the industry in the early '60's, they alone remain. We hope that the new year and many more will be as kind to them as the old year.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

L. B. SMITH reports, *American Bee Journal*, 303, that a live drone hatched out of a queen-cell. First case I ever heard of where the drone did not die in the cell.

WYOMING, Colorado, Utah, Idaho, Washington, California—six, count 'em. Six States in which a woman's vote is as good as a man's. Oh! the women are getting there.

BEE-STINGS were used by a prominent member of the faculty of the Vienna Hospital upon his own person for the relief of rheumatism, with excellent results.—*Ill. Monatsblaetter*, 107.

KARL TREFIL, *Deutsche Imker*, 311, says water is better than smoke for cross bees. He uses a sprayer that can be worked with one hand, the water sweetened or perfumed. Isn't that harking back to Langstroth?

SYRUP for winter should have one part tartaric acid for every 1000 parts sugar (¼ oz. acid for 16 lbs. sugar); then cook at least an hour on a slow fire That will invert the cane sugar, and save the bees that work.—*Ill. Monatsblaetter*, 101.

ROY TAIT "uses a carbolized cloth for removing his honey from the hives, and says he can drive the bees out of the supers on a warm day when bees are flying, as rapidly as he can carry the supers to the automobile and pile them on."—*American Bee Journal*, 300. It would seem there ought to be at least one advantage in the carbolic. When smoke is used, it may drive the bees up into one part of the super while it drives them down in another, and occasionally a queen is thus left in the super. This would not occur with the carbolized cloth.

OPPONENTS of foul-brood laws take pleasure in pointing to the fact that foul brood still continues under foul-brood laws. Dr. G. Rohrer wisely answers, *American Bee Journal*, 306, "Why is it that we still have smallpox, in the presence of vaccination and quarantine work? All will answer without hesitation, that, in the absence of a quarantine law rigidly enforced, we should have much more of this dread disease, as well as many more deaths." [We may just as well say that our laws against murder and other crimes should be repealed because such crimes go on just the same. The same silly argument is used about liquor sold in dry territory.—ED.]

JUST 1543 POUNDS carried into the hive in a season. That's according to a statement in *L'Apiculteur* quoted in *Leipz. Bztg.*, 173. That's not the work of a special colony, but of any good colony in a good year. Not 1543 lbs. of honey, but of nectar, pollen, and water. Here are the figures:

For the development of a bee, from the egg to the perfect insect, it requires 122 milligrams of honey. During its life it consumes 225 mg., making 345 mg. in all (a little discrepancy in those figures). The daily laying of 4000 eggs for 100 days will produce 400,000 bees. If each bee requires for its rearing and support 345 mg., 400,000 require 138 kg. But that 138 kg. of honey is brought into the hive in the form of nectar, 3 parts of nectar for each part of honey. So that 138 kg. of honey requires 414 kg. of nectar, which equals 913 lbs. of nectar. The bees also carry in about 110 lbs. of water and 110 lbs. of pollen. To produce 3.3 lbs. wax requires 80 lbs. of nectar; 110 lbs. of surplus honey requires 330 lbs. of nectar. Total weight carried into the hive, 1543 lbs.

I shouldn't want to swear to the correctness of those figures, but at any rate the total amount carried in by the bees must be away beyond any thing I had ever thought of. If each colony carries in 1543 lbs., then in an apiary of 100 colonies there must be carried into their 100 entrances by the laborious little creatures a weight of no less than 77 tons! [We can not refrain from putting a big question-mark before some of these figures. For example, 4000 eggs for 100 days producing 400,000 bees. Whewation! We doubt if there was ever any queen that would lay at such a rate as that. While we admit that a queen *may* lay 4000 eggs in a *single* day, she will not keep up that pace very long. In most localities the height of egg-laying would not extend beyond the period of one month at a time; and even then, if we are not mistaken, the queen might lay three or four thousand eggs in one day, and then loaf on her job the next day. We have raised many thousands of choice queens, but never had any that would come anywhere near laying 4000 eggs per day, even for one week; 1500 per day for 7 days is the best.

We have carefully weighed some of the largest swarms that came out of two and three story colonies. The largest one weighed 9½ lbs. That would make 40,000 bees, or, we will say, 50,000, counting those left in the parent hive. Let as assume that the average bee, during the height of the season, will live only four weeks. Let us assume, also, that they are renewed every four weeks for three months. This would give us only 150,000 bees, or 250,000 short of the figures given in the estimate above. Again, that estimate of 110 lbs. of honey is too high. Then think of the estimate of 110 lbs. of pollen for one colony! A comb loaded down with pollen will weigh perhaps 3 or 4 lbs. when empty. If the bees brought in enough pollen to fill ten combs, the amount then could scarcely reach more than 30 or 40 lbs. But suppose we multiply it by two. We are then from 60 to 70 lbs. shy of the estimate. If all the other figures are exaggerated in the same proportion, the total aggregate of 1534 lbs. per hive must be very greatly exaggerated also.—ED.]

SIFTINGS

J. E. CRANE, Middlebury, Vt.

Mr. Foster's fall treatment for American foul brood is well worth trying. Something very similar was recommended by Moses Quinby nearly fifty years ago.

That is certainly an ingenious way of outwitting robber bees given by Dr. C. C. Miller on page 631, Oct. 15. Why could not such a device be attached to each nucleus as a permanent fixture when the nuclei are started?

Mr. Byer mentions, page 518, Sept. 1, the poor outlook for next year in his locality. Cheer up, my brother! You know it looked very promising a year ago, and we have met with failure. Possibly the dark clouds have a silver lining.

On page 587, Oct. 1, Mr. Macdonald gives some interesting facts in regard to the reasoning powers of bees. I believe two different persons have told me the past season that they have had colonies come out and leave at once for some distant place without even stopping to cluster.

On page 627, Oct. 15, Percy Orton describes his foot-power saw. These saws are a great convenience for small jobs; but for a large amount of sawing I think I would use power of some kind. I used a Barnes saw a good deal a few years ago, with the result that I have one bad leg that will bother me as long as I live.

Mr. W. C. Mollett calls attention, page 685, Oct. 15, to the use of brown sugar as food for wintering bees. Let me say that, a few years ago, we fed tons of brown sugar, or, more properly, raw sugar, for wintering our bees, without any serious harm to them; but the difference in price between raw and granulated sugar is so slight that it hardly pays.

Isn't Adrian Getaz' estimate of 200 lbs. consumption of honey per colony per year rather large? See page 581, Oct. 1. [We are inclined to think the figures are conservative rather than overdrawn. In warmer climates bees will necessarily consume much more than they would in a temperate or colder climate. Probably for your locality 200 lbs. would be large.—ED.]

Mr. Editor, you are right, p. 611, Oct. 15, in advising bee-keepers to feed and save their bees. I am neither a prophet nor the son of a prophet, yet I feel quite sure we shall have a fairly good season next year. I have observed during the past fifty years that a good season is almost sure to follow a very poor one, and also that, as a rule, a poor year is apt to follow an extra good one. Bees, too, often winter badly after a poor season, and perhaps dwindle in the spring. Let us give them the best of care this winter.

How long after a swarm issues does the young queen come out of her cell? I have not observed any regular time. I have noticed young queens hatching when a colony swarmed; again, not a queen-cell started, and at other times cells in all stages between. I sometimes think that my bees have not been properly brought up.

I am sure the congratulations of the bee-keepers of the whole country as well as those over the line to the north of us are due Mr. and Mrs. A. I. Root because of their fiftieth anniversary. After looking at their photographs as shown on pages 594 and 595, Oct. 1, one can not help thinking that the doctrines Mr. Root has so frankly taught these many years are good to live by.

Wesley Foster hits the nail on the head when he says, p. 593, Oct. 1, "The bee-keeper can learn more about the sale of honey from grocers than by any amount of thought or theory. Ask the man who sells it, and then go further and ask the man who eats it. In this way reliable pointers may be gained first hand, and they will prove profitable if followed."

Page 589, Oct. 1, C. W. Dayton speaks of the ripening ferment in bees. Can he tell just what this is? It is new to me. He closes his article as follows: "The most abundant honey-flows often follow directly after such conditions of weather as produce weakened colonies." That is a fact that Eastern bee-keepers will do well to remember next spring.

I am glad there is to be a buckwheat bulletin. Its value for bees can not be questioned; and here in the North it is about the only plant from which the bees reap a harvest that pays to raise for seed. When visiting a friend recently in a buckwheat section I found he had secured from buckwheat not only enough to winter his bees, but considerable surplus, while we were rolling in sugar by the ton to feed for winter stores.

A good deal has been written about winter nests. I find that, as a rule, in an eight-frame brood-chamber the bees cluster near the front end of the hive just below the honey, but in the center of the combs in late autumn. In the spring they cluster at the further end of the hive, away from the entrance. I do not share Mr. Hand's experience, page 135, March 1, that there must be a large amount of honey directly over the cluster, for I find that, when they consume that directly above them, they will move along toward the back of the hive, provided it is suitably protected.

I was much interested in Mr. R. D. Bradshaw's account on page 589, Oct. 1, of the number of colonies of bees kept on a restricted range of alfalfa. As nearly as I could figure, much of this territory has an average of 166 colonies per square mile. I would be interested in knowing whether the bees could get any honey outside the irrigated area, and whether Mr. Bradshaw could make an estimate of the average number of colonies per square mile over the whole section, and the amount of surplus secured. If a colony consumes 200 lbs., and a surplus is gathered of 50 lbs. per colony, it would make 65 lbs. per acre.

Right you are, Mr. Editor, Oct. 1, p. 582, in regard to the wax-moth larva developing wherever the moths can get at them, whether in a building or hive. But no amount of frost seems to kill those lesser moths that make their webs over the surface of combs. They are a nuisance. [As Dr. Miller made us eat humble pie, page 698, perhaps he will be willing to do the same stunt with all the evidence against his proposition on page 582. Dr. Phillips told us recently that he had a lot of slumgum sent to him that had been boiled and run through a wax-press. This was set aside in barrels, and not long after it was infested with the wax-worm. This is clear proof that the moth-miller visited this aggregation of wax and cocoons after it had come from the hive.—Ed.]

DOES IT PAY TO BOTTLE HONEY?

On page 565, Sept. 15, Mr. Shiber asks if it pays to bottle honey. His experience seems to indicate that it does not pay him; and yet I think it may pay many other beekeepers to do so. Of course, it is not profitable to go out on the road to sell one's honey; but when a jobbing trade has once been secured, it can be kept with little trouble, and two or three cents a pound pays well for putting up, especially when it can be done during winter, when there is little else to do. As a matter of fact, however, we sell in all sorts of packages—pound, half, and quarter pound; glass bottles; quart, gallon, and five-gallon tin packages. It pays better to put it up in tin quarts than in pound bottles; but so long as honey is wanted in all sorts of ways and for all sorts of use we must try to suit, if possible, in order to get trade. The honey trade has changed much in recent years. The demand was formerly for comb honey during October and November, and little call at any season for extracted; but now comb honey is wanted from July till April, and extracted almost every month in the year, but, of course, more largely during the autumn and winter months. [The question whether it pays to bottle honey all depends on whether the bottler is a salesman, or in touch with some one who is.—Ed.]

IS THE LIQUID DROPPED BY BEES IN FLIGHT WATER OR NECTAR?

Do bees have the power to separate water from sweet substances as sugar or honey found in nectar, other than by the slow process of evaporation? Some facts given on page 515 would seem to show that they have. If bees can separate water from sugar, and squirt it from their bodies, why do weak nuclei allow honey to sour in the combs? and why do the bees become diseased in winter when fed on thin honey? I think I will scratch my head and cogitate awhile. I might say, however, that, if a solution of sugar is placed in a delicate membrane and suspended in water, the water will pass through the membrane into the sugar solution; but the water does not leave the solution, for it has a greater affinity for the dilute sugar solution than for itself. Another way of accounting for the apparent ejection of water by bees is that the chance to fill themselves with a thin syrup or very dilute solution of sugar is used by the bees to absorb more than they can carry; and when on the wing the exertion makes them eject some of the liquid for their own comfort. I have often seen bees when nectar was very abundant so full of it that, if disturbed, they would throw it off from their tongues so as to stick up sections considerably, while, if not disturbed, they did not eject it.

BULK COMB HONEY POSSIBLE IN THE NORTH.

Louis Scholl tells on pages 617 and 633, Oct. 15, of the comparative profit in producing comb (or section), bulk, and extracted honey. I have heretofore rather opposed bulk honey, especially for us in the North; but with some variations in methods of putting it up I am not sure but it might be preferable to section honey. I have a good friend in the northern part of our State whose hospitality I have enjoyed several times the past season, who is putting up more and more bulk honey; and, what is more, he says there is more profit in it at 12½ cents a pound than in section honey at 18 cts. I believe those were the figures he gave me. I could hardly believe him at first; but when I saw his neighbors coming for honey almost faster than he could fill their pails, I was convinced that bulk honey has a future here in the North. He uses shallow supers with a ¼-inch starter on the top-bar, allowing the bees to build the comb their own way, and then cutting out and packing the combs of honey in tin pails without any extracted honey with it, or only what run out of the combs. He had two main reasons for putting honey up in this way; one that it was less work; and the other, that the bees would store enough more honey this way to make up the difference in price. What is the difference whether one gets 12 pounds and sells it for 18 cents a pound, or 18 pounds and sells it for 12 cents a pound? Then there is a mighty sight of difference in the amount that people will buy when they pay 12 instead of 18 cents a pound. See? [We often advise a bee-keeper with only one or two hives to produce bulk honey, if he wants it only for his own family consumption.—Ed.]

Bee-keeping in the Southwest

Louis Scholl, New Braunfels, Texas

HONEY VS. OTHER SWEETS.

One good argument in favor of honey as a food, which is not often emphasized enough, is that it goes further than other sweets, especially when compared with preserves or jellies. Has it ever occurred to you to ask the housewife to place upon the table two tumblers of the same size, one filled with honey and the other with preserves or jellies of any kind, and then notice how much further the honey goes? Or have you ever asked some one to observe how many more pieces of bread can be spread from a tumbler of honey than preserves or jelly? This applies to the many syrups on the market also. Almost all that the writer has had occasion to try require a larger quantity with a certain amount of bread to give it comparatively the same "amount of taste" than is required with honey. The result is that, in the end, the honey, while apparently the dearer in price at first, is cheaper in the long run.

But there is still another item of far greater importance than the price in favor of honey, and that is its healthfulness as compared with other sweets, especially with the adulterated stuff that is palmed off in this age in such a wholesale way. Of these, the many brands of syrups are the worst, and there are numerous makes of preserves and jellies that are almost as bad. Yet they are used the country over, to the detriment of the health of the people, when, instead of these, good healthful honey might be used. It is hoped that the time will come when this gospel of the truth about honey will be scattered far and wide over the land so that consumers may have their eyes opened and be educated to the use of something better than the stuff put out by "trusts" who think of nothing else than the shekels that they may be able to shell out of the pockets of the people. What care they about the health of the public? The bee-keeper, at least, looks at it in a different light, even if he also is after the money in return for his labors. But of him it may be said that he earns the money by producing a product which may be eaten safely.

"KEEPING MORE BEES."

There is more in the advice, "keep more bees," than is evident at first. Actual experience in carrying out this advice will testify to the extent of the value of keeping more bees. The writer followed this principle long before the late W. Z. Hutchinson made it his motto. It was brought about by a natural desire to increase the bee business as fast as experience permitted; and the consequence was the establishment of more apiaries every year, an increased output of the apiary products, and with it that advertisement that follows in the wake of extensive dealings of any well-established business—a reputation that brings with it a larger demand for its products year after year. To meet this demand was the chief reason for keeping more bees, although the desire to number the colonies by so many hundreds, and later by so many thousands, lent its quota of influence in the increase.

But aside from the great advantages that are obtained in extensive bee-keeping, which enable the promoters to accomplish more with little more outlay of expense and labor, there is another side to the matter that has never come to the notice of the writer as forcibly as this year. This is the possibility of making at least a fair living during a very dry or unfavorable year with a large number of apiaries scattered far and wide, while the little fellows with only one or two apiaries in one locality go to the wall with a crop failure. We have seen just such an occurrence several times during our twenty years of bee-keeping; and we have apiaries ourselves almost every year that do not give us a crop of honey; and if all our yards were located similarly, disastrous results might have followed. We are saved from this danger, however, in that our apiaries are scattered so that we get some honey somewhere, and that is an advantage that is worth a great deal more in bee-keeping than might be imagined. We have been questioned several times regarding the enormous expense of managing apiaries scattered so extensively, and the advisability of concentrating them more in one locality, showing that the questioners did not think about the very reason why our apiaries are so scattered or the great advantages that are derived from this system. It is true that the running expenses are somewhat greater with such an arrangement; but, on the other hand, the advantages overbalance this item enormously.

The advantage we have found this year in keeping more bees is that, while the average yield per colony was only about half of what we generally obtain, resulting in a total of just about half a crop, the large number of colonies kept made up to a certain extent for this shortage in bringing the entire output up to 67,000 lbs. Thus the keeping of more bees brought us very fair returns, while a lesser number would have made very little more than enough to cover the running expenses. The additional cost of keeping a few hundred colonies more is comparatively small when colonies are numbered by hundreds. It pays to scatter apiaries far and wide.

An Apple-tree that Bore Both Apples and Honey.

I started the last of June this year to take a swarm of bees out of an old apple-tree. The swarm had been there about two years. The result of my effort is three hives of bees doing very well—two in ten-frame hives and one in an eight-frame hive.

Somerville, Mass., Sept. 9. Wm. Parker.

BEE-KEEPING IN CALIFORNIA

P. C. CHADWICK, Redlands, Cal.

Bees in this locality are in much better condition, on an average, than they were a year ago.

The carpet of green vegetation caused by the early rains will add greatly in holding future rains until the soil can absorb it.

Page 616, the paragraph relative to the poisoning of skunks, I should have used the word strychnine instead of arsenic. The latter is too slow, while the former usually lets them get but a few feet from the bait.

I should like to have every California reader of GLEANINGS read at least the last five lines of column one and the first seven of the second column, page 615, Oct. 15. Mr. Crane has written the equal of an entire chapter in twelve lines.

DO BEES DESERT SUPERS TO KEEP THEMSELVES WARM?

Arthur C. Miller's "Bee Behavior," page 663, Nov. 1, is interesting reading. I am not ready to comment generally on his suggestions until I have experimented somewhat. During our frosty nights the past week I observed enough to reach the conclusion that his views in regard to bees not drawing down out of the supers to keep the brood warm, but to keep themselves warm, would be hard to prove either way—the fact being that they cluster for mutual protection, whether they have brood or not, but always around brood, if any, for its protection, and over great areas of eggs in the spring where there is little brood of an age that could possibly produce warmth. I doubt the "warming-pan" theory.

PROOF THAT BEES FLY LONG DISTANCES.

Our Tremont yard is located at an elevation of 600 ft., at a distance of three miles from the nearest orange-trees. About every other year the sage fails to yield, leaving us dependent on the orange alone for our crop, and there has not been a season in the 18 years the yard has been located at this place when it has not given a surplus, with only ten cases, 1904 being the nearest to a failure. I mention this more especially to call attention to the distance traveled, for there are many who do not believe a bee will fly so far for nectar. There can be absolutely no doubt in this case, for it has been proven year after year during this long period of time. I have proof, too, that bees sometimes travel seven miles to the orange; but I do not believe that such distances are common, being made only where the entire flight is directed to one source of special attraction. That good progress can be made at three miles is shown by the fact that this apiary gathers as much per colony as those two miles nearer the orange.

SAGE RANGES DOOMED.

If I should predict that thirty years hence the sage ranges of California would be almost a thing of the past there would doubtless be criticism of my views; but I firmly believe that, by that time, we shall face such a condition, for emigration to this part of California is increasing rapidly, and our State has recently voted a large sum to induce it. Hillsides are yielding to the plow where, twenty years ago, it would have been thought almost impossible. By that time most of the available water supply will have been developed. The small goat-ranches that are appearing will spread over our ranges. A generation yet unborn will be seeking a refuge from the less desirable climate of the East and North. They will all have to be cared for, and a way found by which they can help produce life-sustaining elements. Hundreds of acres now in sage will yield to spineless cactus or some other valuable plant of a semi-arid region of the world, that the Agricultural Department is now searching for, and, I am told, with some success.

QUEER THINGS ABOUT BEES.

In the December issue of *The Technical World* is an article entitled "Queer Things about Bees," by Edward F. Bigelow, accompanied by some of the finest engravings I have ever seen. Mr. Bigelow takes a broadside at the ignorance of the bee-keeping fraternity in general, and then shows a lack of knowledge on some points himself. He tells in the same article how the eggs of bees are deposited in the cells; how they hatch, and then says that bees in embryo are fed on "royal jelly." Imagine what a comb would look like if all larvæ were fed only on royal jelly! An instance is also cited where a bee carried a grain of sand, presumably for ballast. As a reason for the hexagonal shape of the comb cells, he says, "forced into hexagonal form by physical environment." The article will, no doubt, be read very widely, and it seems too bad that the writer had not been better informed, so that these misleading statements might have been avoided.

Many bee-keepers have been drawn into the business by their love of nature and the study of the bees as a part of nature's field, and this interest has developed into a never-ending love for the work as well as a practical and commercial knowledge. The writer is one such, and has been more or less of a close student of nature for a number of years.

[Some authorities have stated that worker larvæ are fed on royal jelly for the first three days, then on a coarser and less concentrated food, while the larvæ intended to produce queens are so fed right along. What the truth really is, we do not know. —ED.]

Conversations with Doolittle

At Borodino, New York

REARING THE BEST OF QUEENS.

"How can the best queens be reared?"

"From many observations since I wrote 'Scientific Queen-rearing' I am led to believe that queens and workers are all reared from the same kind of eggs, no matter whether the egg from which that larva hatches is deposited in a worker or queen-cell, and that the change from a worker to a queen is made by the way the larva is treated and fed by the nurse bees. A worker larva, when from one to two days old, has hardly received other treatment than a queen-larva. Not until it is about 2½ days old can I notice that the food is more scantily supplied to the worker than to the queen larvæ. Because of this fact I claim that, after two days, the older the larva selected for a queen is at the time the change is made, the nearer the resulting queen will be like a worker. Even when a three-day-old worker larva is placed in a queen-cell full of royal food, its growth seems slower than that of one that has been in a queen-cell from the beginning, and some marks are noticeable when such emerge, distinguishing them from those which are reared from larvæ between 36 and 48 hours old."

"But I did not suppose that a mongrel stock could be changed to a thoroughbred simply by feeding."

"And it can not. You remind me of a physician whom I was telling, some years ago, that a larva which would produce only a worker bee under general conditions could be placed in a queen-cell cup and given food from a royal cell, and thereby become transformed into a queen. He said he would not believe it unless he could see it with his own eyes. As he was a very noted physician, I told him if he would come to my house every day I would show him all I knew about the matter. He jumped at the chance, and before he went away I had a stick of cell-cups all prepared and given to a colony above a queen-excluder, prepared as for raising queens with a laying queen in the brood-nest below. He was the most persistent pupil I ever had. He insisted that the frame from which I took the worker larva should be marked so he could note the progress as he came from day to day. In fact, his eyes would sparkle as he saw those larvæ growing in the queen-cells. At the end of the eleventh day the queens were emerging from their cells, and he took two of them and compared them with those bees which were emerging from the comb from which I had taken the little larva, and exclaimed, 'I must believe what my eyes see; but I do not understand.'

"In reality, with the exception of bees and other related insects, as the hornets, wasps, etc., there is not an animal which combines the qualities of worker and queen. It is natural to think that there would be a distinctly defined line between the worker and the queen, similar to that between the worker and the drone. I conclude that the manner in which the embryo larva is fed has all to do with it, and decides the direction in which the insect is to develop. One and the same egg may produce a worker or a queen according to the treatment the larva receives after it hatches. When the reproductive organs begin to develop in the larva, the faculties and organs peculiar to the worker remain dormant, and *vice versa*. A fully developed queen can not be produced with a strong worker tongue, pollen-baskets, and sting. Then by transferring a five-day worker larva to a royal cell, from which a royal larva has just been removed, we find that the faculties peculiar to the worker are so advanced that the resulting insect bears somewhat the appearance of a queen, but is small with miniature pollen-baskets and short tongue."

"But suppose you take a three-day-old larva. What then?"

"In such a case as that, probably a three-day worker larva has not yet been fed undigested pollen, as is the case later on in its larval life, so we might expect at this stage that the worker faculties had not commenced development at all; but it is well to remember that on the third day the worker larva is not as lavishly fed as a queen larva at this age. Then, as nature works when unmolested, before the *cell* in which the selected worker larva lies can be changed over and built out into a queen-cell, the fourth day will probably have come, and very poor queens will be the result. A close observation will reveal some of the worker characteristics, while such a queen will rarely live a year. No one should entertain the idea that a three-day-old worker larva is good enough for a queen. After the bees once begin to scrimp a larva as to its food, such a larva should never be used if the best queen is desired. A larva intended for a queen, from the time it hatches from the egg in a queen-cell, literally floats in a sea of royal jelly, which can not be said of any three-day-old larva in a worker-cell. But up to 36 hours old, nearly every larva as literally floats in a sea of food when in a worker cell as in a queen-cell; for when a colony is in a normal condition, such a 36-hour-old larva touches nothing but the chyle in the worker cell, and nothing more could be done for it were its cell an inch in diameter. Therefore, for the best queens larvæ from 24 to 36 hours old must be used, and these perfected into queens with a colony which will give them afterward all the care and nursing that a colony would bestow in the height of the swarming impulse."

[Mr. Doolittle, as he usually is, is entirely orthodox, and in line with our experience in the rearing of thousands and thousands of queens. We prefer not to have a larva older than 36 hours for grafting.—Ed.]

General Correspondence

FLOWERS AND HUMANITY.

BY JOHN H. LOVELL.

[The following is the first of a very interesting series of articles on subjects directly and indirectly related to our industry. Mr. Lovell is a biologist, botanist, and bee-keeper. For these reasons he is in position to tell us some very interesting things about flowers and bees—things that every practical bee-keeper ought to know. We hope our readers will give them a careful reading.—ED.]

During the last half-century we have been learning, as never before in the history of the human race, the great importance of keeping in close contact with nature. Our future health and prosperity depend upon our love for the soil and its productions. The Greek fable, which tells how the giant Antæus, while wrestling with Hercules, never failed to renew his strength whenever he touched his mother earth, will always be true of man both physically and morally. Of all natural productions, there is none so well adapted for maintaining an intimate communion with nature as the cultivation and study of flowers. Whoever plants a flower-garden, benefits not only himself but his whole village. If the human brain is the most wonderful production of evolution, as Hæckel asserts, flowers are the most beautiful; and, says William Winter, the ministry of beauty is the important influence upon society that can never fail.

There is a fascination about an old garden, indeed, that few can resist. I am glad that the first botanical garden in America, which was planted by John Bartram, the first American botanist, is still preserved as a public park by the city of Philadelphia. It contained a great variety of shrubs and trees, as well as herbaceous plants, raised from seeds and roots collected during his numerous journeys, and received from his European correspondents. There was a greenhouse built by Bartram himself, over the door of which were inscribed the lines:

Slave to no sect, who takes no private road,
But looks through nature up to nature's God.

One of Bartram's correspondents was Peter Collinson, a London merchant who had a choice garden, the pride of his life, at Mill Hill, where he skillfully cultivated rare species of plants received from the colonies. In one of his letters to Bartram he exclaims, "O Botany! delightfullest of all the sciences! there is no end to thy gratifications." No one who has not experienced it can realize how intense is the enjoyment of watching the blooming of plants. A short time before his death, Keats told his friend Severn that he thought that his intensest pleasure in life had been to watch the growth of flowers.

Among children the love of flowers is universal. Says one writer, "I think I never knew a child that did not love flowers. Many children are passionately fond of them, but I never knew a child indifferent to them." Children and flowers! Flowers and children! Surely they are the two chief sources of human happiness! Says Donald G. Mitchell, "Flowers and children are of near kin. I love to associate them, and to win the children to a love of the flowers." I know of a little lad to whom the succession of flowers brings one of the chief joys of the year. With what delight he watches for each blossom in spring, and how eagerly he tells of the treasure he has found! Here is a pleasure that is free to all, and yet is greater than any money can buy. When it is remembered that in many cities there are children who have never seen a dandelion or a buttercup, the value of maintaining flower-gardens in city squares and in every available spot can not be overestimated. Let us hope that the time will speedily come when every child, both at home and by means of the school-garden, will be taught the fundamental facts of plant-life, not alone for the practical advantages to be gained, great as these are, but that they may have through life a never-failing resource, in the pursuit of which they can always find happiness and contentment.

But great as is the pleasure flowers bestow, it is far from being the only benefit received from them. Says Bok, "Nothing teaches us so much in this world as flowers, if we will only watch them, understand the messages they exhale, and profit by them. Every lesson in life is taught by the flowers; every message to the human heart is carried in them." Nor is the time devoted by the professional or laboring man to the investigation of flowers wasted, even from a practical point of view. Charles Kingsley has forcibly described the helpfulness of such studies.

"I know of few studies to compare with natural history; with the search for the most beautiful and curious productions of Nature amid her loveliest scenery, and in her freshest atmosphere. I have known again and again workingmen who, in the midst of smoky cities, have kept their bodies, their minds, and their hearts healthy and pure by going out into the country at odd hours and making collections of fossils, plants, insects, birds, or some other objects of natural history; and I doubt not that such will be the case with some of my readers."

"Supposing that any of you, learning a little sound natural history, should abide here in Britain to your life's end, and observe nothing but the hedge-row plants: he would find that there is much more to be seen in those mere hedge-row plants than he fancies now. . . Suppose that he learnt something of this, but nothing of aught else. Would he have gained no solid wisdom? He would be a stupider man than I have a right to believe any of my readers to be, if he had not gained thereby somewhat of the most valuable of treasures, namely, that inductive habit of mind; that power of

judging fairly of facts, without which no good or lasting work will be done, whether in physical science, in politics, in philosophy, in philology, or in history."

"Take my advice for yourselves, dear readers, and for children after you; for, believe me, I am showing you the way to true and useful, and, therefore, to just and deserved power. I am showing you the way to become members of what I trust will be —what I am sure ought to be—the aristocracy of the future."

Undoubtedly the influence of flowers upon the mental and moral development of the human race has been both profound and far-reaching. So intimately do they enter into every phase of life, and so eloquently do they express every emotion, that it was long believed their bright colors, sweet odors, and varied forms were created solely for the benefit of man. We can not imagine what this world would have been without them, or estimate the enjoyment that would have been lost, or the power for good that would have been for ever missing; but we know that humanity would have been less perfect than it is to-day. And such a loss is not inconceivable, for there are many thousands of flowers which are small and dull-colored; but, happily for us, the æsthetic tastes of bees and butterflies have been similar to our own.

That flowers act strongly upon the imagination is shown by the myths of the Greeks and the poetry of all nations. Even the ruder songs of the primitive northern nations, according to Humboldt, were influenced by the forms of plants. Of the relations of flowers to humanity, the poet is the true interpreter, not the man of science. He alone, as Longfellow has said, is qualified to unfold the bright and glorious revelations and the wondrous and manifold truths written in these stars of earth.

And the poet, faithful and far-seeing,
Sees, alike in stars and flowers, a part
Of the selfsame universal being
Which is throbbing in his brain and heart.

Brilliant hopes, all woven in gorgeous tissues,
Flaunting gaily in the light;
Large desires, with most uncertain issues,
Tender wishes blossoming at night.

These in flowers and men are more than seeming;
Workings are they of the selfsame powers
Which the poet in no idle dreaming
Seeth in himself and in the flowers.

In all places, then, and in all seasons,
Flowers expand their light and soul-like wings,
Teaching us by most persuasive reasons
How akin they are to human things.

While an examination of the poetry which has been written on flowers in all ages would teach many valuable lessons, we must be content to quote four verses from Leigh Hunt's "The Songs of Flowers," in which he surpasses all other poets in his description of the life of flowers and their relation to humanity. From the point of view of the naturalist this is the most remarkable poem on flowers in any language, "fathoming," says Hamilton W. Mabie, "the very soul of flowers." "No poet in this nor in many a generation past has said a sweeter or more haunting word for the flowers."

We are the sweet flowers,
Born of sunny showers;
Think, whene'er you see us, what beauty saith:
Utterance mute and bright
Of some unknown delight,
We fill the air with pleasure by our simple breath:
All who see us love us;
We befit all places;
Unto sorrow we give smiles, and graces unto graces.

See, and scorn all duller taste,
How Heaven loves color—
How great Nature clearly joys in red and green;
What sweet thoughts she thinks
Of violets and pinks,
And thousand flashing hues made only to be seen!
See her whitest lilies
Chill the silver showers;
And what red mouth has her rose,
The woman of the flowers!

Think of all these treasures,
Matchless works and pleasures,
Every one a marvel, more than thought can say:
Then think in what bright showers
We thicken fields and bowers,
And with what heaps of sweetness half wanton May!
Think of the mossy forests
By the bee-birds haunted,
And all those Amazonian plains,
Lone lying as enchanted.

Who shall say that flowers
Dress not heaven's own bowers?
Who its love, without them, can fancy—or its floor?
Who shall even dare
To say we sprang not there,
And came not down that love might bring
One piece of heaven the more?
Oh! pray believe that angels
From those blue dominions
Brought us in their white laps down,
Between their golden pinions.

Waldoboro, Me.

BEE-KEEPING ON THE APPALACHICOLA RIVER, FLORIDA.

Something about a Small Area in Northwestern Florida that has Produced as High as 1900 Barrels of Honey in One Season; a Visit to A. B. Marchant.

BY E. R. ROOT.

During the early part of last season I prepared two or three articles on Florida; but as it was nearing the time of year when most northern people were leaving the State, I decided to hold them over. To-day I propose to tell you the story of the wonderful tupelo regions along the Appalachicola River, in Northwestern Florida. Wonderful to relate, there has actually been produced nearly 2000 barrels of honey, each containing from 300 to 500 lbs., along the shores of that remarkable river, covering a distance of not over 100 miles, and perhaps a mile or a mile and a half on each side of the stream.

One of the pioneer bee-keepers in that region is Mr. A. B. Marchant, of Sumatra, Fla. His postoffice was formerly Marchant's Landing, for be it known that Mr. Marchant's bee operations were so extensive that he has a landing on that river where boats stop; and if you will look on the map you will still see Marchant's Landing. You perhaps will understand why steamers stop here if you will look at a photo showing a

part of 1910 season's crop of honey of 100 barrels from a single apiary. Notice how the filled barrels are crowded together on the wharf, from the apiary clear up to the water's edge. It was not possible for the camera to take them all in for you can count only 42 barrels, for the yard is next to the river. During the same year, Mr. Marchant actually harvested from the two yards, of nearly 800 colonies of bees, 245 barrels. In 1904 he took 300 barrels from three apiaries, but from no more bees.

While our friend may not be known to a great extent to the bee-keeping world, he is well known to the New York honey merchants. Indeed, he has probably sold them more honey than any other one man in Florida, and that is saying a good deal.

But what about this honey? What is it? It comes mainly from the tupelo, both white and black. If you go into Southern Florida the local bee-keepers will tell you that "the palmetto is the finest honey produced in the State." In the other regions they will say that "mangrove carries off the palm;" but when you get into the northwestern country they will confidently assert that "a pure *white* tupelo without other honey excels them all." It is of heavy body, very light in color, and very mild in flavor. The claim is made for it that it rarely or never candies. Indeed, Mr. Marchant's son Ernest told me that they kept a barrel of it for *ten years* without its candying. Its mildness of flavor, and its non-candying quality, should make it an excellent honey for blending with a honey of more pronounced flavor, like basswood, alfalfa, or clover. The bottlers of the country have been using mountain sage because of the very qualities claimed for the tupelo. But if tupelo can be used for bottling purposes, sage will have a strong rival.

The next question that will be asked is, whether the regions round about the Appalachicola River, where so much honey is produced, are overstocked. I understand they are not. One reason for this is that much of the land along the Appalachicola is marshy, infested with mosquitoes and malaria; but Mr. Marchant lives on one of the very few points of land near the river that are above the high-water mark, or at least he is not compelled to put his bee-yard on high stakes to avoid water. Later on I will show views of bee-yards on the river, up on stilts.

Another difficulty encountered on the Appalachicola River is a lack of sufficient pollen some seasons to enable the bees to rear brood, so that there may be a strong force of bees when the tupelo honey comes on. But Mr. Marchant and his neighbors solved this problem by loading the bees on steamers, carrying them up the river about a hundred miles, and setting them off again. Freight rates on the river are comparatively low, and that makes it possible for the bee-keepers in that locality to practice migratory bee-keeping. Indeed, some of them use gasoline-launches with rafts. Mr. Marchant finds it is more practicable, however, to hire the regular transportation company to carry the bees from point to point.

The whole country in Northwestern Florida was a revelation to me. It was so greatly different from any thing I had seen elsewhere in Florida that I imagine the bee-keepers of the East Coast or Southern Florida would have to reconstruct their methods of management to fit this particular territory, for I am satisfied that no one can succeed there unless he has a thorough knowledge of the country or unless he works with a partner who does have that knowledge.

Mr. Marchant knows his locality thoroughly. He has an accurate knowledge of all the various honey-plants and trees that grow along the river. He knows almost to a day when they will begin to yield honey. Indeed, he can tell almost to a certainty whether he is going to have a crop or not. Said he last spring when I visited him, "The indications this season are unfavorable for a honey-flow. Another thing, my bees are weak—too weak to get a crop even if there should be a flow.

The sequel showed that he was right. He got a small crop, but nothing like those shown in the picture.

In our next issue I will show you something of his method of management of his apiaries, and the scheme he has for weighing his honey. It is one of the simplest and most practicable I have ever seen.

In the mean time, if any one thinks I am booming that territory, I wish to tell him fairly and squarely that the average man, unless he spends years in learning the business, or connects up with some one who does have the necessary experience, can not make a success in keeping bees in the tupelo regions, especially if he has to locate his hives on stilts on marshy land. But Mr. Marchant is located on comparatively high ground where the conditions are much more favorable. More anon.

Removing Propolis from Section-holders.

Dr. C. C. Miller:—I take the liberty to ask about your method of removing propolis from section-holders and fences by means of hot water and lye. What are the proportions and general method of procedure?

Bridger, Montana, Nov. 16. C. C. PIERCE.

[Dr. Miller replies:]

Fences that are glued could not be cleaned in this way at all. They would fall to pieces. For cleaning T tins, nothing can be better. I also cleaned a lot of brood-frames out of which the combs had been cut. It was very satisfactory. Wood separators are cleaned nicely; but unless they are weighted down while drying they will curl badly. Any thing of wood, nailed, can be cleaned with lye if one has a vessel large enough.

A large iron kettle has a fire built under it outdoors, the kettle fairly filled with water. When the water is boiling, empty into it two or three cans of concentrated lye. Put into the kettle the articles to be cleaned, and stir them about until clean of propolis. Then take them out and rinse in a tub of water. Keep replenishing the kettle with water as it becomes less, and from time to time add more lye whenever the solution does not take hold properly upon the propolis. For good work the water must be kept very hot. Of course, a number of pieces will be put into the kettle at a time. A pitchfork or a four-tined fork is used to stir the pieces and to lift them out. C. C. M.



A part of one season's crop of 100 barrels of honey on the wharf, ready to load on the steamer, from the home apiary of Mr. A. B. Marchant, located in the wonderful tupelo regions of the Appalachicola River, Florida. See page opposite.



FIG. 1.—Miss Lucille Johnson demonstrating with bees at the fair at Williamsburg, Iowa.

HOW I DEMONSTRATED WITH BEES AT THE FAIRS.

BY LUCILLE JOHNSON.

I have just received a letter from papa, saying you wished me to tell you about my experience in demonstrating with bees. I must first tell you that I live in Ottumwa, with my married sister, my mamma having died seven years ago when I was four years old.

The first of June I go up home and stay until Sept. 1, through my vacation, and help papa with the housework and the bees. I put together all his sections last year. I can put up a whole box, 500, and not break one. He told me last year that, if I would help him real well, he would take me to the State Fair, and he did; and of all the fine things we saw there, the one that interested me most was the man in a cage with a hive of bees. I got up close so I could see him. I wanted to see how he did it. When he was through with his demonstration I went to papa and said, "We can do that" He said, "Don't you think you would be afraid?"

I told him that I wouldn't, and he said there was to be a fair at Williamsburg the next week, and if I would go into a cage and do just what he told me he would build a cage. Of course I had helped papa with the bees, but had never tried to handle them in a cage; but Tuesday I was there and entered the cage before thousands of people. They were packed around the cage for six rods. I first took a frame, bees and all, and held them up to the wire so the people could see them, as shown in the first picture, then I shook the bees from three frames into a dishpan. I shook them up, then picked them up by the handful, as in the second picture. I filled my straw hat, put it on my head, and went on with the demonstration, and I did nearly as much as papa did. He put a great pile of bees in his shirt waist and in his mouth, but I didn't want to do that. But I gave a demonstration each day at the fairs for two weeks, and I was not stung once.

In the second demonstration the cage was full of flying bees around in the air, and people just begged papa not to let me go into the cage. They thought I would get stung to death; but I wasn't a bit afraid, and I guess that was the reason I did not get stung.

Ottumwa, Iowa, Oct. 1.

CLIPPED VERSUS UNCLIPPED QUEENS.

A Queen's Use of Her Wings.

BY ARTHUR C. MILLER.

Many bee-keepers have abandoned the very helpful practice of clipping their queens, and others have hesitated to adopt the practice, believing that clipped queens are generally superseded. Some attribute the supersedure to the mutilation of the queen, and others to injury to the queen by attacks of the bees after the queen is returned to them, said attacks being attributed to odor of the operator's fingers contaminating the queen.

Unquestionably, many queens *are* superseded soon after being clipped, and also many queens are not. Now, why the difference?

First, it is not due to odor acquired; for if the queen is not exceptionally timid, the mere handling of her will not be noticed by the bees. The writer has frequently anointed queens with perspiration, saliva, and sundry odorous substances, and has yet to find any evidence of its bringing harm to the queens. When sundry essential oils were tried on workers, it was found that these spread on them, and caused either great distress or death, so they were not tried on queens. By every test that could be thought of the odor factor was tried, and the conclusion reached was that odor did not enter into the problem.

Then queens, both clipped and unclipped, were watched in their work, and it was not long before a clue to the trouble was found, and a little experimenting soon showed the real cause. When a queen backs into a cell to lay, her wings slide out over the surface of the comb and balance her. As she starts out, the wings materially assist her. Cut her wings off close to the thorax, and still she will do pretty good work; but such close cutting seems in some cases to cause distress to the queen—at least sundry nervous movements indicate that she is not acting normally. I believe it is now determined that insects do not not feel pain; but they do move away from pressure, pinpricks, etc., probably an act of self-protection solely.

Cut one pair of wings off close to the thorax and leave the others undisturbed, and the queen works fairly well. The signs of "distress" are not so apparent. But cut one or both pairs of wings at about half their length, or a little less, and trouble quickly follows, though queens so clipped evince no sign of any injury. Now, why are such queens superseded? Because they are unable to fulfill their functions in a normal manner. First, they usually place eggs irregularly—that is, they are not uniformly centered in the cells, and in some instances are placed on the side of the cells. Second, they lay much more slowly than unclipped queens, and all the trouble is caused by the stubs of the wings. These hit the edge of the cell wall as the queen tries to back in, and they prevent her from quickly and accurately placing herself as she normally does. She may try to enter several cells before she finally drops the oncoming egg anywhere, even on to the surface of the comb. Of course, the brood is irregular, and it is usually but a short time before preparations are made for raising a new queen.



FIG. 2.—Shaking up the bees in a dishpan.

If only one pair of wings are clipped, and these are cut only far enough up on the large wing to catch the tip of the small one, no trouble will be caused the queen. Thus clipped, she may fly a little but not far nor high.

Another and very excellent method of clipping is to cut lengthwise of the wings, taking off half the width of the lace-like part of one pair. This method of cutting calls for a little practice and skill, but is really worth the trouble. A queen so clipped lays as perfectly as usual, and, furthermore, looks prettier than a queen as ordinarily clipped—a matter of no small consequence to many persons, and often quite an item in exhibitions.

Providence, R. I.

[Clipping is practiced among many large producers. The usual custom is to clip both wings close on one side. While there have been stray reports questioning the advisability of clipping, the great mass of large producers practice it, and, if we are not mistaken, with very satisfactory results. We should be glad to get reports.—ED.]



FIG. 3.—Demonstrations of this kind always draw a big crowd.

SEVERIN'S HONEY AND WAX SEPARATOR.

BY F. J. SEVERIN.

Fig. 1 shows my separator just as it appears ready for use, except that it is tipped up to show the interior. In Fig. 2 the separator stands in its regular position.

In brief, the principle of the operation of this separator is as follows: The melted wax, honey, and slumgum from the melter fall into the screen shown in the right-hand compartment, Fig. 1. The partition between the right-hand compartment and the left-hand compartment does not go quite to the bottom, there being a quarter-inch space; and since there is always supposed to be some cold honey in the separator, the wax can not get under this partition, for it floats on the top of the honey. When the liquid in the separator reaches the spout at the left-hand side of the left compartment the honey runs out in the trough which extends around that end of the separator, down the long side in front, and back to the three-inch pipe that conveys the honey from the extractor to the storage-tank. When the work has been kept up long enough so that the liquid reaches the height of the spout that connects the right-hand compartment with the left, the wax flows over into the left-hand compartment and is caught in the wax-pan placed there to receive it; and since it is surrounded by hot honey, it does not chill. The wax-pan holds enough wax for a whole day's work—about 23 pounds in all when full. The slumgum is kept back by the wire-cloth basket in the right-hand compartment.

These separators can be made of any size desired. The one shown is 20 inches long, 11 inches deep, and 11 inches wide, outside measurements. The partition separating the right-hand compartment from the left is five inches from the right-hand end of the separator, and extends to within ¼ inch of the bottom. The slumgum-basket is four inches wide, ten long, and ten deep. Five or six inches is deep enough, as slumgum acts like wax; that is, before it will sink very far it will rise and go over the top; therefore there is no need of having so deep a basket.

The wax-pan is fourteen inches long, ten wide, and nine deep. The bottom is 1½ inches smaller each way all around. This pan is held up from the bottom of the outside tank by means of ribs.

The spout for wax in the upper part of the partition is three inches long and one inch

deep, the wax-pan just fitting under it. The honey-spout at the left-hand end of the separator is three inches long and 1¼ inches deep, so that it is ¾ inch below the top of the wax-can.

All of our extracting was done in a screened honey-house with a shield at the South; and if a sand-storm or big wind came up, the wax chilled on top and formed layers; but the honey and wax in the slumgum-basket never chilled, as they were too hot. At one time I had to quit work on account of the wind blowing out the fire under the capping-melter. But later in the summer the wind does not blow so often, and the wax is then solid, for the new wax that keeps coming in always fills up the holes or crevices so that the whole chunk, when it is removed, is all together in one piece. If the machine were used in a honey-house having solid walls where no wind could strike the separator, solid wax would be the result every time. Out in the open a piece of burlap is thrown over the top, and a board placed over it. The pile of cakes at the left of Fig. 2 shows what can be done, even in this windy country. The largest cake in the middle of the pile weighs 19½ lbs. If the wax-pan shown on top of the pile had been full, the cake would have weighed 23 lbs.

The proportions of this separator were decided on after taking into consideration that, if one man does the work, much time is consumed when he is out in the yard brushing the bees off combs and bringing in the honey, and the melter, of course, is idle while he is gone. There is an advantage, therefore, in having the separator hold a good deal of honey so as to retain as much heat as possible while the operator is otherwise engaged. If a smaller amount of honey were retained in the separator, the wax would become cold during the interval, and there would be separate chunks which would make extra work in melting them over. If there are two operators on hand, or if the bee-escape is used and enough honey taken off for the whole day, there is not so much need of a great amount of honey in the separator. The separator shown holds about two-thirds of a can of honey before it begins to run out of the honey-spout at the left end.

The wax-pan has two handles as shown. An iron rod runs through these and through the outside walls of the separator, thus keeping the wax-pan in place. It can be seen that, as soon as the honey commences to run, the tendency of the wax-pan would be to float on top, so that it has to be held down in some such way to keep it from floating like a boat. The idea, of course, in having the warm honey surround this pan is to keep the wax melted. When the work is finished, or at any time, for that matter, the wax-pan may be slipped slightly so as to clear the spout, and then lifted out after the honey has been drawn out away from it by means of the screw-cap opening at the bottom of the separator. After standing over night every thing will be cold, and all the honey may be drawn off except about half an inch. This amount, however, does no harm, even though the first wax that runs in is chilled. By the time very much work is done it is all melted again.

The slumgum-basket is made of ⅛-inch-mesh galvanized wire cloth. I have used a cheese-cloth inside the basket, but it makes slower work and is a great deal of inconvenience. The cheese-cloth is really unnecessary, any way, for the wire cloth gets nearly all the slumgum, the rest remaining with the wax, in the right-hand compartment. This small layer of wax, together with a little slumgum, is melted over again the next day.

When the work is done for the day, the slumgum-basket should always be emptied and kept outside and not put back, because the wax and fine slumgum that drains through the strainer will become cold over

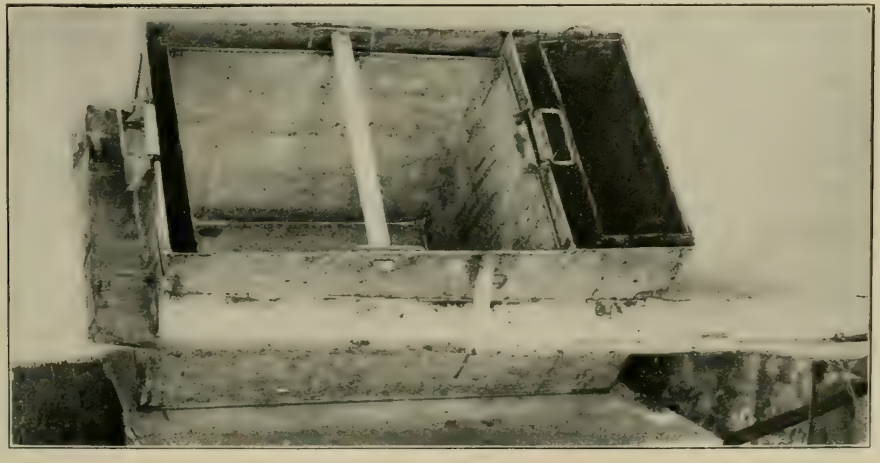


FIG. 1.—Severin's improved honey and wax separator. The compartment at the right is the slumgum strainer or basket; that at the left is the wax-pan, the space around it being for honey.



FIG. 2.—The separator in position on the stove. The trough shown is to convey the honey to the tank. The pile of wax at the left shows that the cakes as they come from the separator are solid, and ready for market.

night, leaving a ¾-inch chunk, probably one-fourth of which is slumgum. It is easy to force one side of this down, take out the cake, and melt it over again the next day.

If it becomes necessary to clean the basket during the day, all that is necessary is to lift the handle, slide the basket over out of the way of the capping-melter spout, lift it out slowly, and drain it. Then dump the slumgum out, set it back, and turn down the handle on the partition which helps to hold it in place.

San Diego, Cal.

BEE NOTES FROM CONTINENTAL EUROPE.

BY R. LINDE.

In having a past in bee-keeping, Europe has an advantage over America. Is it an advantage, really? I do not know. Perhaps it is not. But surely it can not be an obstacle.

While European apiculture has a past, young pushing America has a big and real present. Whenever you meet an old bee-keeper on this side of the sea he will tell of the past—wonderful tales of the past—honey was so plentiful that even the fence-posts yielded it profusely. He will tell you that many a time he could not help himself otherwise than to dig holes in the ground under his skeps to afford his bees the room necessary for storing all the honey coming in. His whole memory is soaked with reminiscences of this kind; and he has only a pitiful smile for modern methods of bee-keeping. As a matter of course, there is a younger generation of bee-keepers, differently disposed and with different interests; of these I shall have to say more in future contributions.

VARIETY OF METHODS

In this part of the world there are more different methods of and means for bee-keeping in vogue than differences of races, states, languages, climates, and bee pastures can possibly account for. This variety is bewildering to any one on this continent; then how much more so must it be to the bee-keeping fraternity beyond the sea! I can quite understand the difficulties your reviewers encounter in their endeavor to glean useful and interesting items from European bee-journals.

It will be my privilege, in the course of time, to give descriptions of the more important systems and means in vogue over here, and, incidentally, to show whether and to what extent American ideas are penetrating apiculture in Europe; and does it mean taking too big a bite if I give way to the hope that now and then something not entirely useless to practical apiculture on your continent might possibly be found in these articles, although coming from Europe?

THE MODERN STUDENTS OF ANATOMY.

When I read that severely critical article on the anatomy of the honey-bee by Mr. Snodgrass, in GLEANINGS for March 15 (and I did read it several times), I became convinced that, happily, modern investigators

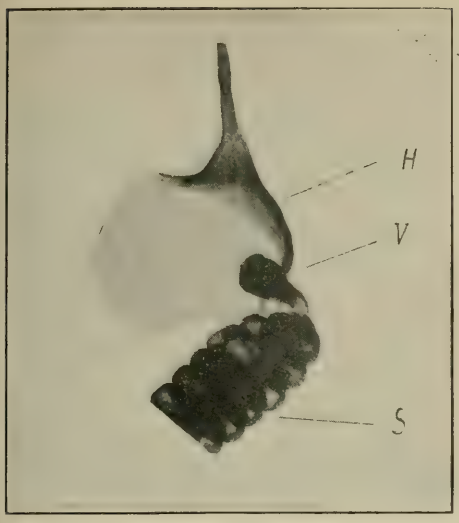


FIG. 1.—Honey-sac, H; stomach-mouth, V, and chyle-stomach, S, of the bee in the natural position. Photographed from a microscopical preparation, ten times enlarged.

in bee science have got on a new track which in time, and by perseverance, will lead them to quite different results than most previous students of the bee arrived at.

What these new bee scientists distinguish seems to be their extreme seriousness and their sober self-limitation. And not only in this respect are the modern investigators of America and Europe in complete accord, but in their aim too; and in their results so far they are coming to similar conclusions. That is a happy omen for the future of bee science.

Right here I want to draw the attention of American bee-keepers to the work carried on at the Royal Apicultural Institute at Erlangen, Germany. The head of this institute is Mr. Enoch Zander, Dr. Phil., Professor of Zoology, who is at present publishing the results of his 15 years' study in his "Handbookof Bee Science." The third part, on the anatomy of the bee, means a new departure in this line. A truly scientific endeavor, and a readiness at all times rather to prefer to confess to being an ignoramus than to enter into bottomless theoretical speculation — that is the spirit the whole work breathes. Another feature that lifts this work above similar previous publications is that, though the honey-bee is the object of the study, the relations of the honey-bee are never lost sight of. This study of comparison of analogous parts of the bee with those of its relations opens an interesting and wide aspect, and will prove more fruitful than the isolated speculation upon the bee as a singular wonder instead of a part of a wonderful creation—a practice hitherto so much indulged in.



FIG. 2.—The connection of the honey-sac and chyle-stomach. Sectional view of a model at Erlangen University, Germany.



FIG. 3.—The position of the honey-sac, H, and the chyle-stomach, S, in the abdomen of the bee.

SOME BEE MODELS.

Through the kindness of Prof. Zander



FIG. 4.—Crop, stomach-mouth, and ventriculus of wasp, enlarged ten times.

I am able to reproduce a few microscopical photographs which those who have studied the bulletin, No. 18, by R. E. Snodgrass, on the anatomy of the honey-bee, will especially appreciate.

Fig. 1 is a photo of a microscopical preparation of the honey-stomach, the proventriculus (stomach-mouth), and the true ventriculus, or chyle-stomach. This preparation clearly shows the natural position of the so-called stomach-mouth with its cross-slits to where the œsophagus discharges into the honey-sac A clear conception of the structure of these parts of the elementary canal may be gathered from the sectional view of a model at Erlangen, reproduced in Fig. 2. This illustration shows especially well the way in which the honey-sac is connected with the true stomach by means of the neck-like organ, the proventriculus.

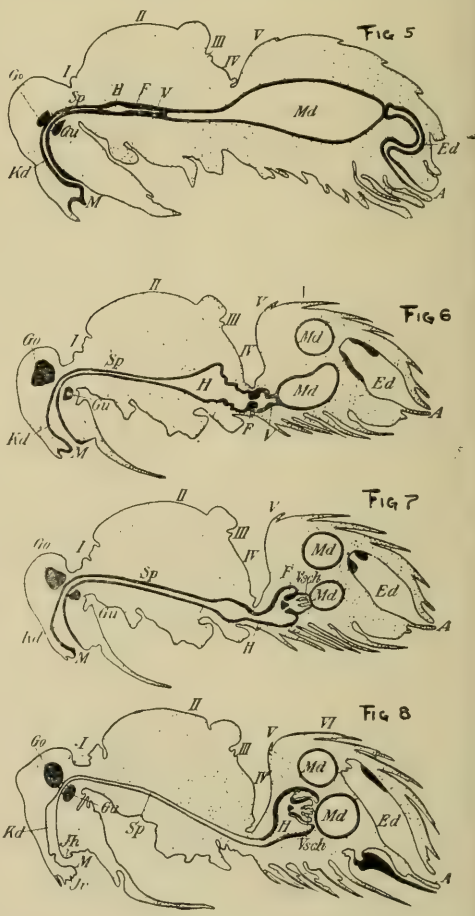
The position these parts assume in the abdomen of the bee may be seen in Fig. 3.

Fig. 4 being a microphoto of the crop, the proventriculus, and the ventriculus of a wasp (*Vespa caboa*) afford an interesting comparison with the analogous organs of the honey-bee as reproduced in the same enlargement in Fig. 1.

A pupil of Prof. Zander, Dr. Metzer, who devoted himself to a study of the proventriculus of the honey-bee, brought to light a very interesting fact about the development of the honey-sac and the stomach-mouth. While in the full-grown insect these organs occupy their place in the abdomen, their development ensued almost entirely in the thorax. In the earlier stages of the pupa, both these organs form but slight enlargements of the alimentary tube. Just before the division between thorax and abdomen becomes complete, the honey-sac recedes into the fore part of the abdomen. The drawings in Figs. 5 to 8 will help to make this development clear.

Another pupil of Prof. Zander made a special study of the construction and mechanism of the apparatus of flight. He discovered a wonderful apparatus that leaves the complicated mechanism actuating the sting far behind.

The sting itself received a special study by Prof. Zander, and here, too, the comparative study of the analogous apparatus of other members of the hymenoptera furnished interesting and instructive matter; and



The development of the honey-sac and stomach-mouth in the pupa stage. *H*, honey-sac; *V*, proventriculus (stomach-mouth); *Md*, ventriculus.

tracing the development of the apparatus of the sting throws light on the disappearance of the 11th and 12th dorsal and ventral plates of the abdomen in the full-grown worker bee.

The few examples given will justify my devoting so much space to this subject that surely ought to claim the attention of all progressive bee-keepers—not alone those of the two continents that this department is trying to bridge.

Wendhausen, Hildeshain, Germany.

THE PRESS-IN-COMB CAGE FOR INTRODUCING.

A Scheme for Giving the Option of Either the Candy or the Press-in-comb-cage Plan of Introducing; a Few Cautions.

BY F. W. L. SLADEN.

Years ago I sent out all my queens accompanied by a wire-cloth cage for pressing into the comb, and I still do so in the early spring. I am mailing you a sample of the package. You will see that the wire-cloth cage covers one end, but not the top, of the Benton cage, and is, therefore, much smaller than the cage you illustrate. This I consider an advantage, not only because less wire cloth is used, but because it is often difficult to find a sufficiently large area of comb free from brood, or much honey to receive a large cage. Those who have introduced many queens by the plan of pressing a cage into the comb know how important it is to select a portion of comb that is empty with the exception of only one or two unsealed cells of honey; for if the cage be pressed into much honey the honey may trickle out of the wound and drown the queen; while if it encloses larvæ these are injured, and starve, or at least undergo a long fast, although this does not matter so much if the area is small. It is also advantageous, and in the early spring and autumn necessary, to cage the queen in the center of the hive; and tough comb that has been bred in is better than new comb, which the bees sometimes nibble away. All these requirements restrict the available space for the cage. My cage, as you will see, measures only ¾ inch by 1⅜; and I find this is quite large enough to hold the queen and also a just-hatched worker from the hive to which she is being introduced, which I always prefer to place with her.

You will see that the wire cloth of my cage is made of comparatively stout wire, and has a close mesh. This is an advantage, because the cage then keeps its shape well. I pull out a strand of wire all around the edge, which makes it easy to press the cage into the comb.

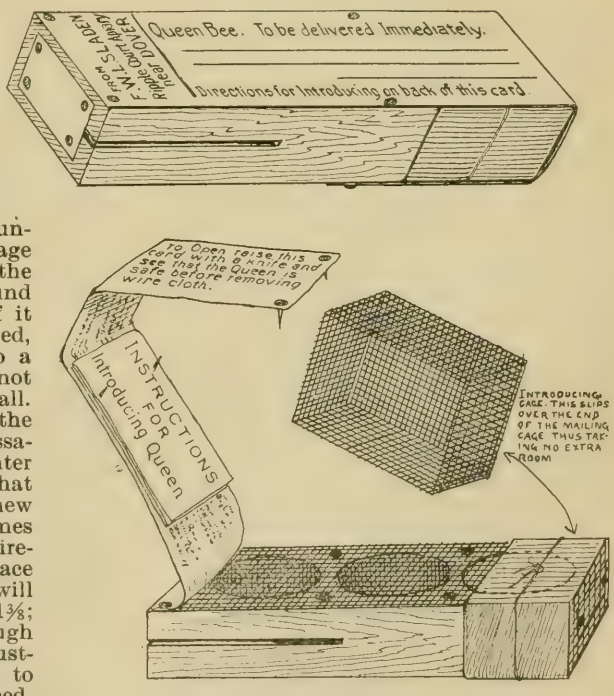
It is necessary to warn queen-breeders not to make the cage of tinned or galvanized wire. The action of the metals causes salts to form in time; and, although these salts are produced in minute quantities only, there is often enough to poison a queen confined alone in the cage. The wire cloth I use is made of ordinary iron wire, and I paint it over with varnish to prevent it from rusting.

You will see that, to prevent the edges of the wire cage from becoming entangled in any thing in the mails, a band of stout cartridge paper is tied around it with a piece of fine string; and to prevent the wire cage from dropping off the end of the Benton cage, the address label is brought over the end of the latter and nailed down on its under side. This entails a slightly longer address-label than would otherwise be used; but this is an advantage, because it gives more room for printing the directions for introduction on the back of the label.

I do not, however, think that long directions are necessary; and from many years' experience I have found the following short statement to be sufficient:

DIRECTIONS FOR INTRODUCING THE QUEEN.

First make sure that the colony to which you wish to introduce this queen is without a queen already. A colony is in the most favorable condition for the introduction of a strange queen when it has been queenless for about 24 hours. A square wire-cloth cage will be found covering one end of this box. Press this cage, with the queen alone inside it, into a tough portion of one of the middle combs, and see that there is a little unsealed honey



in two of the cells enclosed by the cage. After a lapse of 48 hours the queen may be set free among the bees provided they are not clustering closely around the cage. The bees should be disturbed as little as possible during this operation. The hive should not be examined again for some days.

If the queen be found dead on arrival, and is sent back *in the unopened box* by return post, another queen of the same description will be forwarded free of charge. Safe introduction is not insured.

I have found the method of introducing a queen in a cage, pressed into the comb as described, to be, on the whole, safer than the ordinary method of introducing in the mailing-cage; and, as the editor points out, it is especially useful as a safeguard against the introduction of disease. At the same time, it requires more work and skill on the part of the bee-keeper; and its greatest drawback is the necessity of disturbing the bees to release the queen. Possibly some device might be invented to remove the necessity for this. Meanwhile it seems best to give the customer the option of employing either method of introduction, as you will see is done with the cage illustrated. Directions are given for both methods.

The wire-cloth introducing-cages are much appreciated by customers, as they can be used over and over; yet they cost very little to make, and I believe that the queen-breeder who has the generosity to supply them will be well paid.

Ripple Court Apiary, Dover, Eng.

[There are two excellent features in the cage here illustrated. First, it will allow the use of a regular Benton mailing-cage without modification. Second, the push-in-the-comb-cage plan may be used, or the candy plan of introducing. Some beginners are very timid, and possibly might lose a queen in transferring her from the cage to the comb. The more expert bee-keepers can use the push-in-the-comb-cage plan.

Mr. Sladen uses the two schemes of introducing only in the spring. If it is a good thing then, why should it not be good during the entire season? The cost of the extra feature is merely nominal.

The directions that Mr. Sladen sends out make it necessary for the owner of the bees to release the bees in from 24 to 48 hours. This we consider decidedly objectionable. The very act of opening the hive disturbs the normal condition of the colony. Experience shows that, when the queen is released without this disturbance, the chances of her acceptance are much better. From the experiments that we have conducted here at Medina, it would seem to us that, unless the push-in-the-comb-cage plan is arranged so that the bees can tunnel under and release the queen themselves, we should lose half of the advantage secured by this plan. To our way of thinking, the push-in-the-comb-cage plan allows the queen to come into direct contact with the comb and the cells of honey. This very contact with the comb itself gives her more nearly the colony odor than if she is kept in a cage on top of the frames for 24 hours away from the brood-comb.

Mr. Sladen recommends pushing the cage into a *tough* part of the comb. Why do this? Why not recommend pushing the cage into comparatively soft comb, and only just deep enough so that the cage will not fall away by its own gravity? When so placed, bees will release the queen in from 24 to 48 hours themselves. We introduced hundreds of queens this way the past season, without the loss of one. We believe it is an advantage to have the cage a little larger than the one here shown so that it can cover a little hatching brood if possible, and some empty cells as well as a few cells of honey. If any young bees should hatch, she will come in direct contact with her own subjects; and, of course, they would be kindly disposed toward her. But suppose the bees did not release her in 48 hours, no harm would be done, because she would have the range of enough comb to begin laying before she were released, and a fresh *laying* queen will be well received if any queen will.

We see no reason why our plan of having a large cage telescope over the top of a regular Benton cage as illustrated on page 554 of our Sept. 15th issue could not be used and still allow the feature of introducing by the candy plan also, if the recipient feels hardly competent to make the transfer of her majesty from the cage to the comb. In any case, if the work is done in a room, before a window, the queen can not possibly get away. The only difficulty then that arises is whether the beginner, if the queen should fly to the window, would be able to catch her without killing or maiming her. On account of this possibility we have about come to the conclusion that the two plans of introducing, giving the recipient the option of using one or the other, should be adopted.

We should say at least ten per cent of the queens introduced by the public by the candy method are lost in introducing. The results the past season showed that there was not even one per cent lost when the push-in-the-comb-cage plan was used.

Mr. Sladen prefers to have a hive queenless 24 hours before introducing another. Present practice in this country seems to favor removing the old queen and giving the new one at the same opening of the hive. This is the practice in our apiaries.

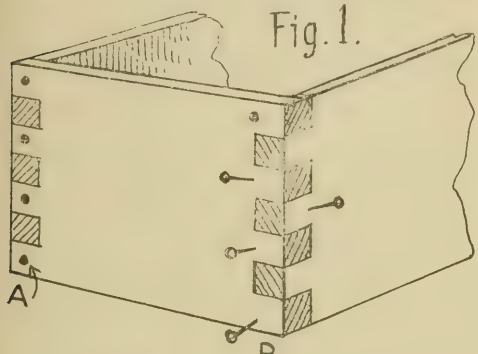
We shall be glad to get further suggestions from any of our friends who may have tried this wire-cloth-cage method of introducing. We omitted to mention that Mr. Geo. H. Rea, of Reynoldsville, Pa., suggested pushing a leadpencil through the comb from the side opposite where the cage is located, at the end of 48 hours. This leaves a hole through which the queen can pass, even if the bees do not release her. If the comb with the cage is now put back carefully in the hive she may not and probably will not emerge till long after the hive has settled down to its normal condition again. If Mr. Sladen were to add this suggestion to his directions he would eliminate the disturbing feature.—ED.]

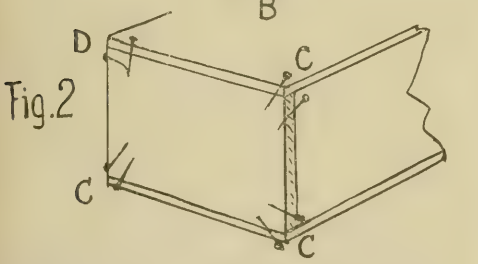
THE RIGHT AND WRONG WAY TO NAIL HIVES AND BOXES.

BY WM. C. BROWN.

It is hard to conceive of a successful bee-keeper unable to use the common handicraft tools fairly well, or ignorant of the proper manipulation of the materials used in the apiary. It is pleasing to find such articles as those by F. Dundas Todd and others on this subject. Mr. A. I. Root, in the early days, did much toward my knowledge of the use of tools and material in the minute attention he gave to details, and his insistence on accuracy and the shunning of careless work.

I have long purposed writing on the subject of nailing hives, cases, and boxes. On page 90 of GLEANINGS, Feb. 15, 1911, is an





article by Louis Scholl which reminds me of my procrastination. I agree with him that the nails should be driven on the skew, as he describes; but in practice I go further; for, instead of driving the nails within, say, half an inch of the edge of the stuff, as at A, Fig. 1, which ninety-nine in a hundred will do, I insert the nails back in the body of the stuff as at B, at such an angle that the points will not protrude when driven home. This insures solid work—a tenacious hold—and, not least, an almost entire absence of splitting.

Bee-keepers often have to nail up ordinary cases and boxes. In my business many thousands pass under my inspection annually. In using timber that is hard or easily split, the outer nails should be driven slanting toward the center as at C, Fig. 2. If driven in as in the usual manner, a cover nail often strikes and deflects the other, splitting the end, and so spoiling the work.

Then as to gauge and length of nail, never use a larger size than the nature of the work and timber requires. To nail on half-inch boards with 2½-inch nails is not good workmanship. By the way, when telling the size of nails to use, the gauge and length should be mentioned. "Two penny" or "ten penny" conveys no information to many of your readers.

THE GRAVITY METHOD OF CLARIFYING.

I am pleased to note that many of your correspondents are using the law of gravitation to attain this object in preference to the messy and laborious method of straining, which is necessary only when the foreign matter is of the same specific gravity as the honey, which is seldom. If sand, by accident, should get in, it will sink; air, wax, etc., will rise, from over or under which the clear honey may be drawn; but if for some reason straining must be done, use the coarser strainer *above* the finer, not the cheese-cloth *over* the wire strainer, as some advocate. In my business I have to strain thousands of gallons of liquids, and always utilize gravitation in preference where possible.

Mosgiel, Otago, New Zealand.

R. W. HERLONG AS A MAN AND BEE-KEEPER.

He Made a Success in Having Others Work His Bees on Shares.

BY J. J. WILDER.

The South has sustained a great loss in the death of Mr. R. W. Herlong, of Fort White, Fla., which occurred on the evening of October 11. We deeply mourn his death, for he was one of those big open-hearted men whom every one loved. No one could be more devoted to his family than he was. I am sure all of the bee-keepers in the Southeast deeply sympathize with them in their sad and lonely hours. Indeed, Mr. Herlong was a true man in every respect. He had been an active member of the Methodist Church of his town for a number of years, and held offices of responsibility in it up to the time of his death.

As a bee-keeper he was foremost in the ranks, having accomplished much during the twelve years he had been engaged in this kind of work, for he was always full of enthusiasm, and possessed the energy so essential to success.

Mr. Herlong was born and reared in South Carolina. He married Miss Loula Minich, and they moved to Columbia Co., Fla., in which county he lived until his death. As soon as he arrived he secured employment at a sawmill, and later purchased some land out in the pine forest. He soon had it well improved, and was prospering, raising grain and long staple cotton. About twelve years ago a neighbor "gave" him three colonies of bees for merely a trifle, as he claimed, for he had not realized any thing from them since they had been in his possession. Mr.

Herlong told me that it was on a moonlight night in May when he went for them, and during the drive home he caught the inspiration of bee-keeping and partly planned his career, which Mr. E. G. Baldwin has so well outlined, p. 461, Aug. 1. Mr. Herlong's photo will be seen on the same page, and also a picture of one of his apiaries.

His face is a clear index of his energetic and generous life, and his apiary shows that he was a thoughtful keeper.

When he had all the bees that he and his son could care for he did not stop. He had taught his neighbors by example that bee-keeping is not a mere pastime, but a good business, and he induced them to take some of his bees on shares, which they did, some taking one apiary each, some two, and one as high as four. All worked under his instruction. As time would permit he visited them during the season. He had been letting out bees in this way for five or six years, and he and his "renters" worked in perfect harmony, and all were well satisfied.

He had some apiaries thirty or forty miles away which he was operating successfully, and was always planning to enlarge his bee business.

Death came in the prime of life in his career as a bee-keeper; and the loss we have sustained can not be estimated. His place in our ranks can never be filled.

Cordele, Ga.

CREOSOTE OIL AS A SUBSTITUTE FOR PAINT.

BY F. L. HIGGINS.

Mr. R. F. Holtermann says, p. 289, March 1, 1906, "The foolish thought that one should keep an idea (in one's own estimation good) to himself is often suicidal, and many a one would have saved himself from expensive mistakes had he ventilated his pet notion."

Following the above advice I beg to present to my fellow bee-keepers a plan I have successfully used to preserve my hives; and any criticisms will be thankfully received.

CREOSOTE OILS FROM GAS-TAR UNSUITABLE.

There are two distinctly different oils called creosote, both being used in the preservation of wood. I call particular attention to this because the one that is better known would be entirely useless for this work. This is the oil that is made from gas-house tar (known as dead oil), and is much used by railroads for creosoting cross-ties and bridge-timbers. As it contains carbolic acid it is unfitted for work around bees, for it is well known that the odor of this acid has about the same effect on bees as smoke.

The oil I used is a product of the long-leaf pine, which is exclusively a Southern tree. When I first conceived the idea of treating hives with this oil I was afraid of two things; first, that the bees would object to the odor; second, that the honey would taste of the oil. Experience has shown that my fears in both instances were groundless. At first I tried the experiment on a top and bottom board; and finding that the bees took kindly to them I tried it on a super filled with Danzenbaker shallow extracting-frames. It was with real concern that I took my first taste of honey from this super. As there was no trace of the oil I concluded that I had succeeded in finding a substitute for paint on hives, and one, too, that would prevent warp, split, or rot, and would make a hive last a lifetime.

METHOD OF CREOSOTING HIVES.

To make the experiment a success, this work must be thoroughly done; and simply putting it on with a brush as one does paint is simply time thrown away. The common method of creosoting timber is to put it into a cylinder, fill the cylinder completely with oil, and continue forcing the oil in until a pressure of from 50 to 75 lbs. per square inch is secured. But for small pieces, and especially such soft wood as is generally used in hive construction, the open-tank method will be found sufficient. To creosote by this method, two tanks are necessary, one of which must be of iron. The other may be of wood. If new hives are to be treated it can be better done before nailing, and in this case a good-sized iron pot would suffice. Place the article to be treated in the iron tank (or pot), and pour in enough oil to cover. As the oil is much heavier than water the wood must be weighted down or it will not be covered by the oil. Raise the temperature to 275° F., and keep it so for about an hour. Remove the wood and place it in the second tank, which should contain oil at the temperature of the air. In the first treatment the moisture and air contained in the wood are expelled, and in the second the oil is sucked in as the wood cools down. An Excelsior cover or Danzenbaker bottom-board will take up about one quart of oil. This method of treating hives is rather expensive, and has considerable work attached to it; but no paint will have to be used, nor will the hive ever have to be replaced, unless it burns up.

Another advantage is that the larvæ of the bee-moth will not burrow into wood treated with this oil; neither will rats or mice gnaw it.

The main objection to the idea is that it leaves the hives a dark walnut color.

I hope this plan will prove of some benefit to bee-keepers, especially those in damp hot climates where hives do not last very long.

Wilmington, N. C.

[It is probable that Northern bee-keepers would have some difficulty in obtaining the real oil made from the pine unless it were ordered in quantity direct from some dealer in the South. We should be glad to have reports from any who may be able to give this oil a good test in other parts of the country, so that it may be compared with paint.—ED.]

Heads of Grain from Different Fields

Success.

BY IRMA TRUE SOPER.

And what is success? do you say?
You workers who toil and who plod—
Whose muscles have often grown weary
In plowing and tilling the sod.

You look at the "great men" around you,
And envy them too, you confess:
Dame Fortune has never yet found you,
Yet money has brought *them* "success."

But look at the workers around you—
The bees that store sweets in the hive;
The blessings of nature surround you—
Breathe deep, and be glad you're alive.

Your smile is so cheery! you're healthy—
You vote with the heart of a man;
And, better than being so wealthy,
You're doing the best that you can.

So, say not that Fortune has missed you,
You men who are honest and poor;
With all of her best gifts she's blest you—
Her treasures she lays at your door.

Success is not hoarding of money,
You workers who toil and who plod;
'Tis being so helpful and sunny,
Content in the love of your God.

Jackson, Mich.

Langstroth versus the Jumbo Depth; Two-banded Italians.

What would be the result if I use a ten-frame dovetailed hive-body as an extracted-honey super on a ten-frame hive, using the regular Hoffman brood-frames with frames all metal-spaced, and with full sheets of medium-brood wired foundation? All the frames would thus be interchangeable so they could be used below in the hive-body as well as above for storing honey.

How would a ten-frame Jumbo hive be for fancy comb honey? Would a hive like this one reduce swarming? How would this hive be for producing extracted honey, using one hive-body above the other?

Are there any two-banded golden Italian queens? or are three bands the least all Italian bees have? Are the two or three banded bees better than the other bees that have more bands? If so, how?

Will any honey-extractor take a Jumbo frame?

Avon, S. D., Nov. 21. F. C. SAXER.

[There is no objection to using a full-depth super fitted with metal-spaced Hoffman frames for extracting. The largest producers, however (at least the majority of them), use unspaced frames in the super, putting eight in a ten-frame super so that the comb being bulged will contain more honey, and will be easier to uncap, etc. Such combs, until uncapped, however, would not fit in the brood-chamber on account of being too thick; but if you uncap down to the thickness of the frame, according to the general practice, you may then place the empty comb in the brood-chamber if you wish to. There is no question but that it is easier to uncap thick combs than combs in frames that are self-spaced.

We would not advise you to adopt the Jumbo-depth hive; for in our opinion the deeper combs provide only a larger space above the brood for storing honey, and this means that the best honey will be stored in the brood-combs rather than in the super. Furthermore, when the bees get into the habit of storing in the brood-comb it is more difficult to get them into the super. A few prefer the Jumbo hive, but only a very few.

When running for extracted honey, the ten-frame hive is ample in size, so that swarm prevention is not difficult. In extracted-honey production the swarming problem is not nearly as serious, any way, as in comb-honey production.

Italian bees are distinguished from mixed bees, or hybrids, as they are called, by the characteristic three bands. If bees have only two bands they are likely to be crossed with black bees, and to be known as hybrids. Quite a good many prefer the three-banded bees to the five-banded, owing to the fact that the five-banded bees, being bred chiefly for color, are apt to be more irritable, and perhaps a little less hardy.

The extractors having extra-wide baskets will take Jumbo frames or two shallow extracting-frames. We may say that the tendency seems to be toward shallower frames for extracting purposes than the Hoffman, rather than wider, like the Jumbo.—ED.]

Wintering Colonies Light in Stores.

I have five colonies of bees which I should like to winter. These are all new stands that came out between May 18 and June 10. One colony is quite heavy, and I think it is all right for stores. The other four are very light. Possibly one month ago they had 12 or 16 lbs. of sealed stores and plenty of comb. Then I commenced to feed them. I made a syrup of equal parts of sugar and water for about two weeks. I then made a thicker syrup which I am still using. In all, I have fed the four colonies about 40 lbs. up to the present time. I have a dry, well-ventilated, concrete-bottom cellar. Do you think the bees would winter under these conditions? Would you still feed as long as they will take the syrup?

Ellsworth Falls, Me., Nov. 8. T. E. MOULTON.

[We are not sure that these colonies that were so light in weight have enough stores now. Forty pounds of syrup distributed among four colonies does not give each colony very much, for the bees consume so much in the process. In fact, the colonies would have stood a better chance of having enough if you had fed forty pounds of syrup to each one. The temperature of your cellar should be uniform (between 40 and 50 degrees) to get the best results, and you should darken the room and see that there is plenty of ventilation.—ED.]

Are American and European Foul Brood the Same?

Dr. C. C. Miller:—I have been watching your work with what you call European foul brood. Now, is this any thing more than American starved brood? Considering the time when it appears, and the cure, leads me to think there might be something in this idea.

Emerson, Ill., Oct. 21. W. H. H. STEWART.

[Dr. Miller replies:]

The notion is hardly tenable. If European foul brood were merely starved brood it would appear only where there is starved brood; whereas it has appeared where there was no shortage of stores, and where there was abundance of food for the babies. As a matter of fact, the large frames of the Dadants, with their abundant stores, did not save them.

Another thing, for more than 45 years I got along without foul brood. During that time there were not wanting cases of starved brood, worse than any thing since. If starved brood were sufficient to start the disease, surely during all those years it would have made its appearance. Then along came the infection, nearer and nearer, and finally I was in for it; and whether "in for life" remains to be seen. While plenty of good food and vigorous physical condition will help in resisting disease, and while the opposite will aggravate the case if the disease appears, the fact remains that European foul brood, as well as American, is "catching," and you must have the seed before the plant can grow. C. C. M.

Honey Used Freely in Cooking.

I do not like sweet things—never touch sugar, and do not like honey. I have to live at a small apiary away from home, sometimes three days out of a week, cooking on a small oil-stove. Little by little I found that adding a little honey to any kind of food, just enough to make it smooth, but not in the least sweet, did not disagree with me, and also made the food more pleasant. An old camp cook (and a camp cook has to be a cook) came to me for some honey. This being an off part of the season I had only some that had been heated, and told him so. He did not care—wanted it for cooking only—never ate honey. Then seeing I knew all about it he told me his experience, hitherto with him a secret. He said he would not boil potatoes nor cook a stew nor bake bread, nor even make tea or coffee,

without honey, but in quantities so small as not to allow the sweet to come out, as it were. He said that often people asked him what made the food prepared by him taste so smooth and so rich.

STEPHEN ANTHONY.

Waitete, Auckland, New Zealand, Oct. 13.

Hard Candy for Cold-weather Feeding.

Where can I buy the prepared rock candy that is used to feed bees in midwinter? In packing my bees for winter I found three colonies short of stores, caused by the long warm fall, with no honey coming in, as they were heavy with stores when bought the last of August. I am afraid I can not make it myself without burning it.

HOME-MADE WINTER CASES.

This is the way I made my winter cases: A loose bottom-board was made. The two cleats that the boards were nailed to extended out 5 in. on either side. The case rested on these projections while the bottom-board extended up one inch inside the case. This made it moisture-proof from below. The case proper was a little over 2 feet square, consisting of a skeleton framework on which I nailed boards extending up and down — thin boards that came from the refuse boxes procured at the grocery store—⅜ and ¼ inch stuff. These boards were only from 2 to 3 or 4 inches apart, as they were only to keep the packing from pressing against the tarred felt. An entrance 2 in. deep by 14 long was made and bridged over. This case was covered with tarred felt bought of Sears, Roebuck & Co. A telescope cover was made, and covered with tarred felt. The hive was placed on a prepared bottom-board bridge, put in place to protect the entrance, the open spaces at the bottom of the case being covered over with some thin ⅛-in. boards, and a little straw put in at the bottom of the case. Then I filled it up with clover chaff level with the top of the case. It gave me 2 in. of packing on the front of the hive, from 5 to 10 in. on the back and sides, and 12 inches on top. The telescope cover must be weighted down or it will blow off. The felt, being black, absorbs the heat and turns water like a duck's back. I give them a tilt of about an inch or two to run the water off the top. These cases cost me only 15 cents each.

Jonesboro, Ind., Nov. 25. C. A. NEAL.

[We do not believe you can buy the rock candy that you refer to, for it would cost too much to ship it, and most bee-keepers, therefore, prefer to make their own. You would not have any trouble in preventing it from scorching if you follow the directions given in the A B C and X Y Z of Bee Culture. Boil the syrup until a drop of it, when allowed to fall into cold water, will become brittle and hard. You can try a little of the syrup first; and then if it has no scorched taste, nor dark color when cold, you can be pretty sure it is all right.

If you prefer, you can make the soft candy by mixing pure pulverized sugar in good honey that you know is free from disease, until you have a stiff dough. Then place cakes of this in shallow wooden butter-dishes or pie-plates over the brood-frames in empty supers. It is pretty hard work to mix this dough in great quantities; but for only three colonies it would, perhaps, be the easier method, all things considered.—ED.]

An Unhappy Experience with Bees.

I have been much interested in GLEANINGS; but as I have given up bees for ever I shall not need it any more. I went into bee-keeping enthusiastically, and the bees occasionally went into me in the same way. There seemed to be almost no limit to the swelling one sting could raise, and the swelling was not content to remain in one spot, but was a movable affair. For example, when I had a sting on the top of my head (which, by the way, is not bald, but plentifully supplied with woman's crowning glory, without the aid of "rats" too), the swelling moved in ridges down my face, each successive day appearing in a new place.

I also had the experience, with some variation, which is mentioned in the A B C book, where it says, "Not one person in ten thousand is affected in this way"— burning and itching intolerably from head to foot, covered with great red blotches, accompanied by the most intense nervousness, which lasted all night. That experience was the result of two stings—one on the face and one on the neck. Notwithstanding all the stings and discomfort I finished the season: but—no more.

While I appreciated GLEANINGS for a bee-keeper, I am *not* a bee-keeper. I have sold my entire apiary, and do not even care for honey to eat.

I know of nothing in the world that can upset one's calculations better than a bee. Mrs. Comstock says, "You always have the fascination of an unsolved problem." She might have added, "You always have before you something that is 'boss' of the situation besides yourself."

Of course I know that, to a great extent, it is possible to control bees, and make them do as you want them to; but while you may control their work largely, you never can muzzle the angry bee. To illustrate, we had an experience last summer which I do not care to repeat. Our horse had just been so badly injured by being kicked by another horse that it was nearly impossible for it to walk a step. It was necessary for it to get to the stable, about a quarter of a mile away. While we were trying to get it along slowly, a meddlesome bee from an apiary in the neighborhood, some hundred feet away, came buzzing and circling around the horse, evidently bent on stinging, and it finally did nip the horse a glancing sting, and made it kick in spite of its injured shoulder. The result for me was an attack of nervousness that necessitated a call on the doctor.

Nobody had been near the hives nor done any thing to anger the bees. That bee was hatched depraved.

I said then that, if the Lord would forgive me for keeping bees that time, I would never repeat the offense; so I have sold out; and if I ever do dabble in any branch of apiculture again it will be to write an article entitled "Why Women should *Not* Keep Bees." But, of course, nobody would publish it.

You would find it hard to believe, from my present position, what almost boundless enthusiasm I once had on the subject of bees. I think now it was due to the fact that I am a woman, and bees are a mystery; and woman and mystery, you well know, are said to be synonymous terms.

However, in spite of my lack of enthusiasm I wish you success. MRS. HENRY A. GOOCH.

Batavia, N. Y., April 20.

[Lest we might be accused of giving undue prominence to the rosy side of bee-keeping, we are publishing this letter, believing that it will serve to show that even bee-keeping has its drawbacks. There are some persons so constituted that even an occasional sting may bring serious distress; and we frankly advise all such to leave bees alone. In all fairness, however, we must add that, in all our experience of over forty years, we could almost count on our fingers the cases like the above that have come under our observation. In most instances the amateur can so protect himself that it is practically impossible to be stung. Then, any way, the system soon becomes immune to the effects, so that no discomfort at all is experienced.

We feel certain, after reading this letter, that the bees kept were of a very irritable strain, and that they were probably allowed to rob during periods of honey death, so that they were vindictive, when ordinarily they would have been quiet. In this connection see the editorial on p. 580, Oct. 1.—ED.]

Fastening Foundation with a Pyrographic Outfit.

Did you ever fasten foundation in brood-frames by pyrography? My daughter has a pyrographic outfit, and for two seasons we have used it, and like it very much better than the wedge or hot wax. My frames are all wired, and have a board to fit inside. Lay a full sheet on a board, letting it extend about ⅛ inch over the side. Turn this down; lay on the frame; run the imbedder over the wire; then set the frame on the top-bar; put the board on the other side; press down the edge against the top-bar with the thumb; run the heated platinum point along, and you will have a fine fastening.

Chapman, Kan., Oct. 4. H. A. KOOGLE.

[We have never tried a pyrographic tool for fastening foundation, but we can see that it would answer the purpose very well. A light soldering-copper with a sharp point might do, although there will be more or less smoke owing to the burning wax when the copper is put back to heat for the next frame.—ED.]

Our Homes

A. I. ROOT

My house shall be called the house of prayer; but ye have made it a den of thieves.—MATT. 21:13.

Pure religion and undefiled before our God and Father is this, to visit the fatherless and widows in their affliction, and to keep himself unspotted from the world.—JAMES 1:27.

I suppose it is natural for old people to speak about the "good old-fashioned times." I do not know but it is natural for them to think of the world as degenerating; that the old-fashioned religion that includes loving your neighbor as yourself has been crowded out and trampled under foot in the rush and scramble for new things and for glittering gold. May God in his infinite mercy help me, even though I am growing old, to take a fair and unbiased view of spiritual matters in particular, and of the whole wide world in general. While I feel sad to think that many good old-fashioned customs are being laid aside, I hope I have grace enough to recognize the *progress* that is being made, even in honesty and truth, at the same time; and that, while wickedness *is* growing and developing, as it seems to us sometimes at a terrible rate, righteousness is *also* being exalted, and souls are being gathered into the kingdom.

I suppose it is true that there is a scarcity of able and efficient ministers in almost all denominations—especially a difficulty in finding clergymen with clean and unspotted records. This Home paper has been prompted by a fear that many who prepare for the ministry fail to recognize the sacred and solemn responsibilities resting on the one who stands behind the sacred desk and breaks the bread of life to a hungering world. While I have been feeling for some time that there were here and there men proclaiming the gospel, more or less, in all denominations, who ought not to stand behind the sacred desk, I did not think so much about it until I saw in the papers the sad record of a young minister in New England. He was called on to preach in a little town, and in the evidence brought forward we are told he said, on preaching his first sermon, that he saw a very pretty young woman in his audience. He tells this himself, if I am correct. He said that, from the moment his eye alighted on her bright face, he was preaching to her and to her only. Now, to my mind this young preacher had no business in the pulpit if he had no more sense of the sacredness of his position than to fix his eyes (and his mind) on a good-looking girl or woman. I realize, when I say this, that one of Satan's strongest holds on humanity is right along this line. God knows that I have had some experience in this very matter.

This young preacher very soon found that the good-looking girl was the daughter of a widow. She had no big brother nor a father to look after her; and I suppose that most of the big brothers and fathers would have taken it for granted that the girl was perfectly safe, as a matter of course, even if the young preacher *did* have a good deal to say to her. We are told that at an early date he assured the anxious mother that they two were engaged to be married. Of course this young girl, whom the world had probably never noticed very much, felt flattered by the attentions that the handsome and gifted young pastor of their church bestowed on her. She made preparations as well as she could with her humble means for the coming wedding. She and some of her girl friends, with childish simplicity, planned for a rainbow wedding. The different girls to act as bridesmaids were to be arrayed, each one in a costume of a color different from the others, so as to represent the colors of the rainbow. This young minister may have had honest intentions. He may have expected to marry the girl and to be a faithful pastor over the people in that little town. Even if it were true that he had not yet been "born again" (in the good *old-fashioned* way), he was smart and bright, and perhaps eloquent in oratory, and preached good sermons. Satan saw his chance, however. A church in a neighboring city was looking about for somebody to fill a vacant pulpit. They got their eyes on this young Baptist preacher. He had been working on the humble salary of $800 a year. A *millionaire* in that city—one who had furnished the greater part of the money for building the new church—got his eye on the young preacher, and made him an offer of $2000. A little back I spoke of the temptations that often assail young ministers—for instance, a girl with a pretty face.

Well, now, this young pastor had a trial in another way. Here was a chance to step from poverty to comparative affluence, and to go among a richer class of people. Although I do not like the idea of a minister being on the lookout for a bigger church and for more pay, there may be nothing particularly wrong in his accepting the new pastorate. This young minister probably planned, as a matter of course, to take along the young wife to be. But besides the $2000 something else came across his pathway. The millionaire had a good-looking daughter—perhaps as bright and interesting as "the girl I left behind me;" and she being, as a matter of course, much interested in the young pastor the father had gotten hold of, they *too* became quite intimate. We suppose, of course, that the millionaire's daughter knew nothing of the minister's previous engagement. Like a silly fool, this young preacher kept on going with *both* young ladies, and was finally engaged to both, to be married. When the widow and her daughter saw it announced in the papers that the girl's betrothed was to be married to the young heiress, he took the paper down to the widow's home and explained

to the mother and child that it was another man, but having the same name, assuring them he was to marry the daughter as agreed. They accepted his explanation.

Now, this young hypocrite, while all this was going on, was preaching good sermons —perhaps eloquent ones, as the world would call them. May God have mercy on such creatures and the people who listen to them. Time moved on. Pretty soon he would have to be married to one or the other of these two women — or both, perhaps, if he *could* so manage it. What I have related is bad enough, is it not, dear reader? But it is not all. His first betrothed was soon to become a mother; and *this*, too, had been going on while that miserable wretch was standing in the pulpit denouncing sin in every form. Something had to be done.

This story illustrates in a remarkable way the manner in which Satan leads his dupes on and on until they become idiots under his tutelage. This preacher went into a drugstore where he was known, and asked them if they could give him some poison that would kill a litter of unborn puppies without harming the mother. The druggist did not know of any such compound. "Well, then," said the preacher, "give me something that will kill both. We can not have the dog around with a litter of puppies."

He procured the desired poison and went to the widow's daughter — the beautiful young girl whom he, a minister of the gospel, had sworn to love and protect—and handed that girl the poison, assuring her it would get her out of her unpleasant predicament before the eyes of the world. Of course, she died in a few minutes, and then he tried to make believe she had committed suicide. As I dictate these words I feel like saying, may God be praised that this wretch in human form has been indicted for murder in the first degree, and will be punished if his millionaire prospective father-in-law does not succeed by the aid of his money in getting him off scot free.

The above is an extreme case, dear friends. It is the worst record of a minister of the gospel that I ever knew or heard of; and I hope and pray that it may be a warning to the ministry in general throughout our land and throughout the whole wide world. I expect — that is, I am led to believe from past experience — that some of my friends will advise me to stop right here. Short sermons are the fashion now, you know. I *myself* have several times remarked that certain sermons would have had a better effect if the preacher had stopped when he was half or two-thirds through. Notwithstanding, I want to make some general remarks further.

It has come to my knowledge recently that some preachers are not careful to pay their debts. They go to other towns, leaving bills unpaid; and, worse still, some of them are guilty of opening new accounts when they know or should know there is little probability that such debts will ever be paid, unless, indeed, some kind friend, for the honor of the church, steps up and foots the bill.* I am not hitting at any particular denomination, mind you. These sad cases occur more or less in all denominations. It seems to me, however, that the young ministers are more likely to be guilty. The young preacher I have often mentioned, A. T. Reed, who first led me to the Lord Jesus Christ, was exceedingly careful about paying every copper everywhere. Not only that, when some merchant or grocer offered to put down the price because he was a "preacher" he would say, "No, no, my friends. Preachers get enough nowadays so they can pay the same price that other people do." Another good friend of my early days, Rev. C. J. Ryder, was once sorely provoked. I watched to see him show anger; and I afterward asked him how it was that ministers never "got mad." He replied something like this:

"Why, brother Root, we are made of the same kind of stuff that other men are. We feel the same temptation to become impatient and to speak hastily; but we *dare not* give way. We *can* not give way to such human impulses. The sacredness of our calling does not permit it. How can we lead souls 'out of darkness into the light' when we ourselves are stumbling in darkness?"

The above are not his exact words, but they implied what I have tried to say. A certain evangelist who preached some excellent sermons, before he got through became very much interested in regard to the pay he was "going to get" for said sermons. The agreement was, he was to be satisfied with a voluntary offering. He, however, demanded considerably more, and I was called on to adjust matters. When I brought him face to face with an untruth, or, rather, several of them, I denounced him in terms by no means mild; and I furthermore insisted that he should not be allowed to go on getting money in the way he had been doing among our people. I was persuaded, however, to let the matter drop, because I might do more harm than good by holding him up in the limelight (pulling up the "tares" and injuring the wheat in so doing). Perhaps I may add that not a single conversion resulted from his eloquent sermons;

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* In speaking with our attorney about the unbusinesslike way of some ministers he smilingly asked me if I ever knew a minister who was a real *good* business man. I replied, "Oh, yes! I know a great many of them. Why, the Rev. Mr. ——, whom we all know so well, is surely a splendid business man, is he not?"

He replied, "Mr. Root, if you mean the minister's *wife* I heartily agree with you; for I think she was the one who kept his finances in such excellent shape."

And that reminds me that I wish to take the opportunity here to express my hearty admiration for the ministers' wives I have known. They are examples of the most noble and self-sacrificing and devoted women that I have known in the whole wide world. May God be praised for the good women who have labored, perhaps often out of sight, for the upbuilding of God's kingdom, and for helping a good husband in his efforts to raise up and enlighten a benighted world.

and when he asked for somebody to arise at the close of his meetings, not a person arose. He seemed to wonder why, and many people wondered that the Holy Spirit did not seem to be present or follow after such eloquent preaching. "By their fruits ye shall know them."

Now just a word in regard to our second text. If I understand it, this applied more to the laymen than to the pastors. James and John, and every follower of the Lord Jesus Christ, enjoin us to visit the fatherless and the widows in their affliction, and to keep ourselves unspotted from the world. If this is true of laymen, how much more should it be true of him who stands behind the sacred desk? This poor unfortunate preacher of whom I have spoken in the fore part of this talk *did* visit the *fatherless* and the *widow;* but, oh dear me! what an awful contrast compared with what James had in mind! Instead of keeping in the straight and narrow path, and "unspotted from the world," think of what he *did* do. Think of the remorse that must be just now gnawing at his vitals while he is shut up in prison, even if he did *not* actually poison the girl. May God grant that this sad ending may be a caution, not only to the ministry but to all who profess to be followers of the Lamb of God that taketh away the sin of the world.

THE TRUTH ABOUT REDBUGS.

Mr. Root:—Redbugs are not by any means confined to Florida nor to Paduch for that matter. In Texas there are thousands—yea, billions and trillions of them everywhere in the spring, summer, and early fall. In Spanish they are called *arradores*, the literal translation of which is "plowers," or those who plow. It seems remarkable to me that the entomologists have not been able to tell us that redbugs do most certainly bury themselves under the skin. The tiny insect travels over one's body until it finds an ideal huntingplace, and then promptly burrows its head in an open pore and draws a little blood, which causes a slight swelling, and the little insect is almost hidden. When it needs another meal it partakes of a little more blood, and then there is, of course, a little more swelling, and the insect is covered up entirely, and after each meal it is further and further under the skin, and so it goes on for at least two weeks. By that time the insect is dead; but there remains a great sore there, and in that sore, no doubt, there are numerous offspring, and the itching is intense. The more one scratches, from the time of the first meal until all the young disappear, the more itching there will be, and, consequently, the larger the sore becomes. With the scratching, the blood becomes heated and the flesh irritated—two ideal factors for Mrs. Redbug; and every part of the body where others have found a dining-room seems to be in need of agitation.

If you so choose, you can have them burrow where you please. Just irritate a certain place—on your arm, for instance; and if there is a stray redbug that has not already located itself, and is anywhere close to the irritated place, it will very promptly take up its abode there.

I infer, from what you have written at various times about redbugs, that you have never seen one, so I will tell you just how you can get to see one if you so desire. When you itch in a spot that never itched before, don't scratch or touch it in the least, but go to a strong light and examine the spot. There you will find a minute white-looking bump, or whelp, and in the center a tiny scarlet dot. The dot is the redbug. Take a sharp-pointed No. 8 needle and pick it out and lay it in the palm of your hand and you can see it crawl about in a short time if you have not killed it in the operation. After you have examined it you can dispose of it any way you wish; but by popping it between the thumb nails, and smashing it flat, you can see its t'ny legs, finer than a fiber of silk.

The insect is white, and undiscernible to the naked eye until it has partaken of its first meal on one's blood, so if at first you do not see it, when going to the light, wait a few minutes and bear the frightful itching awhile. If you scratch you only drive the insect further in, and enlarge the bump and inflame the flesh to such an extent that the scarlet dot will not be seen; whereas if you give it time it will gorge itself, and the blood may be easily seen through its thin body.

The way I get rid of them is to dab a little oil of any kind—lard, sewing-machine oil, axle grease, vaseline, or any thing greasy—on the itching spot, and in a little while the insect will surely "crawl out ob dar." They can not live where grease is; for one thing, they drown; and for another, they can not burrow over a greasy spot, because, to burrow, they must needs push and shove with their feet, and the oil is to them what ice it to us.

It is evident that the newly arrived ones are the easier killed, because they are on the surface; while those that have been scratched in are deeper in and harder to get.

Eola, Texas, March 25. MADELEINE E. PRUITT.

Many thanks, my good friend, for your full and complete description of this little pest. During the past winter we scarcely saw or felt a redbug until the severe drouth came on, say along in January and February. As the drouth became more prolonged, the redbugs seemed to get in more of their work. After our good rains, along about the first of April, they rather let up; but all together I consider the redbugs the most objectionable feature of Southern Florida, especially to new comers. By the way, in the life history of the insect our good friend does not mention or explain why people who live there the year round gradually become immune to the attacks of this insect. Barefooted boys go all over through the woods and everywhere else with their trousers rolled up, and yet they are not touched by the redbugs at all, when we tenderfeet of the North are scratching and groaning. I had not thought of the sewing-machine oil-can as a handy and ready "weapon;" but I do know that grease or oil of any sort is death to most if not all of these insect pests. From what experience I have had, I am sure the above letter is substantially correct in every particular.

A HUGE "GOAK."

We copy the following from the *People's Pulpit*. Read it, and laugh as I did. And, by the way, it is quite a gem in the way of combining truth with sarcasm:

WHY THE SALOON SHOULD LIVE?

The Gideon answers:

1. Because of its moral uplift in the community. (?)
2. Because of its purifying effect on politics. (?)
3. Because it is such a law-abiding institution. (?)
4. Because its patrons get so much value for their money. (?)
5. Because drinking helps one to get a good job and keep it. (?)
6. Because it makes business—for the courts and the county agent. (?)
7. Because drunkards—the saloon's finished product—make such good husbands and loving fathers. (?)
8. Because saloons always make cities safer and better places for boys and girls to grow up in. (?)
9. Because all right-minded fathers and mothers pray that their boys may become saloon-keepers. (?)

Health Notes

BY A. I. ROOT.

ROBBING SICK PEOPLE.

There has been quite a little protest about the position our good friend T. B. Terry takes in his book in regard to surgery and surgical operations. I think he says in one place that most of the people in his neighborhood who have gone to have operations performed have come back in a box. He has also something to say in regard to the exorbitant charges for said operations, and that the charge seems to be about the same whether the patient lives or dies. The *Ohio Farmer* for Oct. 28 has taken up the same subject. See the following:

SURGICAL EXTORTION.

The sumptuary basis of surgical operations is generally regarded as unjust — an imposition upon afflicted humanity. There is no legal restriction or regulation in regard to the charges for surgical operations. It is entirely controlled by the experienced and skillful surgeons. We are told that they co-operate, the country over, in regard to charges, which are quite uniform in the hospitals and sanitariums. We have been informed of one noted surgeon who secured one hundred dollars a day, average, the year through. The advantage secured by the skillful surgeons is not so bad as the misfortune to average patients. It may be true that the charges are variable in relation to financial ability; but so far as our information extends, the average ability of patients to pay is much below the charges made. Recently, a farmer's wife underwent an operation that cost her four hundred dollars, and money had to be borrowed to meet the expense. Yet the operation did no good, except temporarily. She died within six months. A physician recently stated to us that serious surgical operations destroy more than they save. We know of one instance in which a leg was amputated at a cost of $100 for the operation and $100 for subsequent attendance because of suppuration which resulted from ignorance or neglect of the surgeon. A physician declared that the leg should have been amputated at a cost not exceeding $25, and all pus trouble have been easily prevented. We could refer to many other cases that reveal the fact that operation charges are too excessive. We believe that State laws should regulate both medical and surgical charges. A large proportion of our surgeons and physicians are educated at State expense in State educational institutions. Why should they not be subject to State laws when applying the education and skill acquired at State expense? Legislative investigation would furnish suitable information in regard to the proper limit of charges for medical attendance and surgical operations. The upper limit is all that is needed to prevent afflicted people from extortion. The treatment of human ailments has always been the vehicle for more or less extortion. But the worst feature is the lack of genuine responsibility and healthy interest on the part of some surgeons. A great many operations are "successful," but the patient will die as a result.

Now, this last, coming from the *Ohio Farmer*, prompts me to tell a little of my own experience. Something over a year ago I went with a friend to the office of a celebrated surgeon. While there I asked him in regard to the trouble I then had with one of my nostrils. While it let the air *out* quite freely, when I came to draw my breath in through said nostril it seemed to close up, something like a valve. Now, I am a fresh-air crank, as you may recall, and I want to get the air in and out of my lungs through my nostrils without any hindrance or impediment as far as possible. He made an examination, and said the trouble was very plain — in fact, almost at the exterior of the opening of the nostril was a growth of bony cartilage. I knew of this, but did not think it caused the trouble. He was not only positive the trouble was right there, but he said something like this: "Mr. Root, I am happy to tell you I can remove that growth without the loss of a drop of blood, and without causing you any pain worth mentioning."

That seemed such a wonderful feat in science and surgery that I decided to have it done. He first made a very thorough application of cocaine, then attended to another patient for about fifteen minutes. At the end of that time, with a redhot electric wire he did burn out the growth, and it did not cause any pain nor inconvenience and no flow of blood. He told me beforehand that I must not be frightened if I saw quite a little smoke, and smelled the burning of the frying meat and bone. When the operation was finished I took out some money to pay him. But he refused it, and said I would have to come in again in about ten days so he could see how it was healing up. Once more I offered to pay, but he said I should come in still later. Now, it did heal, and with remarkable quickness; but the valve operation was just the same. What he did, did not hit the spot where the trouble was at all. I declined to go back the third time, but insisted on knowing what my bill was. Imagine my surprise and disgust to see a bill for *$63.00* for perhaps five minutes' work. I do not think I have ever before made objection to a doctor's bill. But I wrote him courteously, asking him if there was not some mistake for such a bill for so brief a treatment that really did no good at all so far as I could discover. He replied as follows:

Mr. A. I. Root:—I am very sorry that you are still having difficulty in breathing through one nostril. I am also sorry that you will not have time to come and see me before you go south. What I want you to do when you return is to come and see me so I may be able to make another thorough examination.

As to the charges, I regret that you think they are a little excessive. I made you my regular charge for the work done; but my aim has always been to have a patient feel that he has received the full value for his money; and when you return I shall be pleased to take care of you and give you more breathing space if it be necessary, and will not charge you any thing further.

I have never been there since then. I concluded I had had enough of that kind of surgery. Perhaps in justice I should say that I also consulted him about my hearing. He made an examination by different tests as to my deafness, and took down notes in regard to the same; but he never gave me any treatment whatever for my ears. He never gave me any instructions in regard to what to do for my hearing. I took it, although he did not exactly say so, that my trouble was the natural conse-

quence of old age. Had he said $3.00 for three minutes' work I should have thought it quite reasonable; and even if he had added $10.00 to it and made the bill $13.00 I would have paid it without protest; but I can not, for the life of me, imagine what the other $50.00 was for. Can you?

It has been suggested to me that this surgeon (and I see the statement in the papers), who has a prominent connection with one of the great hospitals, put on the $50 extra because he thought the A. I. Root Co. was *good* for it—that "the traffic would bear it." But how about the case mentioned by the *Ohio Farmer?* A poor farmer, as I understand it, had to borrow $400; and the result, as I am informed, was that this poor man's wife was hurried to her grave earlier, perhaps, than if she had done nothing. If I were in that kind of business, and the woman died so soon afterward, I think I would give back at least a part of the $400 to help bury my mistakes, and thus go to bed at night with a cleaner conscience.

VEGETABLE AND MEAT DIET CONTRASTED: AN IMPORTANT TEST.

Prof. Dudley A. Sargent, of Harvard University, assisted by the Cambridge institution, and partly by *Physical Culture* magazine, have been making a test of a vegetable diet contrasted with a meat diet, by sending two brothers, Jesse and Warren Buffum, across the continent on foot. The Denver *Post* of Nov. 3 gives an excellent picture of the brothers as they passed through Denver. The vegetarian is away ahead, not only in physical appearance, but in endurance—the brothers agree to it. In fact, you can see the difference by taking a look at the two from a distance.

I presume this can hardly be considered as conclusive, because something besides the diet *may* have influenced one or both, although they seemed alike in physical health at the start. The vegetarian is not so from choice. He is looking forward to a "turkey dinner" when his long tramp is over. He is not walking on an exclusively vegetarian diet. He uses some bread and vegetables and a few eggs, which he had at that time partaken of but three times. When asked if they had had any kind of liquor to drink they said that all intoxicants were forbidden as one of the conditions; but they added that they would not have used any, even if permitted to do so, as they were total abstainers.

I confess I am rather glad of the results so far. It agrees with what Terry has been teaching so vehemently, and it relieves us also from the revolting necessity of taking animal life to sustain human life. I presume the *Physical Culture* magazine will give us the details of the long trip on foot. These boys also sleep outdoors wherever they may be, rain or shine. They have what they call a water-proof "sleeping-bag," and declare that bedrooms, outdoor porches, etc., are not to be compared with being right out under the sky. The patter of the rain on their water-proof covering apparently lulls them to sleep; and a snowstorm is of no interest at all. It just enables them to sleep all the better. I presume they have, of course, plenty of warm blankets. Their bedding, sleeping-bags, etc., are carried in a cart which they push along before them.

PHYSICAL CULTURE FROM A COMMON-SENSE STANDPOINT.

Several years ago, while growing potatoes up near our "cabin in the woods," we were short of help; and as we wanted the potatoes put under cover as fast as dug, I decided to manage the thing. After I got my potatoes harvested, and had them loaded on the steamer, and got back home to Medina, I found the young folks all greatly engaged in "physical culture" under the instruction of a hired professor. I tried to explain to them that the physical culture that *I* had just been having not only cost me nothing, but I earned very good wages while taking it. *My* physical culture consisted in lifting a box of potatoes high enough to pour them into a sack, and picking up such boxes all day long. It was one of my happy surprises to find my strength was increasing day by day; and after the potatoes were all put up I had gained ten or fifteen pounds in weight. There are two pictures in the new potato-book illustrating my apparatus for harvesting and sacking potatoes; and if you should catch the fever for my kind of physical culture, and decide to grow a few potatoes yourself about the time they are 75 cts. a peck next year, I shall be glad to know it. It is cheaper, surer, and *infinitely* better than any medicine you can get in the drugstore.

RABIES OR HYDROPHOBIA; A NEW BULLETIN FROM THE DEPARTMENT OF AGRICULTURE.

I am very glad to notice that our government has seen fit to issue a bulletin (May 12, 1911), giving us the exact truth of the matter in regard to mad dogs. Let me quote a little from the introductory chapter:

> The disease known as rabies in animals and hydrophobia in man is one of the most terrible maladies known to medical science. Although some skepticism as to this disease persists and is industriously fostered by the publication of erroneous views, the reality and the infectious nature of the malady have been abundantly established and confirmed by the work of numerous competent scientific investigators, and there is no more reason for doubting the existence of rabies than for questioning the actuality of other specific and well-recognized contagious diseases.
>
> Rabies is prevalent among dogs in various parts of the United States, and the presence of infected animals is a constant menace to human life. Under this condition the relative infrequency of deaths among people who have been bitten by rabid dogs is due to the protection afforded by the Pasteur treatment.

I am glad to get this, because there are a few prominent professional men who have claimed that this whole matter was a freak of the imagination, forgetting (it would seem) that the children and domestic ani-

mals can not well be called victims of the imagination. Careful statistics have been collected regarding the disease throughout the United States. While it is true there are some cases where people *imagined* they were victims of rabies, it is pretty certain that such cases are not very common. In methods for prevention and eradication, they lay particular stress on the necessity of getting rid of dogs that have no owners, or dogs that are of no use to anybody. Let me quote again:

The only measures necessary to obtain the desired result are (1) a tax or license for all dogs, with a fee of $2 for males and $5 for females, and the destruction of homeless or vagrant dogs; (2) restraint of all dogs which appear in public places, either by the use of a leash or an efficient muzzle.

There is no doubt that neglect has allowed the accumulation of ownerless dogs in this country to an extent that renders our large cities frequently liable to incursions of rabid animals. Just to mention muzzling, however, is sufficient to bring tirades of abuse upon the head of the sanitarian, and dog sentimentalists are immediately up in arms, using time, influence, and money to prevent such an ordinance. In spite of the obloquy with which it is received by a certain mistaken class of the community, the results of muzzling amply justify its recommendation, and its rigid enforcement without any additional requirement will exterminate rabies in a district in a shorter time than any other known method.

I want to add to the above, that, besides preventing rabies, getting *rid* of dogs that are of no value to anybody would be a boon in other ways to a great part of the people everywhere, especially in towns and cities.

The above bulletin will be sent free to anybody on application to the Department of Agriculture, Washington, D. C.

Poultry Department

CAN A MAN WITH A "LARGE FAMILY" KEEP CHICKENS, ETC.?

I understand the one great desire of our Pennsylvania friend, p. 639, Oct. 15, is for just enough money to start him in the poultry business. Given the full amount he desired, without experience, he would last just as long as his money held out. Six years ago I started on a rented place, with poultry as a side line. Away from home from 6 A.M. to 6 P.M., working at my trade as engineer, with no help whatever except about fifteen minutes a day by Mrs. T., who emptied the pails of feed to the hens, to-day I own land, and have built a house and buildings for 1000 head of stock. I never had over $25.00 in the business that the birds did not earn, and probably would have done as well with only $5.00; so you see it does not take much capital to get into the poultry business; but it takes work, thought, experience, and good judgment to *stay* in.

Living within thirty miles of New York, right near the Corning poultry-farm, I see the land agents work the poultry-farm game for all it is worth. I venture to say that not one in a hundred who, without experience, buys these farms and jumps into poultry makes a success of it. If W. S. C. will start with a few hens and give them the thought and care necessary to success the money will come about as fast as he can use it intelligently; and with those ten children as helpers he should, in a few years, be making a barrel of money.

Somerville, N. J., Oct. 24. L. B. THATCHER.

CHICKENS, HOW MUCH DOES IT COST TO KEEP THEM?

Perhaps the following may be some help. They are recent figures from a place in Jersey; but be it clearly understood that they were made by a man with many years' experience in poultry, who gave the utmost labor and attention to his fowls.

There were 300 fowls, partly light and partly heavy breeds. Every thing had to be purchased, as the ground produced practically nothing for poultry use. During the six summer months each fowl was kept in food for 31 cents for the six months; and during the six winter months each fowl was kept in food for 45 cents for the six months. This gives a total of 76 cents per fowl per year. There was no hopper feeding; the birds were fed three times every day, the feed being carefully handled. In winter some birds had a free run.

With regard to potatoes for chickens, they do all right for a change, or to supplement the regular ration, but do not count for much as a regular diet. They are best for winter use, and, if fed in quantity, should be used along with wheat or oats, not with corn. FREDERICH MARTIN.

PULLETS; GETTING MORE OF THEM, ETC.

In crossing Barred Plymouth Rock hens with Brown Leghorn males the early chicks were more cockerels than pullets. It has always been my experience, that, among the earliest broods, I have so few pullets. It seems to me, though, that the late-hatched pullets commence laying younger than the early ones. In fall-hatched broods there seem to be more pullets than males. My objection to raising them in the fall is, they do not seem to grow so large as the early ones; but perhaps they would if they could be entirely removed from the larger chickens and given as good care.

My chufas are coming up, planted ten days ago. I soaked the seed about 24 hours.

Doniphan, Mo., June 11. L. D. S. BEAUCHAMP.

DUCKS MATING IN SHALLOW WATER.

Water for ducks, page 578, Sept. 15, seems to me to be most interesting and valuable. This is a great discovery. Thousands of years ducks have been raised without knowing this secret. In 1877 and '78 I worked for a poultryman who kept, besides many varieties of chickens, three kinds of ducks, but I never saw them mate on land, and only in shallow water.

Two years ago we bought Indian Runner duck eggs for hatching. We put some of them under hens, and some into the incubator, but not half of them came to life. The woman of whom we bought the eggs lived on a dry little farm with hardly enough water to drink for man and beast. The mating of the ducks in water is not the whole secret of success. The eggs of ducks, at least, must be put near wet ground for hatching. Nature made it so. The wild duck is doing her hatching in the swamp; hence the great number of ducklings in the nests of the wild duck.

El Monte, Cal., Sept. 30. A. RINGELE.

INDIAN RUNNER DUCKS, ETC.

I notice something you say about ducks needing water, that their eggs may be fertile. I haven't had much experience myself, but I know a party who had two ducks and a drake to start with this spring, and he has a pen of 53 nice Indian Runners now on hand. He furnished them just a slosh place for watering.

I notice my Indian Runner ducks do their mating around their slosh place. I am of the opinion that, if mating takes place with two normal fowls, the result is the same anywhere or place.

We had two settings of Indian Runner eggs this spring. I sent one setting to my farm, and kept one setting in town. Those at the farm did well. Those in town we kept *too* well, and only one survied. We raised it a pet. It was the largest and strongest, and had big clumsy yellow feet and bill. We were sure it was a drake, and named it Mike; but it turned out a duck. But we still called her Mike. I brought Mike a fine drake for a partner, and named him Fawney.

Mike and Fawney are fine specimen of birds. They are naturally wild, but we can pick them up almost any time. I wanted them tame to use for decoys; but our legislature passed a law prohibiting live decoys. They notice birds in the air quickly. They see hawks further than any other fowl I know of.

Galena, Kan., Oct. 20. J. P. BRUMFIELD.

JAN 7- 1911

Gleanings in Bee Culture

VOL. XXXIX JANUARY 1, 1911 NO. 1

Editorial

Stray Straws

Bee-keeping in Southern California

Bee-keeping Among the Rockies

Notes from Canada

Conversations with Doolittle

English Methods of Wintering — D. M. MACDONALD

Natural Selection and Diseases of Bees — G. W. BULLAMORE

Selling Honey at Home — C. W. PHELPS

Sour and Sweet Honey Mixed Together — STEPHEN ANTHONY

Migratory Bee-keeping in Holland — HANS MATTHES

Extracting as soon as Honey is Removed from Hives — GEO. SHIBER

Wasp's Nest in Section of Honey — S. N. HATHAWAY

How Shapes of Honey-bottles Affect Sales — WESLEY FOSTER

Winter Nest of a Colony — E. R. ROOT

Bee-keeping as a Hobby — F. DUNDAS TODD

Bee-keeping in California — P. C. CHADWICK

A Case of Propolis Poisoning — C. H. HOWARD

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Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

ALBANY.—We have to report the usual dull market for honey that generally occurs in December. Stocks are not large nor burdensome, but are mostly medium grades of mixed, which do not sell readily. We quote fancy white at 15; medium, 14; mixed, 12 to 13; buckwheat, finest quality, 12; medium and mixed, 10 to 11; white-clover extracted, 8½; mixed, 7½ to 8; buckwheat, 7½. Beeswax, 30 to 32.

Albany, Dec. 20. H. R. WRIGHT.

KANSAS CITY.—The demand for extracted honey is good, and the supply very limited. The demand for comb honey is only fair, and the supply not large. We quote No. 1 white comb, per case of 24 sections, $3.25; No. 2 ditto, $3.00; No. 1 amber ditto, $3.00; No. 2 ditto, $2.50 to $2.75; white extracted, per lb., 8 to 8½; amber, 6½ to 7. Beeswax, 25 to 28.

C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., Dec. 19.

CINCINNATI.—Comb honey is in fair demand, and is selling at $3.75 per case for No. 1 white. Amber extracted in barrels is selling at 7 cts.; in cans, 7½ to 8; white extracted honey in 60-lb. cans, 9 to 10; California light amber, 8½. All grades of extracted honey are in fair demand. Beeswax is in fair demand at $32.00 per 100 lbs. These are our selling prices, and not what we are paying.

Cincinnati, Dec. 19. C. H. W. WEBER & CO.

CHICAGO.—The market for honey has been very good from the standpoint both of receipts and sales. Prices continue to range from 17 to 18 for No. 1 to fancy, and 1 to 2 cts. less on the lower grades of white. The amber grades have been slow of sale, as also the dark. Extracted white grades bring from 8 to 9; amber grades, 7 to 8, with a good demand for the clover at the highest price named. Beeswax is steady at 32 if clean and of good color.

Chicago, Ill., Dec. 19. R. A. BURNETT & CO.

NEW YORK.—The demand for comb honey has slackened considerably during the past few weeks, and we do not expect any revival until after the holidays. While we are not overstocked on fancy white, we are heavily stocked up with buckwheat, and mixed and off grades, none of which have been in much demand this season. We quote fancy white at 15; No. 1, 14; off grades, 11 to 12; mixed, buckwheat, and dark, 10. Extracted is in good demand at unchanged prices. Beeswax is quiet at 29 to 30 cts.

New York, Dec. 19. HILDRETH & SEGELKEN.

Honey Markets continued on page 5.

Ye who are in Need of Honey

Write to Us for Prices. Samples 10c.

EXTRACTED HONEY—Orange Blossom, Sweet Clover, Florida Amber—in crates holding two 60-pound cans.

COMB HONEY—Strictly Fancy Comb Honey, also fine Chunk Comb Honey.

The Fred W. Muth Co.

51 Walnut Street "The Busy Bee Men" **Cincinnati, Ohio**

A

Happy New Year

To You

We believe we can help you to enjoy the year 1911 by urging you to use our line of Bee-keepers' Supplies. See what two users of Root's Goods say:

Frederick, Md., Jan. 14, 1910.

Gentlemen:—I made several hives before I ordered a hive from you some time back, but they were so bad I made them over again. I want to say I will never attempt to make any more; for when I saw the hive you sent me I was ashamed of mine, so I cut them down to regular size and cast away all inside fixures. When I need hives again I will get those made by The A. I. Root Company. B. N. CRIST.

Gentlemen:

I have just received my goods. I am more than pleased with them. I had intended to make my hives; but when I received the sample hive and saw the No. 1 pine lumber it was made of, and considered the workmanship, I felt satisfied that I could buy cheaper than I could make them — enough cheaper to save the price of the lumber.

Yours,
O. C. MILLS.

WINTER WORK

The time is now at hand to order supplies for next season. If you get your goods early you will avoid the rush of the busy season later, and you can really buy to better advantage now than at any other time during the year. Even if your order is small, it will pay you to save something on it; and if you use a large quantity of goods during the season you surely can not afford not to take advantage of our **early-order discount,** which is **three per cent** for all **cash** orders received before January 15th.

You may order your goods now and have them come along later, or we will ship at once and you will have time to get them ready for the harvest next spring at your leisure during the winter. We are always glad to make suggestions and quote prices on any list submitted. If you have never bought supplies from us, try us this season and see if you do not agree with us that we furnish the best bee-supplies made, and give you the best possible service. It means a good deal to YOU to get the best of goods and service for YOUR money. We give you both. Try us.

POULTRY SUPPLIES

Write for our catalog, which we will be glad to furnish you free on request.

C. H. W. Weber & Co., Cincinnati, O.

2146 Central Avenue

Gleanings in Bee Culture

E. R. ROOT, Editor — A. I. ROOT, Editor Home Dept. — H. H. ROOT, Ass't Editor — J. T. CALVERT, Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, "Stenog," Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer.

$1.00 per year. When paid in advance: 2 years, $1.50; 3 years, $2.00; 5 years, $3.00.

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Extracted Honey Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

We are in the market for

HONEY

Both comb and extracted. State quantity you have to offer, with all particulars.

HILDRETH & SEGELKEN

265-7 Greenwich St., 82-6 Murray St.

NEW YORK

THE NATIONAL BEE-KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey

MEMBERSHIP DUES

One dollar a year.

OFFICERS AND EXECUTIVE COMMITTEE

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SECRETARY.—E. B. Tyrrell, Detroit, Mich.
TREASURER AND GENERAL MANAGER.—N. E. France, Platteville, Wis.

Are you a member? If not, why not send the annual dues of $1.00 at once to Treasurer France? Every progressive bee-keeper should be a member of this, the greatest bee-keepers' organization in America.

Honey Markets continued from page 2.

ST. LOUIS.—We quote fancy white comb honey at 16 to 16½; No. 1, 15½ to 16; choice amber, 14 to 15; dark, 11 to 12. Broken and leaking honey sells at less. Extracted white-clover honey in five-gallon cans, 9 to 10; California and other Western honey, in five-gallon cans, 9, for white and light amber. Southern light-amber honey, in five-gallon cans, brings 8 to 8½; in barrels and half-barrels, 7 to 7½. Beeswax, prime, 29; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Dec. 19.

ZANESVILLE.—The regular holiday lull now characterizes the honey market. Stocks are low, but the demand is very slack, and is likely to remain so until after the first of the year. Producers should receive about 16 cents delivered for white comb grading No. 1 to fancy, while extracted should bring about 8½. Wholesale prices are 2 to 3 cents higher on comb, and 1½ to 2 cents higher on extracted in 60-lb. cans. Producers are offered 30 cts. for beeswax in exchange for bee-supplies, or 28 cts. in cash.

Zanesville, O., Dec. 19. EDMUND W. PEIRCE.

CHICAGO.—The comb-honey market the past few weeks has been exceedingly dull, perhaps occasioned by jobbers buying only what they absolutely need before inventory time. However, after the first of the year we shall look for a more firm and active market on this commodity. Extracted honey has been selling very well, and the demand continues firm and active. We quote fancy white-clover comb honey in 24-section flat cases, glass front, at 17 cts.; No. 1 white, as above, 16; No. 2 white and light amber, as above, 14 to 15½; medium to dark amber and other inferior grades at correspondingly lower prices; New York State buckwheat comb honey, 13 to 14. White extracted honey in barrels, kegs, or 60-lb. cans brings 8 to 9; California light amber, 8 to 8½. Pure beeswax brings 29 to 31.

Chicago, Dec. 20. S. T. FISH & CO.

BOSTON.—We quote fancy and No. 1 white comb honey, 15 to 16; fancy white extracted, 10 to 11. Beeswax, 30. BLAKE-LEE CO.

4 Chatham Row, Boston, Mass., Dec. 19.

ALBANY.—The stock of white comb honey is very low in this market. Receipts are very light of late. The demand for all kinds of honey is falling off considerably. Holders are asking about the same price they have been for the past month. Buckwheat comb finds very slow sale. No. 1 to fancy comb honey brings 17 to 18; No. 2 ditto, 12 to 14; No. 1 buckwheat, 12 to 13; No. 2 ditto, 10 to 11; white extracted, 8½ to 9; dark, 7 to 8. Beeswax, 28 to 30.

Buffalo, Dec. 24. W. C. TOWNSEND.

INDIANAPOLIS.—The demand for honey is brisk, especially for best grades of white-clover honey. Jobbers are offering fancy white comb at 18; No. 1 white, 17; finest extracted, 11, with some slight reductions on quantity lots. It is to be presumed that producers are being paid about 2 cts. per lb. less than above quotations. This is not a desirable market for amber honey. Producers of beeswrx are being paid 28 cts. cash or 30 in trade.

WALTER S. POUDER.

Indianapolis, Ind., Dec. 19.

LIVERPOOL.—The market has been dull and disappointing. Sales of all descriptions are quite retail. The inquiry lately has been principally for Haitien, but at the reduced price of $5.52 to $6.72, according to quality. For other qualities the prices are nominally as follows: California, $10.80 to $11.64 per cwt.; Jamaican, $6.00 to $6.72; Chilean, $5.88 to $6.84; Peruvian, $3.84 to $4.80. Chilean beeswax has been cleared at $35.68 to $39.88, but mostly at $36.28. The tone for beeswax is firm, with little offering, and we quote for other qualities as follows: African, $32.64 to $34.48; American, $33.88 to $37.48; West Indian, $32.64 to $36.28.

TAYLOR & CO.

7 Tithebarn St., Liverpool, Eng., Dec. 6.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873 CIRCULATION 35,000 72 Pages Semi-monthly

A. L. BOYDEN, Advertising Manager

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A COMBINATION

OF comb and extracted honey production in the same apiary has some decided advantages. The man who is working for extracted honey exclusively may find no advantage in adding comb honey to his product; but some comb-honey producers could certainly add greatly to their incomes by also taking up the production of extracted honey.

Mr. Jas. A. Green, in an article in the January REVIEW, points out four important advantages that may be gained by such a combination, very clearly and thoroughly explaining how to make the most of them.

Send ten cents, and I'll send you the January REVIEW, together with two other late but different issues, and the ten cents may apply on any subscription you may send in. A Special Clubbing Offer will also be sent.

W. Z. HUTCHINSON, Flint, Mich.

HOW TO KEEP BEES!

By Anna Botsford Comstock. A most entertaining and practical book for the beginner. . Tells a beginner's experiences in a way to help other beginners.

PRICE $1.10 POSTPAID.

The A. I. Root Co., Medina, Ohio



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Cards, circulars, book, newspaper Press $5 Larger, $18; Rotary, $60. Save money. Big profit printing for others. All easy; rules sent. Write factory for press catalog, TYPE, cards, paper.

THE PRESS CO., Meriden, Conn.

BEE-KEEPERS

We appear here to tell you that our New Catalog on Bee Supplies is yours for asking. . It is free. . Get one.

August Lotz & Co., Boyd, Wisconsin

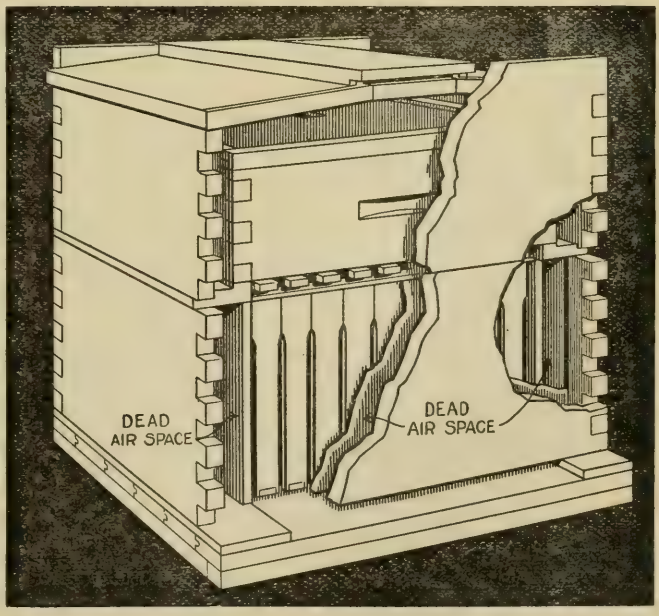
PROTECTION HIVE

All arguments lead to a matter of protection, look where you may. Dead-air-spaces or packing, as you prefer.

The hive that is sold at less than the material in it will cost you at your local lumber-dealers, equally good stock being used.

Send us a list of goods wanted, and let us figure on Dovetail hives, sections, foundation, and all bee-keepers' supplies. We will save you money.

Send for circular.



A. G. WOODMAN COMPANY, GRAND RAPIDS, MICHIGAN

Now is the Time to Plan for Next Season

Secure Your
Bee-supplies this
Fall and Winter.

The A. I. Root Company

Syracuse, N. Y.

Established 1885

We carry an up-to-date line of

Bee-keepers' Supplies

At this season of the year we give the usual customary early-order discounts. If you are figuring your wants now to buy early and get the benefit of lowest prices, don't fail to consult us. We have

THE ROOT COMPANY'S Make of SUPPLIES

Nothing to fear as to quality. Beeswax taken in exchange for supplies.

John Nebel & Son Supply Co. High Hill, Montg. Co., Mo.

AT this season of the year many bee-keepers who are considering a larger better equipment begin placing their orders.

It may be on a five-hundred-swarm basis, or only a five-swarm basis, but they are seeing the value of it. They rather get their preparatory work done now than to do it in May or June. Besides this, you can buy goods cheaper in January.

Are YOU considering your equipment now?

We can supply you with an all "Root Quality" equipment. It will mean lasting satisfaction and increased profits. Start the new year right.

We will gladly quote you net prices no matter where you are located. Also we want your name for our 1911 catalog.

M. H. HUNT & SON

Opposite Lake Shore Depot

Lansing, Mich.

Buyer's Bureau

Judging from the quick response which came to our announcement that this department would hereafter be at the service of readers of GLEANINGS IN BEE CULTURE, we have struck upon an innovation which fills the proverbial "long-felt want."

One of our good friends did not quite understand what we meant when we said it was a convenience we had devised for his benefit—for the benefit of bee-keepers everywhere—so he wrote and asked for further particulars. This information we gave as completely as possible; and we were reminded that perhaps there were others who either did not see our notice of the inauguration of THE BUYER'S BUREAU or else did not quite comprehend its relation to their needs.

The purpose of THE BUYER'S BUREAU is to furnish detailed information on whatever article or articles pertaining to bee-keeping, farming, poultry raising, home-keeping, or, in fact, any subject whatever that may for the time hold the interest of our inquirer. If you are thinking of buying any thing, from a queen-bee to a kitchen-stove, an automobile or a lawn-mower, a washing-machine or a piano, then, if you desire our services, you are right in line to ask and receive our coöperation.

We do not know all about every thing; but so many inquiries concerning so many different kinds of goods pass through this department that we have a good opportunity to gather such facts as you would be most likely to want of all if you thought of buying. Then, too, we have a fairly accurate knowledge of what kind of goods—what grade, what price—many manufacturers offer for sale, and we can save you considerable time, very often, by referring your request to just the man or manufacturer who can best supply your wants.

Of course the service of THE BUYER'S BUREAU is given entirely free of charge. The only expense whatever on your part is the time of writing a letter or post card, and the postage. We ask you to help us make our BUREAU efficient by using it whenever you can.

BEE-KEEPERS AND AUTOMOBILES is the title given to a large circular just issued by the Advertising Department of GLEANINGS. Its mission is to acquaint automobile manufacturers with facts relative to the value of motor cars to the bee-keeper. The material for this circular was taken from back numbers of this journal. It is well illustrated and nicely printed. Perhaps some of our readers would like to see the several photographic reproductions of automobiles in use by their bee-keeping brethren, and read their experiences as here told. Copies will be sent free of charge upon request to THE BUYER'S BUREAU.

There is another circular we have ready for distribution which is called BEE-KEEPERS AND GASOLINE-ENGINES. It has, as its aim, to show gas engine manufacturers what a profitable field is ready for cultivation among bee-keepers who want to equip themselves for running the honey-extractor and other farm and apiarian machinery with power. This paper is supplementary, we may say, to a little book, POWER EXTRACTORS, issued some time ago. We should be glad to send any bee-keeper both the circular and the booklet, and to give, besides, much information of interest concerning our experiences and those of others with gasolene-engines. Now is the time to study up on this subject. Do not delay until warm weather comes.

SWEET - CLOVER SEED.

Sweet clover is one of the chief sources of honey in Utah, Idaho, and other regions of the West, as well as in many localities in the South and other sections of the country. In recent years farmers are also learning of its great value in enriching the soil by the introduction of nitrogen. We recently printed a booklet of about 50 pages entitled "The Truth about Sweet Clover." This contains the experience of a great many who have grown it to a greater or less extent. We shall be pleased to mail this booklet to those interested, free, on request. We have a good stock of choice fresh seed which we offer at the following prices. As to the comparative value of the different varieties, we will say that the white, or *Melilotus alba*, is most common, and therefore the best known. The yellow is desirable because it begins blooming usually from two to four weeks earlier than the white. As to the two varieties of yellow, one of the experiment stations has said there was a distinction without a difference. From the testimony available, the annual, or *Melilotus Indica*, blooms first; and in California, where our seed was procured, it is reported as growing from two to six feet high, depending on the character of soil, moisture, and other conditions.

	In lots of— 1 lb.	10 lbs.	25 lbs.	100 lbs.
Hulled Yellow Annual (*Melilotus Indica*), per lb	17c	15c	14c	13c
Hulled Yellow Biennial (*Melilotus Officinatis*),	20c	18c	17c	16c
Hulled White	25c	22c	21c	20c
Unhulled White (*Melilotus alba*) per lb	14c	12c	11c	10c

The prices are all subject to market changes.

THE A. I. ROOT COMPANY, MEDINA, O.

BEE SUPPLIES

We carry a full and complete line of Root's Celebrated Bee-keepers' Supplies. By buying in carload lots we are enabled to sell at factory prices f. o. b. Dallas. . . . . .

We also carry the largest and best assorted stock of the celebrated Texseed Brand Garden and Field Seeds in the South; Incubators and Brooders, and poultry supplies of all kinds.

Send for illustrated catalog. .

Texas Seed & Floral Co.

Dallas, Texas

When you have honey or beeswax for sale write us.

LEWIS BEE-WARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY COMPANY (Not Inc.) SEND FOR CATALOG
Successors to YORK HONEY & BEE-SUPPLY COMPANY **148 W. Superior St., Chicago, Ill.**



"If goods are wanted quick, send to Pouder."

DEAR SIR: INDIANAPOLIS, Jan. 1, 1911.

You will be wanting Bee-supplies before long, and I do wish you would place your order with me, for I have a very large stock of new goods and am offering discounts for early orders. Quite a few are sending here for their Bee-supplies when they could get their goods nearer home. There is a reason for this, and I wish you would ask the men about it who have dealt here. Catalog free.

Have you any Beeswax to exchange at 30 cents the pound? Or, I will pay 28 cents cash. I am in need of several thousand pounds which I wish to have made into foundation. Beeswax is about the same as gold coin to me—wax being most plentiful.

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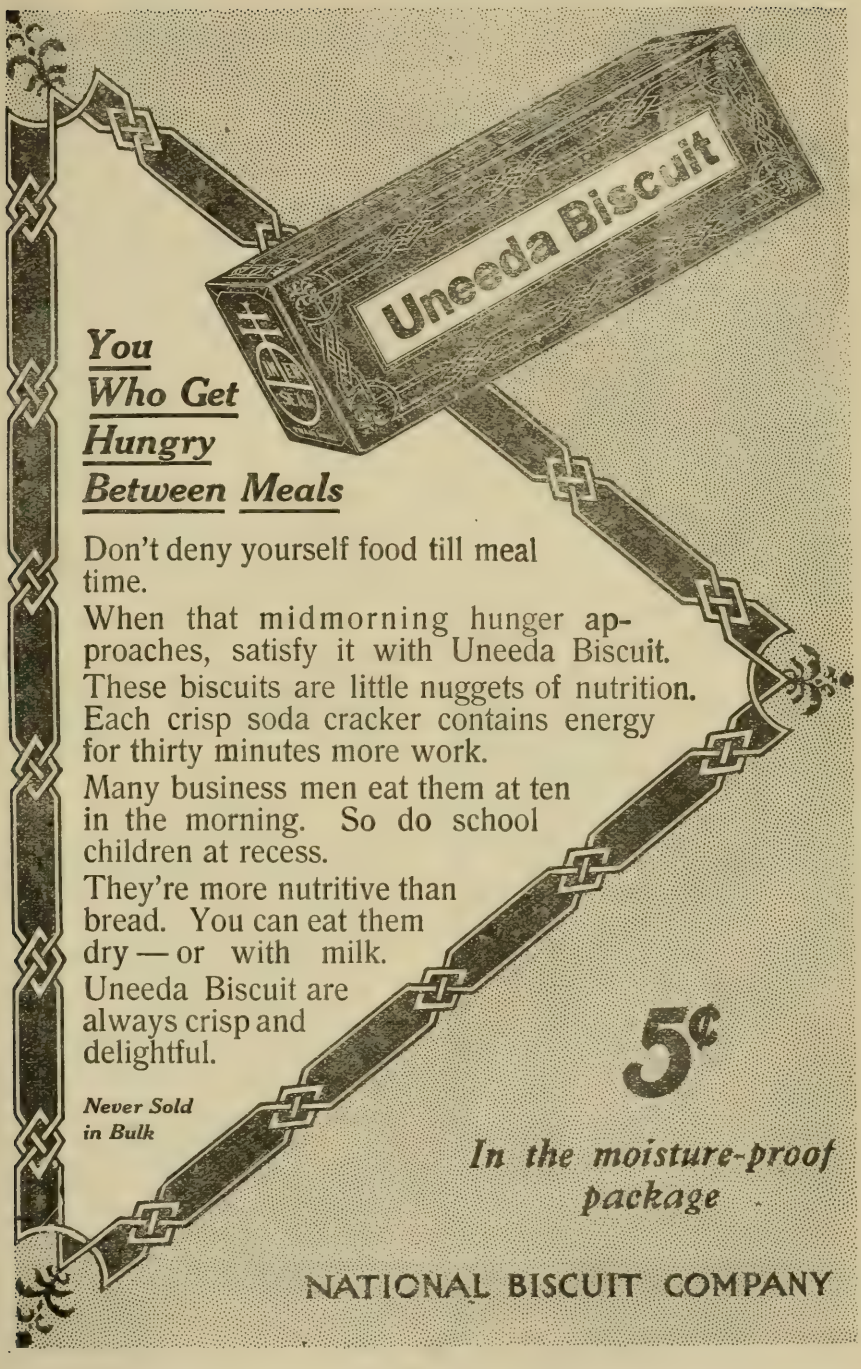
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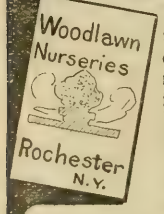
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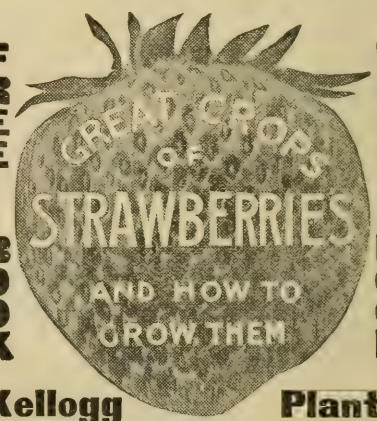
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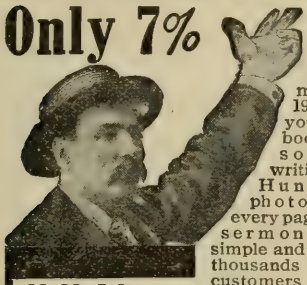
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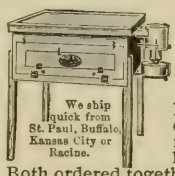
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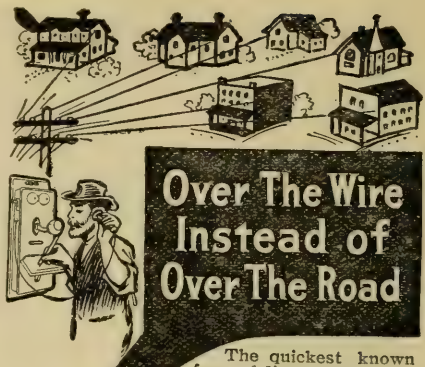
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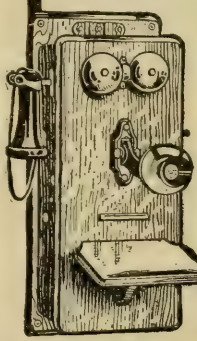


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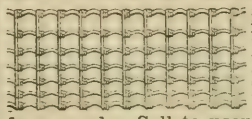
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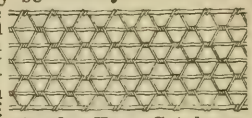
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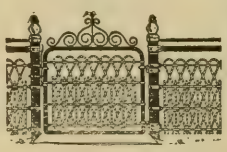
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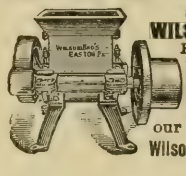
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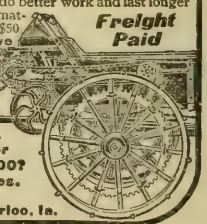
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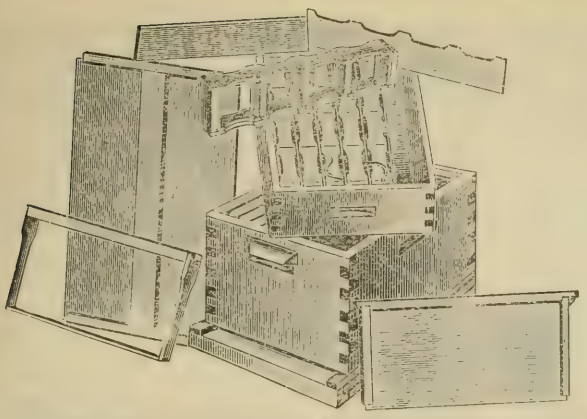
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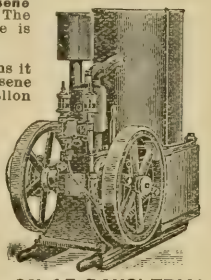
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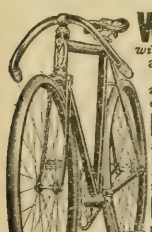
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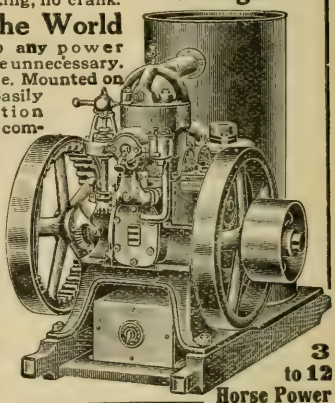
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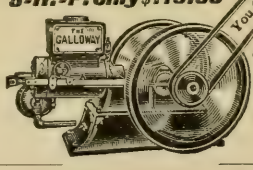
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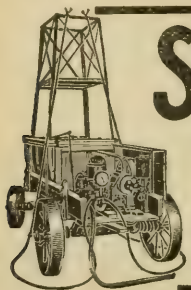
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Bulletins in this list will be sent free, so long as the supply lasts, to any resident of the United States, on application to his Senator, Representative, or Delegate in Congress, or to the Secretary of Agriculture, Washington, D. C. Because of the limited supply, applicants are urged to select only a few numbers, choosing those which are of special interest to them. Residents of foreign countries should apply to the Superintendent of Documents, Government Printing Office, Washington, D. C., who has these bulletins for sale. Price 5 cents each to Canada, Cuba and Mexico; 6 cents to other foreign countries. The bulletins entitled "Experiment Station Work" give briefly the results of experiments performed by the State experiment stations.

22 The Feeding of Farm Animals
27 Flax for Seed and Fiber
28 Weeds: and How to Kill Them
30 Grape Diseases on the Pacific Coast
32 Silos and Silage
34 Meats: Composition and Cooking
35 Potato Culture
36 Cotton Seed and Its Products
44 Commercial Fertilizers
48 The Manuring of Cotton
49 Sheep Feeding
51 Standard Varieties of Chickens
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77 The Liming of Soils
78 Experiment Station Work—V
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85 Fish as Food
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87 Experiment Station Work—VIII
88 Alkali Lands
91 Potato Diseases and Treatment
92 Experiment Station Work—IX
93 Sugar as Food
96 Raising Sheep for Mutton
97 Experiment Station Work—X
99 Insect Enemies of Shade Trees
101 Millets
103 Experiment Station Work—XI

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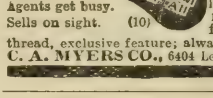


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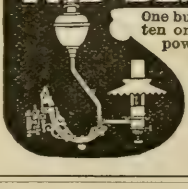


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For mending harness, shoes, straps, canvas. Sews or mends anything; whole repair shop. Automatic natural tension reel, carrying waxed thread. Original and only perfect lock-stitch, diamond point needle, groove running full length protects the thread, exclusive feature; always ready, universal demand.

C. A. MYERS CO., 6404 Lexington Ave., Chicago, Ill.

THE "BEST" LIGHT



One burner will give as much light as ten ordinary oil lamps; six 16 candle power electric bulbs—six 16 candle power gas jets or 5 acetylene gas jets. Costs 2 cts. per week. Produces a pure, white, steady, safe light. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

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Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

Alfalfa sweet-clover honey, 10,200 lbs., 7 cents per lb. Sample, 2 cts. T. H. WAALE, Nampa, Ida.

FOR SALE.—Well-ripened buckwheat honey in new 60-lb. cans at 7½ cts. per lb.; sample, 5 cts. J. D. HULL, Honesdale, Pa.

FOR SALE.—Fine clover honey put up in new 60-lb. cans, 120 lbs., for $11.00; fine fall honey for $9.60. Sample for 10 cents. All ripened on the hive. WM. WERNER, Chadwick, Ill.

FOR SALE.—Well-ripened clover-basswood honey in new 60-lb. tin cans, at 9 cts. per lb. C. J. BALDRIDGE, Homestead Farm. Kendaia, N. Y.

FOR SALE.—White and water-white alfalfa honey, in 60-lb. cans. Strictly first-class. Ten-can lots, 9 cts. per lb. Sample, 5 cts. DADANT & SONS, Hamilton, Ill.

Raspberry and clover honey, finest quality and flavor, put up in 60-lb. cans at 10 cts. per lb. Light-amber honey, heavy body and good flavor, in barrels of 550 lbs., at 7½ cts. Sample, 10 cts. LONGFELLOW BROTHERS, Hallowell, Maine.

Buy your honey from members of the Michigan Bee-keepers' Association. Send your address for a free annual booklet giving names of members, with information concerning the honey they have for sale. Address E. B. TYRRELL, Sec., 230 Woodland Ave., Detroit, Mich.

FOR SALE.—Just recceived from a prominent New York State producer a small consignment of light-amber extracted honey in 60-lb. cans, two cans to the case. This is an exceptionally fine lot—practically all clover—just enough dark honey to call it amber; and in order to make it move promptly we offer it at the very low price of 8¼ cts. per lb., f. o. b. Medina. Ask for sample of lot 37. THE A. I. ROOT CO., Medina, Ohio.

FOR SALE.—Carload of bees from the South, with young queens; shipped in April or May from Kenner, La. Securely packed for safe shipment f. o. b. cars I. C. R. R. at $4.50 per colony in ten-frame hives, covered with wire-cloth frame on top and bottom. In eight-frame hives, 90 cts. less; year-old queens, 15 cts. less. I shall have willow honey for sale in March—the best stimulative feed in the world. Write now. H. C. AHLERS, Rt. 1, West Bend, Wis.

Wants and Exchanges

WANTED.—Bees in North or South Carolina. I. J. STRINGHAM, Glen Cove, N. Y.

WANTED.—Early orders for the old reliable Bingham bee-smokers and knives. Address T. F. BINGHAM, Alma, Mich.

WANTED.—Choice extracted white and amber honey in barrels or cans. Send sample, and price delivered on cars at Preston or at your station. M. V. FACEY, Preston, Minn.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT, 199 South Water St., Chicago, Ill.

For Sale

A. I. Root bee-supplies. Send for catalog and save freight. JOHN L. SWAN, Union City, Mich.

FOR SALE.—One-man folding sawing-machine, as good as new. D. COOLEY, Kendall, Mich.

FOR SALE.—100 slotted section-holders, one drone-trap, never used. JOHN L. MEYER, Carlinville, Ill.

FOR SALE.—100 colonies of bees, J. P. Moore's and Root's best imported stock; will sell cheap. WILMER CLARKE, Earlville, Madison Co., N. Y.

FOR SALE.—400 colonies bees in eight-frame hives. If interested, address E. A. SIMMONS, Greenville, Ala.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successors to W. P. Smith.) Penn, Miss.

After 42 years of bee-keeping I have retired, and offer, at very low prices, new and second-hand extractors, hives, and many other articles. For list and prices send to T. P. ANDREWS, Farina, Fayette Co., Ill.

Real Estate

FOR SALE.—A farm of 80 acres 70 miles south of Chicago; running water; 20 acres of timber; fruit, and 1250 bearing grapevines. Cheap for cash. WM. W. BLACK, 2358 Ind. Ave., Chicago, Ill.

FOR SALE.—Fine quarter-section of land in Cottonwood Co., Minnesota. All land under cultivation. No buildings. Two miles from good market town; one-half mile to graded rural school; 14 miles to county-seat. Perfect title. Price and terms reasonable. Address L. W. BOYDEN, Medina, Ohio. (Member of THE A. I. ROOT CO.)

FOR SALE.—A snap—a nine-acre tract near Berthoud, Col., ½ mile east of town; excellent irrigation water-right; well and town water; good house of 7 rooms; hot and cold water and bath; stables, chicken-houses, etc.; cherries, apples, and plums; finest land in Colorado; adapted to any crops. Price only $4000. Berthoud is in the alfalfa and sweet-clover region of Colorado; and the party buying the above tract can also buy 100 to 1000 colonies of bees in best-located yards in this section. shops, etc., at fair prices. Address W. HICKOX, Berthoud, Col.

Bees and Queens

FOR SALE.—Golden-all-over queens, and bee-keepers' supplies. T. L. MCMURRAY, Silverton, W. Va.

Queens, 5 and 6 band goldens, 3-band Italians. Send for circular and price list. GEO. M. STEELE, 30 South Fortieth St., Philadelphia, Pa.

Missouri-bred Italian queens; none better; prices right; write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

FOR SALE.—500 colonies of bees in eight-frame hives.
A. J. MCCARTY,
712 Coffman St., Longmont, Col.

FOR SALE.—Golden's queens that will produce from 50 to 100 per cent five-banded bees. Address
J. B. BROCKWELL, Bradley's Store, Va.

Golden and red-clover Italian queens; superior stock. Write for prices. WM. A. SHUFF,
Rt. 3, Newtown Square, Delaware Co., Pa.

We have several hundred colonies of bees to lease to responsible parties. Give references, age, experience, and financial standing, in first letter. For terms address
DR. G. D. MITCHELL & Co., Ogden, Utah.

Queens of the celebrated Highland Farm strain of hardy northern-bred three-band Italians: line bred for honey-gathering qualities. Send for circular.
J. E. HAND, Birmingham, O.

FOR SALE.—175 colonies of bees; good alfalfa and sweet-clover range; three apiaries; complete modern outfit for both comb and extracted honey production. No bee diseases; no honey-crop failure so far; good home market; excellent mild climate. Price right. If interested, write at once. Reference, Colorado Honey-producers' Association.
C. WIERSTEINER, Roswell, Colorado Springs, Col.

Position Wanted

WANTED.—Position as manager of a large apiary to be run for queens, bees by the pound, nuclei, full colonies, and for honey production; said apiary to be located in Central Ohio, in a most excellent location, with best shipping facilities, of five railroads, three express companies, and traction service. The applicant is strictly temperate, 40 years of age, married, and is a thoroughly seasoned apiarist; can rear queen-bees by any known method, and is familiar with every detail of the queen business as well as the production of comb and extracted honey; also familiar with the diseases of the bee and their treatment.

I have had full experience in the preparation of bees and queens for shipment to all parts of the globe. The applicant will furnish apiary site, and construct all necessary apiary buildings at his own expense, and will contract for two to five years' service. The very best of reference will be gladly furnished. Address Box 473, Marion, Ohio.

WANTED.—A position for 1911 by a man of twenty years' experience. Can give good reference; 43 yrs. old; single; good habits; $45.00 per month by the year, or $50.00 and expenses for 6 or 7 months. California or Idaho preferred.
WM. S. LEWIS, Lamar, Col.

WANTED.—To buy or rent, or work for some large apiarist in New York or any State. No foul brood wanted. CARL ERIKSON, St. Ansgar, Ia.

Help Wanted

WANTED.—An able-bodied man to work a small truck-farm on shares.
LOCK BOX 98, Bordentown, N. J.

WANTED.—Young man to care for 50 colonies of bees, and to work on garden farm. Address
H. E. HESSLER,
(Commissioner of Public Safety),
Syracuse, N. Y.

Poultry

FOR SALE.—Duston White Wyandottes, $2.00; 15 eggs, $1; $5 per 100. ELMER GIMLIN, Taylorville, Ill.

Thoroughbred S. C. Rhode Island Red cockerels, good color—$1.00 and $2.00.
M. C. BRADSHAW, La Grange, Ky.

Cuban Warrior pit games; best layers, mothers, table fowls, and fighters on earth; also a heavily furred buffalo robe. ELIAS FOX, Hillsboro, Wis.

S. C. W. Leghorn cockerels and Indian Runner drakes, 75 cents to $1.00 each. Eggs in season, $5.00 per 100. Chicks, $9.00 per 100.
C. H. ZURBURG, 10, Topeka, Ill.

Single-comb Brown Leghorns. Champions of the entire West. Right size, color, and shape; 22 years' record sent free.
C. F. LANG, Box G, La Crosse, Wis.

Indian Runner ducks from imported stock, fawn and white; very easy to raise and easy to keep. They are beauties too—lay eggs all the year; lay heaviest in winter. Eggs, $1.50 per 13; $7.00 per 100. Let me start you to success.
C. O. YOST, Rt. 4, Winchester, Ind.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St. Joseph, Mo.

Black Langshan cockerels, $2.00 to $5.00, according to quality. Every thing on my farm is of the best quality, and my aim is to please. Birds are big strong fellows, fine in color. A trial order will convince you. H. J. CORNISH, Box 9, Hebron, Ind.

S. C. R. I. Reds, large and beautiful, rich in color, and rich egg-layers; the winning strain. Eggs from exhibition pens, $2.00 per 15; $10.00 per 100. Eggs from standard pens, $1.00 per 15; $5.00 per 100. I can please you, sure.
C. O. YOST, Rt. 4, Winchester, Ind.

FOR SALE.—100 head of S. C. R. I. Reds—prize stock. My birds are bred from Crother and Tompkins strains, and have won leading money wherever shown—first hen, first pen, second and fourth cockerel, second and fourth pullet, 1910, Medina show, against a class of 85 birds; have sold a pen to L. W. Boyden, of The A. I. Root Co., and refer to him by permission. For the next 30 days I will fill orders at greatly reduced prices. State requirements. W. J. LANPHEAR, Rt. 3, Medina, O.

Miscellaneous

FREE.—For stamp, new book on bees.
LEE KERR, Germania, Ark.

American Hen Magazine, Council Bluffs, Iowa. Subscribe now—25 cts. a year. Descriptive circular free.

Trees and seed of the beautiful magnolia grandiflora; flowers as large as saucers. Seed, $1.50 per lb., postpaid; trees, 10 cts. to $1.00, according to size.
R. H. MANLY, Riverton, La.

Automobilists, attention! Fur-lined coat, never worn; lined throughout with the best Australian mink; elegant Persian-lamb collar; cost $175; will sell for $35.00; also pair of cinnamon-bear robes, $30.00; cost $120. Write W. SCOTT,
121 East 27th St., New York.

Bee-keepers' Directory

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York City.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Farwell, Mich.

Italian queens from direct imported mothers, red-clover strain. After June 1, $1.00. Circular.
A. W. YATES, 3 Chapman St., Hartford, Ct.

Improved golden-yellow Italian queens for 1911. Beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in '08-'09 without a single loss. For prices get circular. QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

Convention Notices.

The Washington State Bee-keepers' Association will hold a two-days' convention in the court-house, North Yakima, Wash., Jan. 4 and 5. There will be a basket-picnic dinner on Wednesday. We expect all bee-keepers to attend who possibly can. There will be several speakers, and papers of interest to bee-keepers; also election of officers for 1911. Come, and bring your best lady with you.

North Yakima, Wash. J. B. RAMAGE, Sec.

The annual meeting of the Oklahoma Bee-keepers' Association will be held in connection with the "Farmers' Short Course" at the A. and M. College, Stillwater, Jan. 19, 1911. All members of the association should make a special effort to attend: for besides the regular program, which will be given in the college chapel, a business meeting will be held, some new officers elected, and a bee-disease law drafted. Every one in the State, interested in bee-keeping, is invited to attend.

Stillwater, Okla. F. W. VANDEMARK, Sec.

The Ohio State Bee-keepers' Association will hold its annual convention Feb. 16 and 17, at Cincinnati. All bee-keepers of the State are invited to attend, to make this meeting (the second of its kind) a grand success. Headquarters will be at Grand Hotel, halls Nos. 1 and 2. Ohio bee-keepers wishing to read papers on bee culture are urged to do so. Now is the time for bee-men to get together and make their influence felt through the General Assembly of the State. We have a few local bee-keepers' associations throughout the State; but single-handed they can not accomplish much. Last year the Ohio State Bee-keepers' Association, through the General Assembly, passed a new foul-brood law—the best one, experts say, in the country. It is a model which bee-keepers of other States are putting up to their legislators. The program will be announced later. HENRY REDDERT, Secretary.

J. H. MOORE, Pres.

I want GLEANINGS as long as I live. It's all right, and I don't know how it could be improved. Am much interested in the "Home Articles" and A. I. Root. May he long live to give us cheering and helpful articles.

The illustrations are perfect, and I am much pleased with the moving-picture department; and, in fact, with every thing from the index to the last ad. DR. FRANK PARKER.

Abilene, Kan., Dec. 15.

Books and Magazines.

THE BOY AND THE OPPORTUNITY.

Alden Arthur Knipe is the author of a recently published book for young readers, "Captain of the Eleven," which tells of life at a well-known preparatory school. Dr. Knipe is a graduate of the University of Pennsylvania, and devotes much of his time to literature. His wife, Emelia Benson Knipe, is an artist, and together they wrote "Little Miss Fales," a book for young readers, published by the Harpers last spring. Mr. Knipe understands the problem of finding the right opportunity for the right boy, and he has used the knowledge in telling the story of "Captain of the Eleven."

The general excellence of *The American Magazine* appeals to many of our readers. It is a publication which exhibits unusual energy, liveliness, courage, candor, and humor. No one who reads it can ever forget its distinctive qualities. It is as much of a "character" as exists anywhere—and a most intelligent and delightful character too.

One of the great achievements of *The American Magazine* is its contribution to national journalism through its articles by Ida M. Tarbell. Ray Stannard Baker, and others, who are experts in their special fields.

Three great original departments, "Interesting People," "The Interpreter's House," and "The Pilgrim's Scrip," are worthy of attention. Any particular number of the magazine may contain a wonderful fiction story or a beautiful picture or a great article that will interest you more than these departments; and yet those famous departments form a great attraction in the periodical. They are always there—filled to the brim with ideas, emotions, and aspirations. There is a curious flavor in them—singularly new, pleasing, and genuine.

Special Notices

By OUR BUSINESS MANAGER

EARLY-ORDER DISCOUNT.

From Dec. 1 until Jan. 15 our early-order discount for supplies generally is 3 per cent. This is not only a good percentage to save, but to order your supplies now will enable you to get them ready while you have plenty of time; and, besides, we can give more special attention to orders now than we can later on.

SECOND-HAND FOUNDATION-MILLS.

We have on hand, and offer for sale, the following list of second-hand foundation-machines. If you desire further particulars in regard to any mill in the list we can mail samples of the work it will do.

No. 079, 2½x6 thin-super mill in extra good condition. Price $12.00.

No. 0114, 2½x6 thin-super mill in good condition. Price $11.00.

No. 0115, 2½x6 thin-super mill in good condition. Price $11.00.

No. 0117, 2x10 round-cell medium-brood mill in good condition. Price $14.00.

No. 2972, 2x10 round-cell medium-brood mill, practically new. Price $18.00.

No. 0121, 2¼x12-inch heavy hex. brood-mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price $8.00.

No. 0126, 2½ x 10 hexagonal light-brood mill in good condition. Price $15.00.

No. 0127, 2½ x 10 hexagonal medium-brood mill in good condition. Price $15.00.

No. 0128, 2½ x 10 hexagonal light-brood mill in extra-good condition. Price $17.00.

No. 0129, 2 x 10 round-cell medium-brood mill, old-style frame, in good condition. Price $14.00.

No. 0131, 2½ x 10 hexagonal medium-brood mill in extra-good condition. Price $17.00.

No. 0132, 2 x 10 round-cell Pelham mill. This is nearly new, but it does not make a natural-shaped cell. Price $9.00.

No. 0133, 2 x 10 round-cell medium-brood Dunham mill in poor condition. Price $8.00.

No. 0135, 2 x 10 round-cell medium-brood mill in old-style frame, fair condition. Price $12.00.

No. 0136, 2 x 10 round-cell medium-brood mill, old style, poor condition. Price $10.00.

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To be continued.

Lesen Sie Deutsch?

THIS is an offer addressed to the German readers of GLEANINGS IN BEE CULTURE.



The publishers of this journal find at the close of the year a surplus stock of copies of—

The A B C der Bienenzucht.

This is a complete translation of the "A B C of Bee Culture," annotated corrected, and brought down to date by Mr. F. Greiner, who is a thorough German scholar, besides being a practical bee-keeper, familiar with American methods.

THIS BOOK was published to sell at $2.00 per copy in paper binding, and $2.50 in cloth. It is handsomely printed and illustrated, but the translation is a little too free. Understand! There are no incorrect statements—nothing that will be misunderstood—simply a little bit more of American German than we would use in a new edition.

SEVERAL hundred of the German edition of the A B C of Bee Culture have been sold, and not a single complaint or any evidence whatever of dissatisfaction has come to our notice. The book is a success in every way, only we have not properly advertised it; and the sale (in comparison to that of the English edition) is slow.

Here is How You May Profit

To close out the German A B C we are going to offer a paper-bound copy, with GLEANINGS for one year, for only $1.75. GLEANINGS alone costs $1.00, so you practically get the book by paying 50 cts. and postage—which will be at least 25 cts. The cloth-bound edition—a beautiful volume—may be had with GLEANINGS, while stock lasts, for only $2.00.

If your subscription is already paid, take this offer any way. You will get full-year extension, and the book will be sent at once.

English-speaking bee-keepers should call the attention of German friends to this special offer.

Send order and remittance to—

The A. I. Root Company
Medina, Ohio

Is your crop of white-clover honey short?

We can furnish you

ALFALFA HONEY

Both white and water-white—finest quality. Prices quoted by return mail and shipments made promptly. . . . . Beeswax wanted for cash or in exchange for bee-supplies.

Beeswax worked for you into

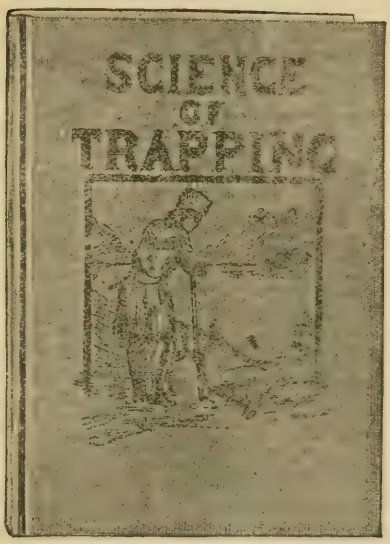
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Best by test. Let us send you the proof.

Early-order discounts now offered for cash. Satisfaction always guaranteed.

Dadant & Sons, Hamilton, Illinois

OVER $15,000,000 A YEAR



IS PAID to trappers for catching fur-bearing animals, and skinning and selling their pelts. It is a profitable business for an apiarist, farmer, or any one living in the country who has ample time during the winter months. You can learn to trap with the aid of "SCIENCE OF TRAPPING," a book containing 245 pages, with more than 40 illustrations. This book has 24 chapters, and tells how to trap the SKUNK, MINK, WEASEL, MUSKRAT, FOX, WOLF, BEAR, COON, OPPOSSUM, and many others. It tells of tracks and signs; how to handle furs to get the best prices, etc. It is written by a man who has had years of experience in various parts of the country, who is acquainted with some of the most expert trappers in North America, and who has also followed the Indians over their trap lines, and in this way has learned many things which, to the white man, are not generally known. Over 10,000 copies of this book have already been sold—not one copy for less than 60 cents; but in order to introduce HUNTER-TRADER-TRAPPER, an illustrated monthly magazine containing 160 to 200 pages each issue, the December number will be sent free with all orders for "Science of Trapping."

Some of the Articles in the December Issue are:

"MINK-TRAPPING IN MONTANA," an article eagerly read by all mink-trappers, written by E. A. Southwick.
"ALBERTA NOTES," an instructive article touching on many subjects of Canada
"IDAHO GAME AND HUNTING NOTES," relates of the big game found in Idado, written by an old hunter and trapper.
"FOR PLEASURE AND PROFIT," tells of a Minnesota trapper's career—a very interesting article.
"SOME MINK AND COON SETS." The author tells of his favorite sets that have proved good along the streams of Virginia.
"KLAMATH BASIN, OREGON," "OLD DAYS IN HUDSON BAY COUNTRY," "A HALF CENTURY ON THE TRAP LINE," etc.

A. R. Harding Pub. Co., Box 319, Columbus, O.

HERE'S the place where two farmers' sons have built up a business of over . . . . . $100,000 a year



READER: If you want to make money with poultry as the **Curtiss** brothers are making it, subscribe **now** for the **FARM JOURNAL**, and get with it the new

Curtiss Poultry Book

which tells how Roy Curtiss, a New York farmer's son, starting with a few neglected hens, has built up at the famous NIAGARA FARM, the *largest poultry plant in the world,* with sales of **over $100,000 a year.**

Roy wanted to make some money. He saw that the hens on the place were almost entirely neglected, and proposed that if his father (a grain merchant and farmer) would furnish the feed, he (Roy) would take care of the flock, and supply eggs and chickens for the farm table, and all that were left over were to belong to him. His father agreed and Roy went to work.

In two years he was using so much feed that his father had to cry quits, but the boy kept right on. He had grit and "go," just like *your* father's boys, and was determined to succeed. He would start at two o'clock A. M. for Niagara Falls, thirteen miles away, with poultry and eggs for sale. His brother joined him in the business, and it grew and grew. They took the farm, paid off the mortgage, built and added to their plant, learning slowly how to avoid losses and make profits. Their tender spring chickens and delicious ducklings captured the best hotel trade of Niagara Falls, Buffalo, and the Adirondacks, and they began to see "big things" in the poultry business.

But they had no *guidance*. They had to devise their own methods, and learn by their own mistakes. Such a guide as the **CURTISS POULTRY BOOK** would have saved them thousands of dollars and years of lost time.

This remarkable new book was written at NIAGARA FARM, by the veteran poultryman, MICHAEL K. BOYER. He had the Curtiss brothers right at his elbow, with their records and data. He says he never saw a general poultry plant so well managed at every point. No "putting on style," no fancy buildings, no ornament, but straight, solid *business*. Everything is planned for months ahead. Every day shipments go off, every day money comes in. You could hardly believe how little they *lose*. Their percentage of fertile eggs, of live, strong chickens hatched, of day-old chicks shipped without loss even to Kansas or Florida, is really wonderful.

This book describes fully their methods of managing incubators, handling eggs, feeding, killing, dressing, packing, and marketing. It gives all their formulas for mixing feed for chickens and ducks at different ages. These formulas have been gradually modified and improved, until now they bring the best results with such *certainty* that, if you couldn't get them, they would be almost priceless. All these methods have been tested by years of experience, resulting in what is believed to be THE MOST PROFITABLE GENERAL POULTRY PLANT IN THE WORLD. Whether you raise chickens, ducks, or eggs, whether you keep forty fowls or forty thousand, you will find here help that you can get in no other way.

Have you use for such a book? Then read the special offer below.

The FARM JOURNAL (thirty-four years old) has over 750,000 subscribers, MORE THAN ANY OTHER FARM PAPER. It is of great value to everybody, in town or country, who wants to make money by growing fruit, vegetables, poultry, eggs, milk, butter, as well as grain and stock. It is a great favorite with mothers, housekeepers, boys and girls, as well as the men. "Cream, not skim-milk," is its motto. It is clean, brief, bright, "boiled down," intensely practical. It tells in a few words, and just at the right time, what to do NOW, and the best way to do it. It is now running a very interesting series, "Back to the Soil," stories of city people who have gone to the country to make a home. If you care about outdoor life, or plants, or pets, or children, or anything that *grows*, then, no matter how many other papers you get, you and your family ought to have the **Farm Journal.**

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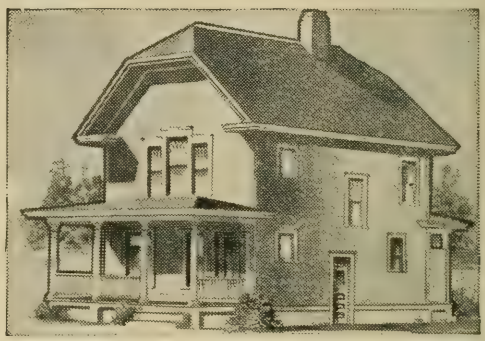
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Gleanings in Bee Culture

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Editorial

Stray Straws

Bee-keeping in Southwest

Conversations with Doolittle

Second-hand Cans — F. B. CAVANAGH

Arrangement of Bait-sections in Super — C. B. PALMER

Settling-tank Ahead of Honey-strainers — H. F. STRANG

Queen-excluders Indispensable — CHAS. EDSON

Extracting with Electricity for Power — A. D. SHEPARD

Moving an Apiarian Laboratory — EDW. F. BIGELOW

Bee-keeping for Beginners, Illustrated — E. D. TOWNSEND

Bee-keeping in New Mexico — H. C. BARRON

Full Sheets vs. Starters of Foundation — LEO ELLIS GATELY

The Question of Honey Prices — JASPER LILLIE

Opportunities in Peddling Honey — T. F. HALLOCK

Western New York Convention — STEPHEN DAVENPORT

Life Sketches of New Contributors — H. H. ROOT

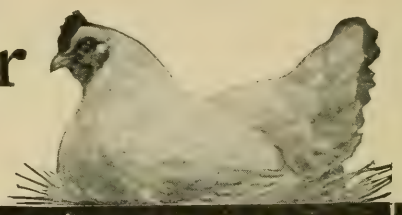
Bee-keeping in the Highlands of Mexico — O. B. METCALFE

Heads of Grain **Our Homes**

"Keep chickens,"

says the FARM JOURNAL,

and live better at less cost.



THOUSANDS of families, in city and country, have found this the easy way to IMPROVE their standard of living, and at the same time LOWER THE COST. With chickens you always have delicious food, for the family or for "company." Their eggs supply you with ready money or ready food. They are pets that *pay their board.* By keeping chickens, boys and girls can earn money, and also get an excellent training. Sometimes the back-yard plant grows into a large business, like those of CORNING, CURTISS, and FOSTER, who make many thousands of dollars a year.

Raising chickens pays if you know how, whether you keep a dozen hens, or run a large poultry-farm; but **you need the best guides.** Many get from their chickens less than HALF as much as they might get with the guidance of any of these **three splendid modern poultry-books,** which tell the experience and methods of the most successful modern poultry-raisers.

These methods have all been *tested* by actual experience and proved successful. The FARM JOURNAL stands back of them, for it has investigated them and KNOWS. They can be used with six hens or six thousand. Of the Corning Egg-Book alone, **OVER 100,000 COPIES** were sold in one year. Many are using these methods with splendid success and profit.

The Corning Egg-Book is the great guide-book for back-yard chicken-raisers. It tells how two city men in poor health, with no experience, starting with thirty hens, built up in four years an egg business which in one year, with 1953 hens, made an average profit of **$6.41 a year per hen.** These men learned how to make hens **lay the most eggs in winter,** when they get 60 and 70 cents a dozen. This book tells how they found the best breed, why they raise only white-shelled, sterile eggs, how they keep hens **LAYING ALL WINTER,** when they hatch chicks to do their best laying in January, how to mix the feed that produces most eggs, and how their whole system works to that one end—eggs, EGGS, EGGS. It gives photographs and complete working plans of their buildings, which you can build in SECTIONS, large or small as needed.

Curtiss Poultry Book tells how Roy Curtiss, a farmer's boy, starting with a few neglected hens, has built up at NIAGARA FARM one of the **best-paying poultry plants in the world.** Roy agreed that if his father would furnish feed he (Roy) would supply eggs and chickens for the farm table, and all left over were to belong to him. In two years Roy was using so much feed that his father had to cry quits, but the boy kept right on. His brother joined him, and the business grew and grew. But they had no guidance, and had to learn by their own mistakes. Such a guide as the **Curtiss Poultry Book** would have saved them thousands of dollars. This capital book was written right at Niagara Farm by the veteran poultryman, **Michael K. Boyer.** He says he never saw a general poultry plant so well managed. Every day shipments go off, every day money comes in. Their percentage of fertile eggs, of live strong chickens hatched, of day-old chicks shipped without loss, is really wonderful. This book gives all their methods and feed formulas, tested and improved by years of experience. Many pictures. Whether you raise chickens, ducks, or eggs, have a dozen fowls or thousands, you will find in this book help that you can get in no other way.

"Poultry Secrets" is a remarkable collection of successful "wrinkles" in poultry-raising, secured and edited by MICHAEL K. BOYER (known to poultrymen as "Uncle Mike"). Many of these were treasured secrets of famous poultrymen, guarded with jealous care because of their great value. We paid hundreds of dollars for them. This is the ELEVENTH EDITION, and thousands are using these methods with great profit.

W. R. Curtiss tells his successful method of hatching **50 per cent** more pullets than cockerels; the Philo System is described and explained; the "15-cents-a-bushel" and "8-cents-a-bushel" green feed secrets; secrets of the Angell, Palmer, and Hogan Systems; Boyer's method of absolutely insuring fertility of eggs for hatching; Townsend's System for preventing death of chicks in the shell; Felch's famous mating chart, suppressed for many years; feeding and fattening secrets; and MANY OTHER PRICELESS SECRETS, are here disclosed for the first time.

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On any one-dollar offer, if your order is mailed within TEN DAYS of the date of this paper, we will send you also the famous Poor Richard Almanac for 1911, full of wit and wisdom for the rural home. Address your letter just like this: —

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Kansas City, Mo.—C. C. Clemons Bee Supply Co., 128-130 Grand Ave. The center of Western traffic—goods quick and low freight charges. A complete and full line at factory prices awaits your order. Send it to-day and be prepared for spring. The finest goods—**"falcon"** Goods—cost no more than other poorer makes.

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Order "falcon" Supplies from Your Nearest Dealer!

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Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy and No. 1 white comb honey, 15 to 16; fancy white extracted, 10 to 11. Beeswax, 30. BLAKE-LEE CO.
4 Chatham Row, Boston, Mass., Jan. 5.

COLUMBUS.—The market is wanting some good honey. Receipts are very light. We are selling fancy white comb at 17; No. 1 white, 16; No. 2 white, 14½.
Columbus, Jan. 7. THE EVANS & TURNER CO.

KANSAS CITY.—The demand for white extracted is good, but receipts very light. Dark and amber extracted sells very slowly. We quote No. 1 white comb, 24-section cases, per case, $3.50; No. 2 ditto, $3.25; No. 1 amber comb, ditto, $3.25; No. 2 ditto, $3.00; white extracted, per lb., 8½ to 9; amber ditto, 6½ to 7½. Beeswax, 25 to 28.
C. C. CLEMONS PRODUCE CO.
Kansas City, Mo., Jan. 5.

CINCINNATI.—Comb honey is in fair demand at $3.75 per case for No. 1 white. Amber extracted in barrels is selling at 7; in cans, 7½ to 8. White extracted honey in 60-lb. cans brings 9 to 10; California light amber, 8 to 8½. All grades of extracted honey are in fair demand. Beeswax is in fair demand at $32.00 per 100 lbs. These are our selling prices, not what we are paying.
Cincinnati, O., Jan. 4. C. H. W. WEBER & CO.

DENVER.—The demand for honey is light, which is the usual thing shortly before the holiday season. Prices are well maintained, especially on first-class extracted. We quote strictly No. 1 white, per case of 24 sections, $3.60; No. 1 light amber, $3.38; No. 2, $3.15; extracted white, 9; light amber, 8 to 8¼; strained, 6¾ to 7½. We pay 25 to 26 cents for clean yellow beeswax delivered here.
THE COLORADO HONEY-PRODUCERS' ASSO'N.
Denver, Col., Dec. 21. F. Rauchfuss, Manager.

INDIANAPOLIS.—The demand for honey is brisk, especially for best grades of white-clover honey. Jobbers are offering fancy white comb at 18; No. 1 white, 17; finest extracted, 11, with some slight reductions on quantity lots. It is to be presumed that producers are being paid about 2 cts. per lb. less than above quotations. This is not a desirable market for amber honey. Producers of beeswrx are being paid 28 cts, cash or 30 in trade.
WALTER S. POUDER.
Indianapolis, Ind., Jan. 5.

Honey Markets continued on page 5.

Ye who are in Need of Honey

Write to Us for Prices. Samples 10c.

EXTRACTED HONEY—Orange Blossom, Sweet Clover, Florida Amber—in crates holding two 60-pound cans.
COMB HONEY—Strictly Fancy Comb Honey, also fine Chunk Comb Honey.

The Fred W. Muth Co.

51 Walnut Street "The Busy Bee Men" **Cincinnati, Ohio**

This Year Cincinnati

Decide upon that NOW.

Make up your mind that when you want bee-supplies, want them quickly, want the BEST, you will send your order direct to WEBER & CO.

YOU WILL NEVER REGRET such a NEW-YEAR RESOLUTION. We will not disappoint you. You will get GOOD goods, RIGHT prices, and QUICK service. We will count you as another patron won on our promises, and set out to keep our word and hold your trade.

New Catalog Coming

What about a new catalog of bee-supplies—the 1911 edition? Is your name on our list? Better drop a post card now if you want one of the first copies; or, better still, send a short letter with the names of neighboring bee-keepers. We appreciate such favors, and try to repay them.

Our success as dealers in bee-keepers' supplies, and in honey, seeds, and other merchandise, is due to the scrupulous care we exercise in the handling of all inquiries and orders. We give prompt attention to all requests for information on bee-keeping generally, to any request for our prices on supplies needed as well as probable time it would require to deliver goods. We like to answer your questions and to attend promptly to your orders.

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The time is now at hand to order supplies for next season. If you get your goods early you will avoid the rush of the busy season later, and you can really buy to better advantage now than at any other time during the year. Even if your order is small, it will pay you to save something on it; and if you use a large quantity of goods during the season you surely can not afford not to take advantage of our **early-order discount,** which is **three per cent** for all **cash** orders during January.

You may order your goods now and have them come along later, or we will ship at once and you will have time to get them ready for the harvest next spring at your leisure during the winter. We are always glad to make suggestions and quote prices on any list submitted. If you have never bought supplies from us, try us this season and see if you do not agree with us that we furnish the best bee-supplies made, and give you the best possible service. It means a good deal to YOU to get the best of goods and service for YOUR money. We give you both. Try us.

Poultry Supplies

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Extracted Honey Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

Honey Markets continued from page 2.

CHICAGO.—There is not much to state pertaining to the honey situation, trade in all lines being quiet, and we do not look for much trading until after this month, most of the jobbers being busy with inventory. We quote fancy white-clover comb honey packed in 24-section flat cases with glass fronts, 17; No. 1 as above, 16; No. 2 white and light amber, 14 to 15½; New York buckwheat comb honey, 13 to 14; white extracted honey, 8 to 9. Bright pure beeswax is firm at 30 to 32.

Chicago, Ill., Jan. 6. S. T. FISH & Co.

ST. LOUIS.—Our honey market is very slow at the present time, but quotable about the same as in our last. We quote fancy white comb honey at 16 to 16½; No. 1, 15½ to 16; choice amber, 14 to 15; dark, 11 to 12. Broken and leaking honey sells at less. Extracted white-clover honey, in five-gallon cans, 9 to 10; California, 8½ to 9 for white and light amber. Southern light amber, in five-gallon cans, brings 8 to 8½; in barrels and half-barrels, 7 to 7½. Beeswax, prime, 29; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Jan. 6.

LIVERPOOL.—Since our last, the honey market shows more activity for Haitien honey, which has sold at full prices, although the market for Chilian and other qualities has been rather dull; but we hope to see a better demand at the beginning of the new season. We quote Haitien at $6.24 to $6.96; Chilian, $4.44 to $6.72; California, $10.56; nominal. Peruvian, $3.40 to $4.80; Jamaican, $6.00, $6.72. Beeswax is steady, with sales of Jamaican at $36.88, and Chilian at $37.48. Stocks are small, and we expect firm prices until we see more coming forward. The nominal values of other qualities are as follows: African, $32.64 to $34.48; American, $33.88 to $37.48; West Indian, $32.34 to $36.28.

Liverpool, Dec. 21. TAYLOR & Co.

We are in the market for

HONEY

Both comb and extracted. State quantity you have to offer, with all particulars.

HILDRETH & SEGELKEN

265-7 Greenwich St., 82-6 Murray St.

NEW YORK

THE NATIONAL BEE-KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey

MEMBERSHIP DUES

One dollar a year.

OFFICERS AND EXECUTIVE COMMITTEE

PRESIDENT.—George W. York, Chicago, Ills.
VICE-PRESIDENT.—W. D. Wright, Altamont, N. Y.
SECRETARY.—E. B. Tyrrell, Detroit, Mich.
TREASURER AND GENERAL MANAGER.—N. E. France, Platteville, Wis.

Are you a member? If not, why not send the annual dues of $1.00 at once to Treasurer France? Every progressive bee-keeper should be a member of this, the greatest bee-keepers' organization in America.

CHICAGO.—We are passing through the usual dull period of the season so far as the wholesale trade in honey is concerned; but beginning with the middle of this month there is usually a fair demand. We quote A No. 1 to fancy comb at 17 to 18; lower grades, 1 to 2 cts. less. The amber grades are ranging from 12 to 15, and those out of condition a little less. Extracted is firm at from 8 to 9 for the white grades, and the best lines of beeswax are bringing 32 cents.

Chicago, Ill., Jan. 5. R. A. BURNETT & Co.

CINCINNATI.—At this season of the year, lack of demand is the prevailing spirit in every line of business, and it will not show any activity worth talking about until about the first of February, if then. We see no reason to change our prices from last quotations, and are selling our comb honey at $4.00 per case, and $3.75 to $3.85 in a wholesale way. Our finest table honey brings 10 cents per lb. in crates of two 60-lb. cans. Southern honey in barrels brings from 5¾ to 7½, according to quality and quantity. We are paying 30 cts. cash or 32 in trade for bright yellow beeswax delivered here.

Cincinnati, Jan. 5. THE FRED W. MUTH Co.

NEW YORK.—During the past three or four weeks the demand for honey has fallen off considerably on all grades. This, however, is usually the case at this time of the year. Off grades of white, mixed, and buckwheat, especially the latter, are finding a very slow sale, and we find it uphill work to find buyers for even strictly fancy buckwheat. Some commission houses are offering buckwheat comb honey as low as 8 cents per lb., and no buyers. We quote fancy white at 15; No. 1, 13 to 14; off grades at from 10 to 12; mixed and buckwheat, 9 to 10. Extracted is in fair demand, with a rather short supply of white clover and California. In fact, California honey is practically cleaned out. We quote white clover and basswood at 9 to 9½; light amber, 7 to 7½; West Indian, fancy Porto Rican, 85 to 90 cts. per gallon; other kinds, 75 to 80 cts.; Southern, choice quality, 75 to 80; common grades at 70 to 75. Beeswax is quiet at 29 to 30.

New York, Jan. 5. HILDRETH & SEGELKEN.

Continued on page 11.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873 CIRCULATION 35,000 72 Pages Semi-monthly

A. L. BOYDEN, Advertising Manager

ADVERTISING RATES

Twenty-five cents per agate line, flat. Fourteen lines to inch.
SPACE RATES. To be used in one issue: One-fourth page, $12.50; one-half page, $25.00; one page, $50.00.
Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover, 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.
Column width, 2⅝ inches.
Column length, 8 inches.
Columns to page, 2 (regular magazine page).
Forms close 10th and 25th.
Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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BIG MONEY IN BEES

Do you know that there are dozens of men in this country who have made over $2000 from bees in one year? Well, there are, and quite a large number who have made as much as $5000 in a year; and I have found one man who has made over $7000 in one year. I have had a lot of correspondence with these men, and the result is that one of the special features of the BEE-KEEPERS' REVIEW for 1911 will be at least one article each month from men who have made over $2000 in one year from their bees. They will write of their *most prosperous year;* state the conditions that enabled them to secure such wonderful results, the methods they employed, and tell if there are any reasons why similar crops may not be obtained in the future.

If you have the courage to branch out, there is no reason why you need not do as well as these men—you will have their experience as a guide. Certainly, if you wish to make the most of your business you can't afford to be without the REVIEW.

Send me ten cents; and when the February REVIEW is out (containing the first article of this series) I will send you a copy, together with two other late but different issues, and the ten cents may apply on any subscription you may send in. A very attractive clubbing offer will also be sent.

W. Z. HUTCHINSON, Flint, Mich.

LEWIS BEE-WARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY COMPANY (Not Inc.) SEND FOR CATALOG
Successors to YORK HONEY & BEE-SUPPLY COMPANY **148 W. Superior St., Chicago, Ill.**

BEE-KEEPERS

We appear here to tell you that our New Catalog on Bee Supplies is yours for asking. . It is free. . Get one.

August Lotz & Co., Boyd, Wisconsin

ROOT'S GOODS

For WESTERN PENNNSYLVANIA

Liberal early-order discounts. Gleanings and choice queens GIVEN AWAY. Write at once for circular. . . Time is limited.

GEO. H. REA, - Reynoldsville, Penn.
Successor to Rea Bee & Honey Co.

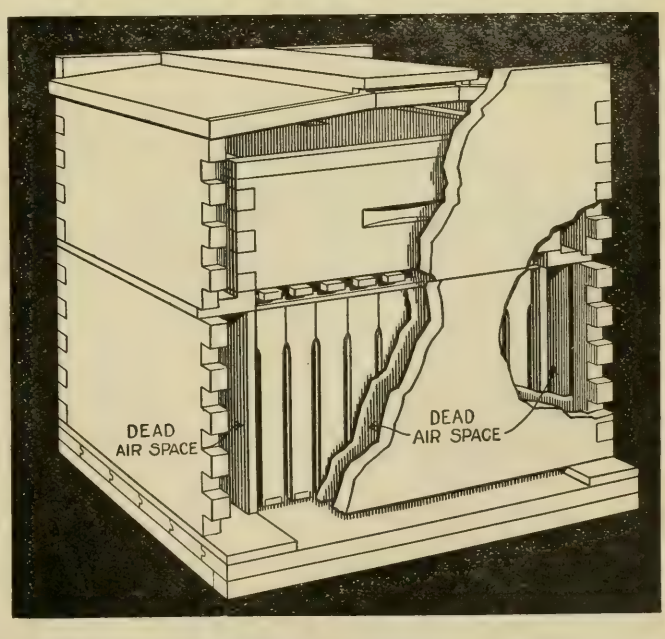
PROTECTION HIVE

All arguments lead to a matter of protection, look where you may. Dead-air-spaces or packing, as you prefer.

The hive that is sold at less than the material in it will cost you at your local lumber-dealers, equally good stock being used.

Send us a list of goods wanted, and let us figure on Dovetail hives, sections, foundation, and all bee - keepers' supplies. We will save you money.

Send for circular.



A. G. WOODMAN COMPANY, GRAND RAPIDS, MICHIGAN

Now is the Time to Plan for Next Season

Secure Your
Bee-supplies this
Fall and Winter.

The A. I. Root Company
Syracuse, N. Y.

Established 1885

We carry an up-to-date line of

Bee-keepers' Supplies

At this season of the year we give the usual customary early-order discounts. If you are figuring your wants now to buy early and get the benefit of lowest prices, don't fail to consult us. We have

THE ROOT COMPANY'S Make of SUPPLIES

Nothing to fear as to quality. Beeswax taken in exchange for supplies.

John Nebel & Son Supply Co. High Hill, Montg. Co., Mo.

AT this season of the year many bee-keepers who are considering a larger better equipment begin placing their orders.

It may be on a five-hundred-swarm basis, or only a five-swarm basis, but they are seeing the value of it. They rather get their preparatory work done now than to do it in May or June. Besides this, you can buy goods cheaper in January.

Are YOU considering your equipment now?

We can supply you with an all "Root Quality" equipment. It will mean lasting satisfaction and increased profits. Start the new year right.

We will gladly quote you net prices no matter where you are located. Also we want your name for our 1911 catalog.

M. H. HUNT & SON
Opposite Lake Shore Depot
Lansing, Mich.

Buyer's Bureau

As evidence of the diversified interests of bee-keepers and others not yet engaged in this pursuit, but who read GLEANINGS, it is the pleasure of this department to cite a brief list of articles concerning which inquiries have recently reached the Buyers' Bureau. For certain articles, incubators, for instance, there have been several inquiries. The list follows:

Automobiles,
Berry-boxes,
Bicycles,
Books on farming,
Carriages,
Eggs for hatching,
Farm seeds,
Florida land,
Food-cutters, to cut up roots,
Food-grinders,
Fountain pens,
Garden seeds,
Graphophones,
Incubators, brooders.
Pet animals (dogs, ferrets),
Poultry, several varieties,
Syrup-evaporators,
Virginia land, and others.

In every instance we have been able to supply information, addresses, prices, etc., which we have every reason to believe entirely answered the inquirer's questions.

From these facts it will be seen that the Buyers' Bureau is very quickly meeting with the favor and confidence of GLEANINGS' readers.

Address your inquiries to this department. It will please us if we can serve you and save you trouble and possibly some expense.

AUTOMOBILES.

Considerable interest in automobiles has been aroused among bee-keepers. This is due, in a measure, to a liberal discussion of the subject by the editors of GLEANINGS. Letters we have received, and photographs and personal investigation as well, have led us to believe that no small number of our bee-keeping friends own and operate motor cars. There are very good reasons why the automobile should be accepted as a most valuable assistant to the bee-keeper, especially to the apiarist who operates outyards; and we shall be glad to see good, reasonably priced cars come into more general use.

Several of our friends have asked our assistance in making a choice of an automobile for their particular purpose. Of course, it is not always easy to do this, nor do we always want to assume the responsibility of such recommendations. It would seem, therefore, that the best plan to pursue would be to ask for *your* coöperation—the coöperation of every bee-keeper who is interested in studying the relative merits of motor cars with the view of purchasing this season or at some future time. If we could have the names of, say, 100 such persons it would be a comparatively matter to induce half a dozen of the leading manufacturers of medium-priced cars to use space in GLEANINGS to advertise the distinctive features of their cars.

It ought not to be very hard to get 100 names. We know quite a few persons who will buy cars just as soon as the season opens up; but every name will count. *Your* name particularly is needed.

Are you interested in automobiles? Is there a possibility of your buying a car this season or next? Will you kindly use this coupon?

Buyer's Bureau,

GLEANINGS IN BEE CULTURE, Medina, Ohio:

I am thinking of buying an automobile [*this* or *next*] year. I would probably pay up to $_____

I should like to know about the_____

[Give name of any make you favor.]

I should be glad to see automobile advertisements in GLEANINGS.

Name_____

Street (or rural route)_____

City_____ State_____

Date_____

BEE SUPPLIES

We carry a full and complete line of Root's Celebrated Bee-keepers' Supplies. By buying in carload lots we are enabled to sell at factory prices f. o. b. Dallas. . . . . .

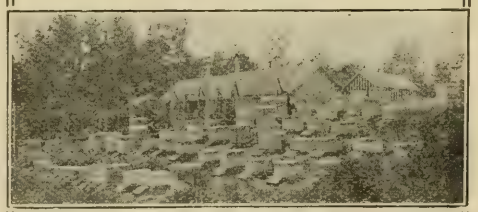
We also carry the largest and best assorted stock of the celebrated Texseed Brand Garden and Field Seeds in the South; Incubators and Brooders, and poultry supplies of all kinds.

Send for illustrated catalog. .

Texas Seed & Floral Co.
Dallas, Texas

When you have honey or beeswax for sale write us.

Hilton Strain of Bees and Root's Goods to the Front again



A View of Mr. Chase's Apiary.

Friend Hilton:—I started this spring with 16 colonies; bought 30 three-frame nuclei of you; have increased to 85 strong colonies with ample stores for winter without feeding. Have taken 4900 lbs fine extracted honey and a little comb (and no drawn combs to begin with) all from full sheets of foundation. My best colony gave 329 lbs.; a three-frame nucleus, received from you May 28, gave me 210 lbs. extracted honey. But for the drouth and fires I should have had much more.
Very truly yours, G. C. CHASE, Robbins, Wis.

I am now booking orders for next season's delivery of Nuclei and Queens, and next season's supplies, and making a very liberal discount. . . . .

Write for 50-page price list, and send list of goods wanted for special discounts. All Root's Goods. Beeswax wanted, cash or trade.

Geo. E. Hilton, Fremont, Michigan



"If goods are wanted quick, send to Pouder."

DEAR SIR: INDIANAPOLIS, Jan. 15, 1911.

Two weeks ago I was talking to you about ordering your bee-supplies early. I am filling orders every day, and this is good mutual business; for during April, May, and June we have to work about 18 hours per day to fill our orders promptly. A few days ago we shipped 50 hives to one man (F. M. Haynes, Modoc, Ind.). This man took advantage of the early-order discount and got his hives at the 50 rate. He puts them together at his leisure, and when spring opens up he has his goods ready. I call this good business judgment. I have never found it necessary to offer my goods at cut prices; but when quantities are ordered at one shipment I can save you some money by following the factory schedule of prices. This saving of money for my patrons has been the best advertising that I have ever secured. I have been following that course for 22 years—how time does fly!—and I have no intention of quitting so long as I continue to receive the kind and encouraging letters that I am getting daily. Write for a catalog, and notice how quick I can have it in your hands.

859 Massachusetts Ave. WALTER S. POUDER.

CHAS. ISRAEL & BROS.
488-490 Canal Street, NEW YORK
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments solicited. Established 1875.

Honey-Jars
No. 25, 1-lb. bronzed screw-cap, $5.00 per gross.
Half-pound, screw-cap, $3.75 per gross.
We have several styles of jars. They are made of heavy glass. Catalog of cartons and every thing a bee-keeper uses, free.
I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

BEE-SUPPLIES
Western Agents
Falconer's Goods
Write for Catalog
C. C. CLEMONS BEE SUPPLY CO.
130 Grand Ave., Kansas City, Mo.

The A B C of Bee Culture
A complete treatise on the subject; fully illustrated. A text-book for the beginner and advanced bee-keeper. Cloth-bound, $1.50 postpaid; leather edition, $2.50.
THE A. I. ROOT CO., Medina, Ohio.

TOLEDO
is the place to buy your Beeware. . .
GRIGGS
is the man who can tell you what to use —how to use it. .

He is a practical bee-man.
His 25-years' experience is at your service.
Send for his catalog.
At the old stand.

S. J. Griggs & Co.
25 North Erie St.
Toledo, Ohio

"Griggs, the King Bee"
Wholesale and Retail

DOOLITTLE "QUEEN-REARING" BOOK FREE TO JANUARY 1
With the AMERICAN BEE JOURNAL One Year---Both for $1.00
READ THE FOLLOWING PARTICULARS


Doolittle

NO DOUBT there are thousands of readers of GLEANINGS who would be glad to read the old AMERICAN BEE JOURNAL *regularly* if they once get started. In order to induce them to make this "start" we will send a copy of Doolittle's "Scientific Queen-rearing" book with every *new* subscription order for one year (with $1.00) *received between now and January 1, 1911—only two weeks.* (The price of this book, bound in cloth, is $1.00; but we will send a copy of the leatherette-bound book. All except the binding is the same in both books.)

The AMERICAN BEE JOURNAL is $1.00 a year—a large 32-page monthly. Every bee-keeper ought to have it; and in order to induce several thousands of readers of GLEANINGS to take it for 1911 we make the above generous offer. *Now* is your chance to get a copy of Doolittle's great "Queen-rearing" book *free.* Better sit right down and send in your order with $1.00 for the book and the AMERICAN BEE JOURNAL for 1911. Sample copy of the Bee Journal free. Address

GEORGE W. YORK & CO., 146 West Superior Street, CHICAGO, ILLINOIS

BEE-KEEPERS
SAVE MONEY NOW

Here is your opportunity to make a nice saving on all supplies. We are making a

Special Cash-discount Offer

that means money in your pocket, if you will send in your order now. You know from past dealings with us, and from our reputation as a firm, that we deal only in

The Right Kind of Supplies

We are fitted to serve you best in every way. Our location, stock, and low prices are all to your advantage.

We have every thing you can need in successful bee culture, and give the smallest order the same prompt attention as a large one. All orders invariably shipped the same day received.

OUR BIG BOOK SENT FREE. Tells all about keeping bees, and how to make them profitable. Sure to contain information and suggestions of real value to you.

Send to-day for catalog of money-savers and full information concerning Special Cash-discount Offer. The Bee-book will be sent you, too.

Blanke & Hauk Supply Co.
1051 Lucas Ave., St. Louis, Mo.

Continued from page 5.

ZANESVILLE.—The demand for honey is about what would be expected so near the holiday season. Some late arrivals have filled up stocks for the time being; and indications are that movement will be slow for a month or six weeks. For fancy and No. 1 white comb the jobbing trade offer 16 to 17, and for best white extracted 8½ to 9, delivered. Wholesale prices will average about 2 cents higher than the above. For beeswax, producers are offered 28 cts. cash or 30 in exchange for bee supplies or other merchandise.

Zanesville, O., Jan. 4. E. W. PEIRCE.

Mrs. Bee-keeper!

Your husband is interested in bees. Here is something that will interest YOU.

You know, don't you, that good baking-powders are expensive? But are you aware that most of the cheaper powders contain ALUM—a POISON? If you could get a low-priced baking-powder as good as the high-priced ones, and yet perfectly wholesome, you'd cut down your living expenses by using it, wouldn't you?

At last I HAVE IT! and for four cents in stamps, and the name of your dealer, I will send you a full description and a sample large enough for several bakings; also a nice bee-supply catalog for your husband.

(This offer is good whether you are a "Mrs." or just want to be one.)

Edmund W. Peirce
136 West Main St. ZANESVILLE, OHIO

GOLD MEDALS
St. Louis Exposition, 1904
Jamestown Centennial, 1907



Danzenbaker Smoker

Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT GRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

The **ONE-PIECE** cap **CAN NOT clog.** It is the **COOLEST, CLEANEST, STRONGEST, BEST,** and **LARGEST NET CAPACITY** of all smokers, selling at one dollar ($1.00). We **GUARANTEE SATISFACTION** or **return** the price; only three complaints in **six years.**

Send your address and five other bee-keepers', for **FREE CIRCULARS** and fifty-page catalog of B-supplies, and we will send you one smoker for even dollar. We **WANT YOUR HELP** in selling Bee-ware at factory prices.

Smoker by mail, $1.25; with Gleanings a year by mail, $1.50 for medium; $1.75 for large size, during January.

F. DANZENBAKER, - NORFOLK, VA.



BIG DISCOUNT

in bee-supplies ordered before February. Eight-frame Dovetailed hive $1 10. We make all kinds of supplies. Just send us a bill of all goods wanted. We sell one hive to a car.

Chestnut Hills Mfg. Co.
Biglerville, Pa.

PATENTS **25 YEARS' PRACTICE**

CHAS. J. WILLIAMSON, Rooms 304 to 307, Savings Bank Bldg., 7th and E. Sts., WASHINGTON, D. C.

Patent Practice in Patent Office and Courts. **Patent Counsel of The A. I. Root Co.**

Boston **Is the Shipping Center of New England**

Bee-keepers should bear this in mind when ordering their supplies. . . . A full line of supplies always in stock. . . . . Send for catalog.

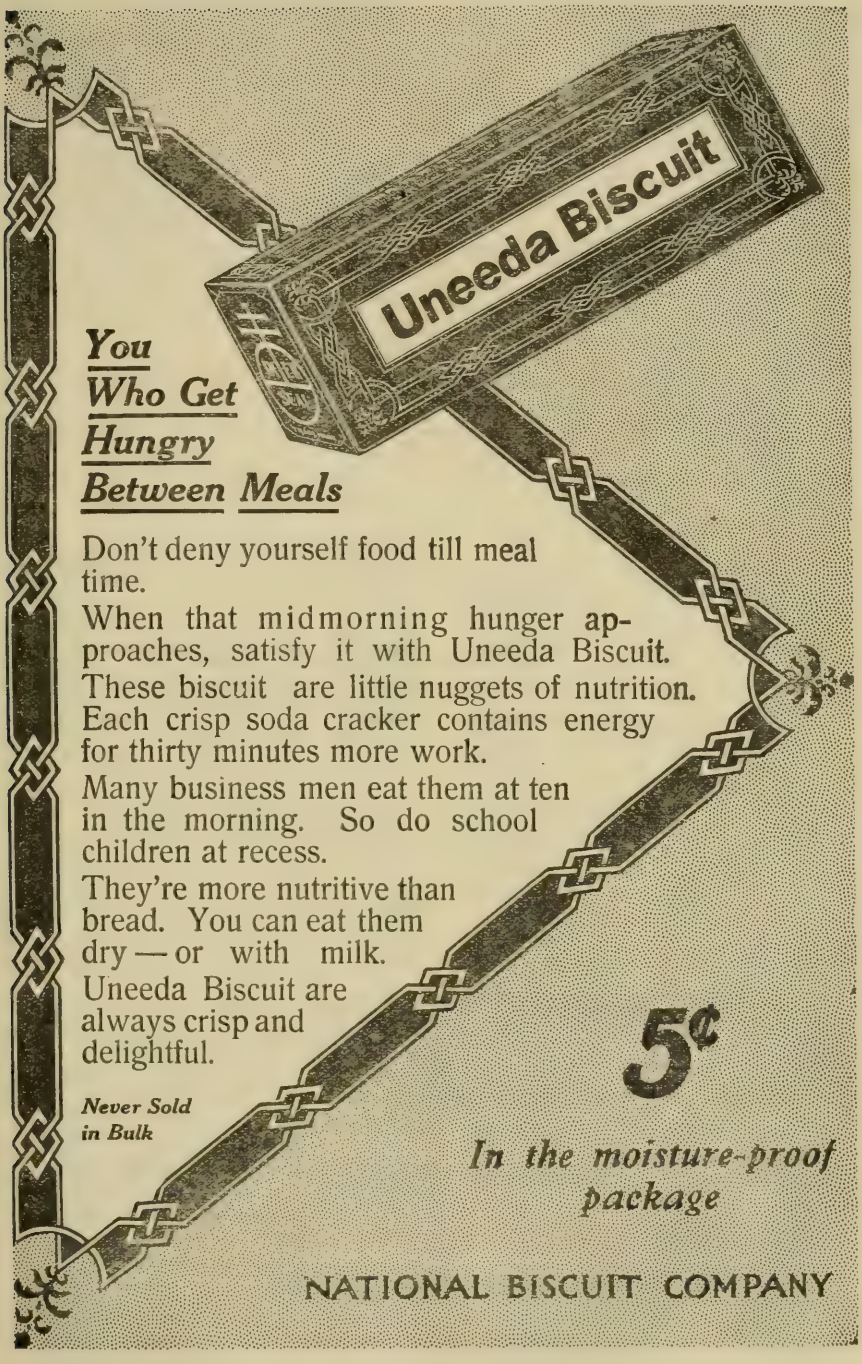
H. H. JEPSON
182 Friend St. . . Boston, Mass.

3% Cash Discount

ROOT'S GOODS---THE BEST
at Factory Prices
F. O. B. San Antonio, Texas

Send in your order now and get our 3 per cent cash discount. Our new plant is two-story, 40 by 250 feet, filled with a nice clean stock of The A. I. Root Co.'s make of bee-keepers' supplies. Our comb-foundation factory is twice the size it was last year. We give satisfaction, otherwise we should not grow. Our list of customers is growing daily; but we seek more trade from outside States. Promptness is what gets us the trade. We will give special inducements to associations or parties having large quantities of beeswax to be worked into comb foundation. We absolutely guarantee satisfaction. We manufacture comb foundation by the "Weed New Process," the best known. We retain the natural odor of the hive by carefully working the wax. Send us your name for a sample and our catalog. When in San Antonio make our office your office, and meet the bee-keepers as they come in. We have a nice cozy room especially prepared for our visitors to pass the time pleasantly.

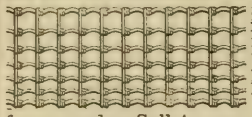
Toepperwein & Mayfield
San Antonio, Texas


Uneeda Biscuit
You Who Get Hungry Between Meals
Don't deny yourself food till meal time.
When that midmorning hunger approaches, satisfy it with Uneeda Biscuit.
These biscuit are little nuggets of nutrition.
Each crisp soda cracker contains energy for thirty minutes more work.
Many business men eat them at ten in the morning. So do school children at recess.
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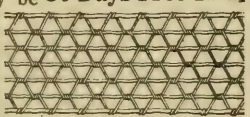
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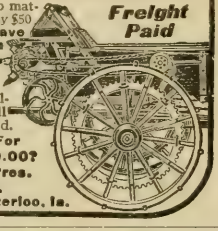
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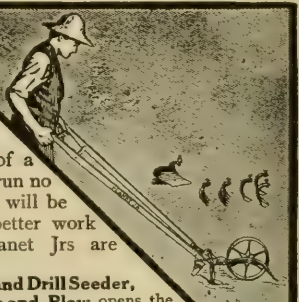
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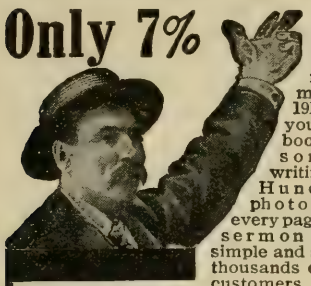
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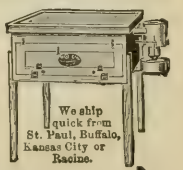
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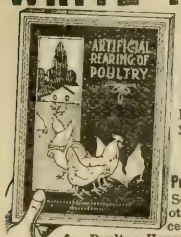
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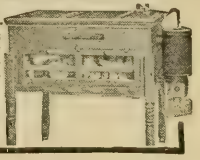
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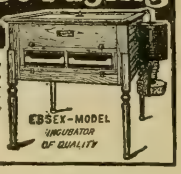
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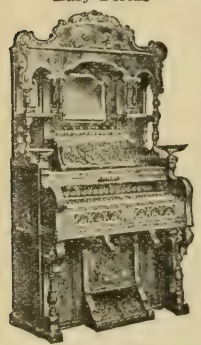
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Continued from page 27, last issue.

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239 The Corrosion of Fence Wire
241 Butter-Making on the Farm
242 An Example of Model Farming
243 Fungicides and Their Uses in Preventing Diseases of Fruits
244 Experiment Station Work—XXXIII
245 Renovation of Worn-out Soils
246 Saccharine Sorghum for Forage
248 The Lawn
249 Cereal Breakfast Foods
250 The Prevention of Stinking Smut of Wheat and Loose Smut of Oats
251 Experiment Station Work—XXXIV
252 Maple Sugar and Syrup
253 The Germination of Seed Corn
254 Cucumbers
255 The Home Vegetable Garden
256 Preparation of Vegetables for the Table
257 Soil Fertility
258 Texas or Tick Fever and Its Prevention
259 Experiment Station Work—XXXV
260 Seed of Red Clover and Its Impurities
262 Experiment Station Work—XXXVI
263 Information for Beginners in Irrigation
264 The Brown-tail Moth and How to Control It
266 Management of Soils to Conserve Moisture
267 Experiment Station Work—XXXVII
269 Industrial Alcohol: Uses and Statistics
270 Modern Conveniences for the Farm Home
271 Forage-Crop Practices in Western Oregon and Western Washington
272 A Successful Hog and Seed-Corn Farm
273 Experiment Station Work—XXXVIII
274 Flax Culture
275 The Gipsy Moth and How to Control It
276 Experiment Station Work—XXXIX
277 Alcohol and Gasoline in Farm Engines
278 Leguminous Crops for Green Manuring
279 A Method of Eradicating Johnson Grass
280 A Profitable Tenant Dairy Farm
281 Experiment Station Work—XL
282 Celery
283 Spraying for Apple Diseases and the Codling Moth in the Ozarks
284 Insect and Fungous Enemies of the Grape East of the Rocky Mountains
286 Comparative Value of Whole Cotton Seed and Cotton-seed Meal in Fertilizing Cotton
287 Poultry Management
288 Nonsaccharine Sorghums
289 Beans
290 The Cotton Bollworm
291 Evaporation of Apples
292 Cost of Filling Silos
293 Use of Fruit as Food
294 Farm Practice in Columbia Basin Uplands

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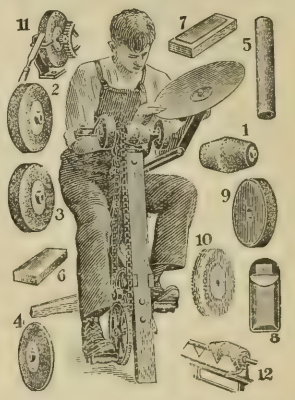
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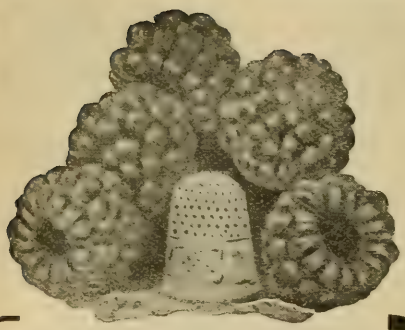
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Gentlemen: Please send me full details of the 10 days' Free Trial Offer and McClure's Story of Carborundum. It is distinctly understood that this request places me under no obligations.

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ST. REGIS
Everbearing

the 'early-till-late' raspberry

Awarded certificate of merit at the recent exhibition of The American Institute, New York City.

Combines all the good points of all the good red raspberries.

Earliest to ripen—keeps on bearing until late in October. Produces a good crop the first season; planted in April, bears in June.

And such raspberries! bigger, brighter crimson, and better flavored than any you have ever seen.

So firm and rich in sugar that they

will ship 200 miles in first-class condition

The first or main crop alone far exceeds any other red variety known—fully equal to the most prolific black-cap or purple-cap berries.

In addition St. Regis fruits on old canes in generous quantities till late in August, when the new canes of the current year start to yield increasing quantities of the finest fruit. Continues fruiting until ground freezes over hard—plenty of raspberries in October.

Hardy as an oak tree; canes endure severest cold uninjured; leaves never scald or sunburn.

The only raspberry that gives fruit the first year or the season it is planted.

Each, 25c; 5 for $1.00; dozen, $2.00; 50 for $8.00; 100 for $15.00. Special prices on large quantities.

Write for our new catalog which tells how to choose the sort of "small fruits that produce pleasure and profits." It's free.

J. T. Lovett

Box 132, Little Silver, N. J.



OLDS' SEED POTATOES

Have been on the market for 23 years, and have won a reputation for **purity, vitality** and **productiveness.** Our Mr. Olds has tested most all the new potatoes and introduced many himself. Is regarded as **"Authority on Potatoes."**

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A book of 88 pages, accurate and truthful, holds an equally high place. "I put more confidence in what Olds says than any other seedsman," writes one man.

Two new potatoes this year, a new barley the **"Sweepstakes of the World,"** a new wheat, two new oats, several new vegetables. **"The easiest catalogue to order from."** Mailed **FREE**

L. L. OLDS SEED COMPANY,
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10,000 SEEDS 10c.

We want you to try our Prize Seeds this year and have selected 50 best varieties and put up 10,000 seeds especially to grow Prize Vegetables and Flowers. They will produce more than $25. worth of Vegetables and 10 bushels of Flowers.

800	Seeds	Cabbage	3	Best Varieties	3	pkts.
2,600	"	Lettuce	4	" "	4	"
800	"	Onion	2	" "	2	"
1,000	"	Radish	4	" "	4	"
300	"	Tomato	3	" "	3	"
2,000	"	Turnip	4	" "	4	"
2,500	"	Flowers	30	Grand Flowering Varieties		

In all 10,000 Seeds, and our new Seed Book with a 10c Credit Check good for 10c selection, postpaid, 10c.
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Kellogg Plants

Will Yield $500 to $800 per Acre

THE Kellogg 1911 strawberry book is the most complete treatise on strawberry growing ever written. It tells the farmer how to grow big crops of big, red strawberries and how to sell them at big prices. No matter where you live or what kind of soil you have, this book will tell you how to prepare your soil, what varieties to set, and how to manage the plants to insure best results. One acre of Kellogg Thoroughbred plants grown the Kellogg way will yield $500 to $800. Get this beautifully illustrated 64-page book and learn how easy it is to grow strawberries for market or home use. It's free.

R. M. KELLOGG COMPANY, Box 400 Three Rivers, Mich.



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ONCE GROWN ALWAYS GROWN

is the reason why for many years past I have done such an enormous seed business. 79,430 customers in Pennsylvania alone, with almost half a million the world over. My New Seed Book for 1911 is a wonder; contains everything in seeds, bulbs and plants worth growing. Weighs 12 ounces; 600 illustrations, 4 colored plates, 176 pages. Any gardener sending his name on a postal card can have it for the asking. Address

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1707-09-11 Filbert St., Philadelphia, Pa.

Send 5 cents (stamps) and mention this paper and I will enclose in the catalogue a packet of seed of the above choice pansy.

TREES

800,000 Peaches, 5 to 7 ft., 9c: 4 to 5 ft., 8c; 3 to 4 ft., 6c; 2 to 3 ft., 4c: 2 to 3 ft. light, 3c. 200,000 Apples, 50,000 Pears, 100,000 Cherry, 50,000 Plum, 300,000 Carolina Poplar, and millions of Grape and Small Fruits. Secure varieties now; pay in spring. Catalog Free to everybody.

Sheerin's Wholesale Nurseries, Dansville, N. Y

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Nursery grown, suitable for all purposes. $4.00 and up per thousand. We have 50 millions. Our low prices will astonish you. Also Hardy Forest trees, Shade, Ornamental and Fruit trees, Shrubs, Vines, etc. Our beautiful Catalog is crowded with valuable information. This and 50 Great Bargain Sheet are Free. Send for them today.

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This Book is FREE to Fruit Growers



If you want to save money on your order for fruit trees, shrubs or vines this Spring, send for this valuable guide which we have prepared for your benefit. It contains bargain after bargain in high grade, first-class stock and tells how you can save the agent's commission by mailing your order direct to us. Write for the book now, before you forget it. Look at these special offers:

2 Bradshaw Plums	2 Longfield Apples
2 Lombard Plums	2 King Apples
2 Duchess Pears	2 Kieffer Pears

All are first-class X grade trees
12 trees for $1.31

2 Clematis Paniculata	1 Spirea VanHouttei
1 Dutchman's Pipe	12 Lily of the Valley
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96c Mail Prepaid

6 Assorted Paeonies, colors, red, white, purple, blush, yellow, pink, for $1.00 Prepaid.

We grow our own stock and guarantee it.

ALLEN L. WOOD, Woodlawn Nurseries
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The confidence felt by farmers and gardeners in Ferry's Seeds to-day would have been impossible to feel in any seeds two score of years ago. We have made a science of seed growing.

FERRY'S SEEDS

always do exactly what you expect of them. For sale everywhere. **FERRY'S 1911 SEED ANNUAL** Free on request.

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Hardy "Blizzard Belt" Giant Strawberry Plants FREE

Everybody likes fine strawberries, and to prove that our new GIANT variety is the largest and strongest grower, as well as the heaviest fruiter, we offer to send you TWO PLANTS (worth 30 cents) absolutely FREE. We have picked 12 quarts of fine berries from a test bed grown from but two GIANT plants set the year before. You can do as well, and at the same time raise young plants for a new bed. If you care to send 10 cents for mailing expense, we will add 6 BABY EVERGREENS 2 years old, and send all to you at proper planting time in the spring. It will pay you to get acquainted with our "HARDY BLIZZARD BELT" Trees and Plants. Write to-day and we will reserve the plants for you and send you our catalog by next mail. Address



THE GARDNER NURSERY CO., Box 319, Osage, Iowa

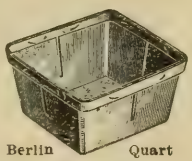
New Strawberries

Nearly 100 varieties to select from. We guarantee our plants to be high grade and equal to any. Our 18th annual catalog is ready; write for one

The Flansburgh & Potter Co.
Box 330, Leslie, Mich.

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A WHITE PACKAGE which insures highest prices for your fruit.



Write for our 1911 catalog showing our complete line, and secure your baskets and crates at winter discounts.

The Berlin Fruit-Box Company, Berlin Heights, O.

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For 1911

Tells all that is worth knowing about Vegetable, Flower and Farm Seeds, Plants, Berries, Fruit and Ornamental Trees. You need the Guide to make your garden or farm a success. A copy is ready for you. Send for it to-day. It is free.

JAMES VICK'S SONS, 213 Main St., Rochester, N. Y.

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Guaranteed as good as grow, at $1.00 per 1000 and up. . . Catalog free.

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Seeds, Plants, Roses,

Bulbs, Vines, Shrubs, etc. Hundreds of car lots of **FRUIT and ORNAMENTAL TREES.** 1,200 acres, 50 in hardy **Roses,** none better grown. 44 greenhouses of **Palms, Ferns, Ficus, Geraniums** and other things too numerous to mention. **Seeds, Plants, Bulbs, Roses, Small Trees,** etc., by mail, postpaid. Safe arrival and satisfaction guaranteed. Immense stock of **SUPERB CANNAS,** the queen of bedding plants. Acres of **Pæonias** and other **Perennials.** 50 choice collections cheap in Seeds, Plants, Roses, etc. Elegant 168-page Catalog **FREE.** Send for it today and see what values we give for your money. Direct deal will secure you the best at first cost. 57 years. (10)

The Storrs & Harrison Co., Box 114, Painesville, O.

10 Strong, Hardy, Two-year-old Grapevines $1.00 Postpaid.

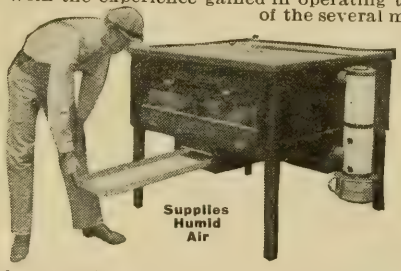
Best varieties—red, white, black. Just the kind for planting around the house, along fences, or in the garden. We also offer 5 three-year-old vines for $1. Will bear year after planting. Our valuable book, how to plant and prune, free with every order. Grapes are easily grown. Mention this paper and we'll add free one new, large, red currant. **T. S. HUBBARD CO. Grapevine Specialists.**
355 Central Ave., Fredonia, N. Y. Established 44 years.

450,000 TREES

200 varieties. Also **Grapes, Small Fruits, etc.** Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Catalog free. **LEWIS ROESCH & SON,** Box A, **Fredonia, N. Y.**

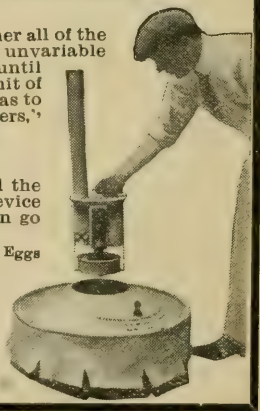
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With the experience gained in operating the Largest Poultry Plant in the World, our knowledge of the several makes of incubators is greater than the manufacturers'. For the sake of economy WE built an incubator giving *results never secured by any other make*, and we now offer it to the public. The



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is responsible for *our great* success, and will give to the struggling beginner all of the profits and none of the losses. Absolutely automatic in every function, unvariable temperature, certain moisture from the moment of starting the hatch until nature requires a cessation in order to properly dry the newly-hatched unit of future profit—so thoroughly safe-guarding its entrance into poultrydom as to guarantee its livability when raised under the very acme of "Foster Mothers,"



THE INTERNATIONAL SANITARY HOVERS

This Hover makes possible the rearing of the maximum of chicks and the minimum of deaths—90 to 95% live and thrive and grow. It is the only device that contains the *active principle of the hen*, and the ingenuity of man can go no further.

Our best efforts are centered in the production of Day-Old-Chicks and Hatching Eggs from matured stock. No pullets' eggs are used except for table purposes.

We have just completed our 1911 catalog on incubators and hovers, also our stock catalog on **Rancocas Strain BABY CHICKS and HATCHING EGGS.** You are welcome to either or both of these catalogs.

Send to-day.

INTERNATIONAL POULTRY SALES COMPANY
Home Office, Box 310 Brown's Mills-in-the-Pines, N. J.
Branch, 21 Barclay Street, New York City



TEST AN IMPERIAL 30 DAYS IN YOUR OWN HOME-AT OUR RISK

Has **EXCLUSIVE FEATURES** not on any other range such as:
Odor Hood—Carries all steam and odors from cooking to chimney.
Ash Sifter—Permits sifting ashes right in range. No dust.
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This is the **Old Dutch Oven** brought back to life, and restored in our **Perfect Imperial. Direct from factory to you at Wholesale Price.**
Easy credit terms if wanted. Freight Prepaid. 365 Days Guarantee.
Write to-day for **Free** Catalog and Special Prices.

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$50 TO $300 SAVED

We are manufacturers, not merchants. Save dealers, jobbers and catalog house profit. I'll save you from $50 to $300 on my High Grade Standard Gasoline Engines from 1¾ to 28-h-p. –Price direct to you lower than dealers or jobbers have to pay for similar engines in carload lots for spot cash.

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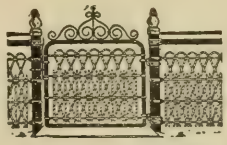
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You Can Make From $5 to $10 a Day

Direct From My Factory on 30 Days' Free Trial. Satisfaction or money back. Write for special proposition. All you pay me is for raw material, labor and one small profit. Send for my big **BOOK FREE.**

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LAWN FENCE

Many Styles. Sold on trial at wholesale prices. **Save 20 to 30 per cent.** Illustrated Catalogue free. Write today.

KITSELMAN BROS.
Box 403 **Muncie, Indiana.**

PRATT'S

"SCALECIDE"

Will positively destroy SAN JOSE SCALE and all soft bodied sucking insects without injury to the tree. Simple, more effective and cheaper than Lime Sulphur. Not an experiment. **One gallon makes 16 to 20 gallons spray by simply adding water.** Send for Booklet, "Orchard Insurance."

B. G. PRATT CO., 50 CHURCH ST., NEW YORK CITY.



THE "BEST" LIGHT

Gives 500 candle power. Casts no shadow. Costs 2 cents per week. Makes and burns its own gas. Over 200 styles. Every lamp warranted. No dirt. No odor. No grease. Agents wanted. Write for catalog, now.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

Grapevines . . . .

We are the largest growers of grapevines in the Middle West. Our stock is grown on Michigan soil. Strong, vigorous, and well graded. All kinds of fruit trees and plants. Send for descriptive catalog.

Grand Mere Nursery, Baroda, Mich.

I Will Tell You How to Make Your Hens Lay All Winter

Get into the 150 to 250 eggs a year a hen class. Make your hens winter layers when prices are high. You can do it the Humphrey Way. Send for book, "The Golden Egg" and Egg-making facts on the Humphrey Bone Cutter and other Humphrey Poultry Helps.

HUMPHREY, Mine St. Factory, Joliet, Ill.



Do Your Own Printing

Cards, circulars, book, newspaper Press, $5 Larger, $18; Rotary, $60. Save money. Big profit printing for others. All easy; rules sent. Write factory for press catalog, TYPE, cards, paper.

THE PRESS CO., Meriden, Conn.



SPRAY with the Empire King.

He who attempts to grow fruits without a Sprayer is handicapped. Blight and bugs, rot and rust, mold and mildew, all conspire to damage the crop, and in all cases succeed if the farmer does not spray. This is the only hand pump having automatic agitator and brush for cleaning strainer. Valuable book of instruction free **FIELD FORCE PUMP CO., 881 11TH ST., ELMIRA, N. Y.**





BEE CULTURE AND FRUIT-GROWING

are profitable industries and make a happy combination. Read The Southern Fruit Grower. In order to introduce the Southern Fruit Grower into the homes of every reader of Gleanings, we will send it eight months for 30 cents, and include one of our Dry Hill Beauty Grapevines, free, described as follows: Red; bunches and berries of good size; ripen the middle of August; not subject to rot. Something new on the market. The Southern Fruit Grower contains from 32 to 40 pages each month, devoted to fruit-growing, poultry-raising nut-growing, gardening, etc. Send in your order to-day, and you will get double your money's worth from first number received. Address **THE SOUTHERN FRUIT GROWER, Dept. B. C., Chattanooga, Tenn.**

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

Alfalfa sweet-clover honey, 10,200 lbs., 7 cents per lb. Sample, 2 cts. T. H. WAALE, Nampa, Ida.

FOR SALE.—Choice clover honey, in 60-lb. tin cans. There is none better; 9½ cts. per lb.
J. F. MOORE, Tiffin, Ohio.

FOR SALE.—Choice light-amber extracted honey—thick, well-ripened, delicious flavor. Price 9 cents per lb. in new 60-lb. cans.
J. P. MOORE, Morgan, Ky.

The attention of the reader is called to the advertisement of honey, found under head of Special Notices. Those looking for honey should give it a careful reading.

FOR SALE.—3000 lbs. of fine buckwheat honey in cans holding 57½ lbs. net, two in a case, at 7½ cents per lb. Satisfaction guaranteed to all buyers.
EARL RUFFISON, Route 1, Amsterdam, N. Y.

FOR SALE.—White and water-white alfalfa honey, in 60-lb. cans. Strictly first-class. Ten-can lots, 9 cts. per lb. Sample, 5 cts.
DADANT & SONS, Hamilton, Ill.

Raspberry and clover honey, finest quality and flavor, put up in 60-lb. cans at 10 cts. per lb. Light-amber honey, heavy body and good flavor, in barrels of 550 lbs., at 7½ cts. Sample, 10 cts.
LONGFELLOW BROTHERS, Hallowell, Maine.

Wants and Exchanges

WANTED.—To buy bees in shipping distance of my place. Must be free from disease, and cheap.
E. L. LANE, Trumansburg, N. Y.

WANTED.—Choice extracted white and amber honey in barrels or cans. Send sample, and price delivered on cars at Preston or at your station.
M. V. FACEY, Preston, Minn.

For Sale

A. I. Root bee-supplies. Send for catalog and save freight. JOHN L. SWAN, Union City, Mich.

FOR SALE.—One-man folding sawing-machine, as good as new. D. COOLEY, Kendall, Mich.

FOR SALE.—Quantity of ten-frame hives.
E. EWELL, 704 Elm St., Waseca, Minn.

FOR SALE.—A $30.00 comb-foundation mill, medium brood; rolls 2½ x 10, round cell, as good as new. Price $15.00. H. F. HAGEN, Reno, Nev.

FOR SALE.—New crop of alfalfa seed; 4 lbs. by mail, prepaid, $1.10; 25 lbs. by freight or express, at 17 cts.; 50 lbs. at 16 cts.; 100 lbs., $15.00.
R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successors to W. P. Smith.) Penn, Miss.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 199 S. Water St., Chicago.

Real Estate

FOR SALE.—A very desirable home and orange-grove on the famous Indian River, in Florida. For particulars address—
A. I. ROGERS, Georgiana, Fla.

FOR SALE.—My bee business, 3 acres of land, seven-room house; honey-house, barn, and 250 colonies of bees; good location; have produced 35,000 lbs. of honey in one year. Cheap; favorable terms.
D. N. KING, Hazleton, Ia.

FOR SALE.—Farm of about 170 acres near Medina, O., on stone road; railroad spur for loading hay and grain alongside farm; large double house; large bank barn, basement 48 x 65; water in every stall; two windmills; plenty of fruit; well tiled and seeded; no waste land. W. E. BOWMAN, Medina, O.

California—opportunity for a bee-keeper; 40 acres of good land near Etiwanda at $25.00 per acre; will give purchaser about 100 colonies of bees in modern hives, with tools, extras, and two cabins; enough extra hives to make about 300 colonies. Will submit views if interested. Apiary, with cabins, worth at least $600. Genuine bargain to first comer.
M. R. KUEHNE, 1116 West 2d St., Pomona, Cal.

Bees and Queens

FOR SALE.—Golden-all-over queens, and bee-keepers' supplies. T. L. MCMURRAY, Silverton, W. Va.

Queens, 5 and 6 band goldens, 3-band Italians. Send for circular and price list. GEO. M. STEELE,
30 South Fortieth St., Philadelphia, Pa.

Missouri-bred Italian queens; none better; prices right; write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

FOR SALE.—500 colonies of bees in eight-frame hives. A. J. MCCARTY,
712 Coffman St., Longmont, Col.

FOR SALE.—Golden's queens that will produce from 50 to 100 per cent five-banded bees. Address
J. B. BROCKWELL, Bradley's Store, Va.

Golden and red-clover Italian queens; superior stock. Write for prices. WM. A. SHUFF,
Rt. 3, Newtown Square, Delaware Co., Pa.

Queens of the celebrated Highland Farm strain of hardy northern-bred three-band Italians: line bred for honey-gathering qualities. Send for circular.
J. E. HAND, Birmingham, O.

We have several hundred colonies of bees to lease to responsible parties. Give references, age, experience, and financial standing, in first letter. For terms address
DR. G. D. MITCHELL & Co., Ogden, Utah.

FOR CALIFORNIA.—Colony of Italian bees in L. size hive, ten-frame, built on full brood-frames, wired body and shallow super, redwood, dovetailed, three coats white sheeted lids each, neat and modern, any time.
JOS. WALLRATH, Antioch, Cal.

A good chance for anybody who likes to raise queens for sale. I have a good trade established. I sold $1000 worth of queens in 1910, not counting the honey. I have 400 stands of fine Italian bees in 8 and 10 frame Dovetail hives at $3.50 on stand, or 35 cts. extra to express them all with fine tested queens. Must sell at once, as I shall move away the 1st of March. J. L. FAJEN, Alma, Mo.

Position Wanted

WANTED.—Position as manager of a large apiary to be run for queens, bees by the pound, nuclei, full colonies, and for honey production; said apiary to be located in Central Ohio, in a most excellent location, with best shipping facilities, of five railroads, three express companies, and traction service. The applicant is strictly temperate, 40 years of age, married, and is a thoroughly seasoned apiarist; can rear queen-bees by any known method, and is familiar with every detail of the queen business as well as the production of comb and extracted honey; also familiar with the diseases of the bee and their treatment.

I have had full experience in the preparation of bees and queens for shipment to all parts of the globe. The applicant will furnish apiary site, and construct all necessary apiary buildings at his own expense, and will contract for two to five years' service. The very best of reference will be gladly furnished. Address box 473, Marion, Ohio.

WANTED.—A young man of 18, with good habits, wants a position with an experienced apiarist; four years among the bees. J. ALLEN SMITH,
Box 51, Chattanooga, Tenn.

WANTED.—1911 position, east or south, with extensive honey-producer or queen-breeder. Age 22; six years of experimental work. State wages and board in first letter. Best of references.
ROBERT R. WARD, Urbana, Ohio.

Help Wanted

WANTED.—Young man to work with bees and poultry, season of 1911. Must have had some experience in handling bees. Address
E. L. LANE, Trumansburg, N. Y.

WANTED.—Application from an able-bodied and intelligent young man who is a total abstainer and is willing to work for his board and plain washing, and something more—if he and I do well, he getting the benefit of thirty years' experience in bee-keeping. Address R. F. HOLTERMANN,
Brantford, Canada.

Poultry

FOR SALE.—Duston White Wyandottes, $2.00; 15 eggs, $1; $5 per 100. ELMER GIMLIN, Taylorville, Ill.

Day-old chicks? Seven breeds hatched. Circular free. D. Y. TAYLOR, Lyons, N. Y.

Indian Runner ducks. Trio, $8.00; eggs, 14 for $2.00. FISH RIVER POULTRY YARDS,
Magnolia Springs, Ala.

Indian Runner ducks from imported stock, fawn and white; very easy to raise and easy to keep. They are beauties too—lay eggs all the year; lay heaviest in winter. Eggs, $1.50 per 13; $7.00 per 100. Let me start you to success.
C. O. YOST, Rt. 4, Winchester, Ind.

YOU'LL HAVE TO HURRY if you want some of the special bargains I am offering in cockerels, pullets, and properly mated pens of S. C. Reds. If you want quality for little money, send me your order. If I don't please, we trade back. Refer by permission to L. W. Boyden, of The A. I. Root Co., who purchased birds of me. R. I. Red eggs for hatching, $3.00 per setting; $5.00 for two settings. Prize-winning Regal strain White Wyandottes, eggs same price. W. J. LANPHEAR (Mem. R. I. Red Club),
Route 3, Medina, O.

Single-comb Brown Leghorns. Champions of the entire West. Right size, color, and shape; 22 years' record sent free.
C. F. LANG, Box G, La Crosse, Wis.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St. Joseph, Mo.

S. C. R. I. Reds, large and beautiful, rich in color, and rich egg-layers; the winning strain. Eggs from exhibition pens, $2.00 per 15; $10.00 per 100. Eggs from standard pens, $1.00 per 15; $5.00 per 100. I can please you, sure.
C. O. YOST, Rt. 4, Winchester, Ind.

Miscellaneous

Free for stamp—Breeding a Better Bee.
LEE KERR, Germania, Ark.

American Hen Magazine, Council Bluffs, Iowa. Subscribe now—25 cts. a year. Descriptive circular free.

FOR SALE.—A 4 x 5 Wizard Cycle Co. Jr. folding camera and outfit. Cost $30.00 new; $18.00 takes it; excellent condition. J. F. ARCHDEKIN,
Route 7, St. Joseph, Mo.

Post cards—beautiful colored embossed birthday, valentine, Lincoln and Washington birthday, St. Patrick's day, Easter, United States, or foreign views. Landscapes.
HAHN, 254 West 15th St., New York.

WANTED.—Railway mail clerks; city carriers; postoffice; customs; internal-revenue employees. Avg. salary about $1100. Send for a schedule showing places of coming examinations. Free coaching. FRANKLIN INSTITUTE, Dep't F, 124, Rochester, N. Y.

Automobilists, attention! Fur-lined coat, never worn; lined throughout with the best Australian mink; elegant Persian-lamb collar; cost $175; will sell for $35.00; also pair of cinnamon-bear robes, $30.00; cost $120. Write W. SCOTT,
121 East 27th St., New York.

Bee-keepers' Directory

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York City.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Farwell, Mich.

Italian queens from direct imported mothers, red-clover strain. After June 1, $1.00. Circular.
A. W. YATES, 3 Chapman St., Hartford, Ct.

Improved golden-yellow Italian queens for 1911. Beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in '08-'09 without a single loss. For prices get circular. QUIRIN-THE-QUEEN-BREEDER,
Bellevue, Ohio.

Convention Notices.

The South Dakota bee keepers will hold their annual State convention at Sioux Falls, S. D., Jan. 27.
L. A. SYVERAUD, Sec., Canton, S. D.

The annual meeting of the Oklahoma Bee-keepers' Association will be held in connection with the "Farmers' Short Course" at the A. and M. College, Stillwater, Jan. 19, 1911. All members of the association should make a special effort to attend: for besides the regular program, which will be given in the college chapel, a business meeting will be held, some new officers elected, and a bee-disease law drafted. Every one in the State, interested in bee-keeping, is invited to attend.
Stillwater, Okla. F. W. VANDEMARK, Sec.

The Wisconsin State Bee-keepers' Association will hold its next convention Feb. 23, 24, in Madison. Ten dollars in cash prizes given for three best-written papers of practical value to Wisconsin bee-keepers. Prizes, $5.00, $3.00, $2.00, each writer to choose his topic. The State Inspector will exhibit a steam-heated uncapping-knife that, for 2 cts. a day, did the work of two men; also a self-measuring honey-faucet that weighs any amount without running the can over; also a practical double brush that, in single stroke, brushes all the bees from a comb. An easily made device that will attach to any beam scale and tell when the amount wanted is on scales. Premiums at fairs—how to win. Sales of honey, fall of 1911. Prominent bee-keepers from abroad will attend.
GUS DITTMER, Sec., Augusta, Wis.

The Ohio State Bee-keepers' Association will hold its annual convention Feb. 16 and 17, at Cincinnati. All bee-keepers of the State are invited to attend, to make this meeting (the second of its kind) a grand success. Headquarters will be at Grand Hotel, halls Nos. 1 and 2. Ohio bee-keepers wishing to read papers on bee culture are urged to do so. Now is the time for bee-men to get together and make their influence felt through the General Assembly of the State. We have a few local bee-keepers' associations throughout the State; but single-handed they can not accomplish much. Last year the Ohio State Bee-keepers' Association, through the General Assembly, passed a new foul-brood law—the best one, experts say, in the country. It is a model which bee-keepers of other States are putting up to their legislators. The program will be announced later. HENRY REDDERT, Secretary.
J. H. MOORE, Pres.

The annual convention of the Colorado State Bee-keepers' Association will be held in Denver, Jan. 20—21, at the Albany Hotel Convention Hall. This date is during the week of the live-stock show, when one-fare rates will apply on all railroads of the state. The live-stock show will be well worth attending, and also the poultry show the same week. So we want to see a big attendance at the convention. Come and spend several days and help make the convention a memorable one, such as we have had in the past.

Prof. Gillette, of the Colorado Agricultural College, will give us an illustrated talk on "Some Interesting Facts Concerning Bees" the evening of the 20th, and Mr. Collins will also have some pictures to show the same evening. Saturday morning Prof. Cockerel, of the University of Colorado at Boulder, will give us a talk on "The Evolution of the Bee." Prof. Cockerell is probably the best authority on the wild bees of any man in the United States. He has shown the writer the fossil of a wild bee that gathered pollen and visited our wild flowers away back in prehistoric ages. Prof. Cockerell will tell us how the bee developed its pollen-baskets, wax-secreting organs, and many other wonderful things; and along with her development went the development of the flowers. Wouldn't you like to know how much influence the bee has had in the development of our flowers and plants? Perhaps Prof. Cockerell can tell us something of this.

Hermann Rauchfuss will tell us how he raises the best of queens for a very little money, and Oliver Foster will give us some of his actual experience in wintering bees and the lessons he has learned from it.

Mr. Frank Rauchfuss will make a plea for uniform shipping-cases and some invaluable advice on local shipments of comb honey.

There will be a symposium on bee diseases, and a definite work outlined for the association to carry forward in combating bee diseases and furthering the bee interests of the State throughout the whole year.

We have the free use of the Convention Hall of the Albany Hotel, which is the most centrally located convention hall in Denver, and the Albany will be the convention headquarters.

The programs will be out shortly, and all the bee-keepers whose names we can secure will be mailed a copy. We are sure to have a fine gathering, as this slight suggestion of a program will show. We are to have music when the weight of practical discussion weighs too heavily on the mind. Come, and bring your wife and children; we will make you feel the warmth of the bee-keepers' fellowship.
WESLEY C. FOSTER, Boulder, Colo.,
Acting Secretary.

Special Notices

By OUR BUSINESS MANAGER

SWEET-CLOVER SEED.

We call attention to an advertisement in another column on sweet-clover seed, of which we have a good supply. To improve your honey crops as well as the land, encourage the use of this clover. We have a good supply of booklets which we shall be pleased to mail to those interested.

COMB AND EXTRACTED HONEY.

During December we received large shipments of comb honey; and in several lots there were included some fine amber grades. Most of this is white honey with yellow or dark cappings, which causes it to be classed as amber. If you are short and can not supply your trade, why not order a few cases of this honey? The prices are right, and we can deliver it to you in first-class condition.

Do not forget that we have quantities of Fancy, No. 1, and No. 2 white comb; also extracted in any grade of package or price you want. What are your requirements? We can fill them.

Our December inventory shows that we have several lots of light, medium, and dark amber extracted honey, in five-gallon cans, containing about sixty pounds, net. We want to make room for other honey, so we offer it at prices ranging from 7½ to 8½ cts. per pound. We know we can suit you on color, quality, and price. Ask for free samples.

THE HAND DOUBLE SWITCH-BOTTOM.

The articles which have appeared recently by Mr. J. E. Hand, describing a new system of swarm control by means of a specially constructed bottom-board holding two hives side by side, have aroused a lively interest, and brought numerous inquiries for a price at which the bottoms can be supplied. We understand Mr. Hand has applied for a patent on the article, and desires to have us furnish it. This we have arranged to do at the following prices. In ordering it will be necessary for you to specify whether you want them for eight-frame or ten-frame hives; and if your hives are not of the regular size, single-walled, we may have to make what you want special. If so, the price will depend on the size and the number wanted. The first few we have made are not provided with legs; but on the advice of Mr. Hand they will be furnished with legs similar to the double hive-stand we listed the past season, page 14 of catalog. If any prefer the hives lower down, the legs may be cut shorter or omitted entirely.

Hand double-bottom, /10, nailed and painted, $1.50; in flat, $1.25; 5 for $6.00. Hand double-bottom /8, nailed and painted, $1.50; in flat, $1.20; 5 for $6.00. Legs will be loose on nailed and painted bottom, for convenience in shipping. If omitted, 10 cents may be deducted from price of each bottom.

The book Mr. Hand is preparing, describing his new methods, is not yet ready, and is not likely to be for several weeks. It will probably sell for 50 cts., though we are not prepared as yet to make a definite announcement on this.

CATALOG FOR 1911.

We have begun mailing our catalog for 1911. We are late in completing it, as usual, and it will be a number of weeks before we can produce enough to mail on our list of names and supply our dealers for their use. If you can not wait your turn, send us request on a postal and we will mail you one. There are very few changes from last year's catalog: Some new introductory matter of value to beginners; a new loose-bottom double-walled hive; a change in shipping-cases back to the nailed cover; a new capping-box and steam-heated uncapping-knife. In changed prices we call attention to the following: Comb foundation, 1 ct. per lb. higher; bee-hive paint, 40 cts. a gallon higher. A special charge of 50 cts. for any lot of odd-size foundation. Easterday wire-imbedder is advanced to 25 cts., and the wide putty-knife scraper is reduced to 15 cts.: some slight changes in price of bees and queens; some advance in the price of glass for shipping-cases and hot-bed sash. The variety of shipping-cases has been reduced by omitting the two-row cases. These may still be had, by those who prefer them, while stocks hold out, at regular price.

SECOND-HAND FOUNDATION-MILLS.

We have on hand, and offer for sale, the following list of second-hand foundation-machines. If you desire further particulars in regard to any mill in the list we can mail samples of the work it will do.

No. 079, 2½x6 thin-super mill in extra good condition. Price $12.00.

No. 0114, 2½x6 thin-super mill in good condition. Price $11.00.

No. 0115, 2½x6 thin-super mill in good condition. Price $11.00.

No. 0117, 2x10 round-cell medium-brood mill in good condition. Price $14.00.

No. 2972, 2x10 round-cell medium-brood mill, practically new. Price $18.00.

No. 0121, 2¼x12-inch heavy hex. brood-mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price $8.00.

No. 0126, 2½ x 10 hexagonal light-brood mill in good condition. Price $15.00.

No. 0127, 2½ x 10 hexagonal medium-brood mill in good condition. Price $15.00.

No. 0128, 2½ x 10 hexagonal light-brood mill in extra-good condition. Price $17.00.

No. 0129, 2 x 10 round-cell medium-brood mill, old-style frame, in good condition. Price $14.00.

No. 0131, 2½ x 10 hexagonal medium-brood mill in extra-good condition. Price $17.00.

No. 0132, 2 x 10 round-cell Pelham mill. This is nearly new, but it does not make a natural-shaped cell. Price $9.00.

No. 0133, 2 x 10 round-cell medium-brood Dunham mill in poor condition. Price $8.00.

No. 0135, 2 x 10 round-cell medium-brood mill in old-style frame, fair condition. Price $12.00.

No. 0136, 2 x 10 round-cell medium-brood mill, old style, poor condition. Price $10.00.

The automobile described on page 55 is the *Sears*, made by Sears, Roebuck & Co., Chicago, Ill.

SAVE MONEY ON YEARLY SUBSCRIPTIONS

Profitable Poultry, monthly.....$ .50
Gleanings in Bee Culture, semi-monthly..... 1 00
Prairie Farmer, semi-monthly..... .35
Our price, $1.20 Regular price $1.85

Profitable Poultry, monthly.....$ .50
Wisconsin Farmer, weekly..... 1.00
Fruitman and Gardener, monthly..... .50
Our price, $1.20 Regular price.....$2.00

Profitable Poultry, monthly.....$ .50
Breeders' Gazette, weekly..... 2.00
Household, monthly..... .25
Our price, $2.00 Regular price $2.75

Toledo Blade, weekly $1.00
People's Popular Monthly..... .25
Farm and Home, semi-monthly..... .50
Our price, $1.00 Regular price $1.75

We make low prices on any publication you want. Ask for prices. Address all orders to

PROFITABLE POULTRY, MILTON, WIS.

TO THE BEE-KEEPERS OF THE SOUTH.

I beg to advise that I have purchased the bee-supply business heretofore conducted by Howkins & Rush, and later by J. S. Howkins, of Savannah, and ask a continuance of your valued patronage.

I will carry an up-to-date stock, and will take pleasure in looking after your orders in a business-like manner.

Kindly write your order plainly to avoid confusion, and give name of railroad on which you want you want your goods forwarded.

"Root's goods only."

Hoping to be favored with your patronage I am

Yours truly,

L. W. CROVATT,
Box 134. Successor to J. S. Howkins.

SWEET - CLOVER SEED.

Sweet clover is one of the chief sources of honey in Utah, Idaho, and other regions of the West, as well as in many localities in the South and other sections of the country. In recent years farmers are also learning of its great value in enriching the soil by the introduction of nitrogen. We recently printed a booklet of about 50 pages entitled "The Truth about Sweet Clover." This contains the experience of a great many who have grown it to a greater or less extent. We shall be pleased to mail this booklet to those interested, free, on request. We have a good stock of choice fresh seed which we offer at the following prices. As to the comparative value of the different varieties, we will say that the white, or *Melilotus alba*, is most common, and therefore the best known. The yellow is desirable because it begins blooming usually from two to four weeks earlier than the white. As to the two varieties of yellow, one of the experiment stations has said there was a distinction without a difference. From the testimony available, the annual, or *Melilotus Indica*, blooms first; and in California, where our seed was procured, it is reported as growing from two to six feet high, depending on the character of soil, moisture, and other conditions.

	In lots of— 1 lb.	10 lbs.	25 lbs.	100 lbs.
Hulled Yellow Annual (*Melilotus Indica*), per lb	17c	15c	14c	13c
Hulled Yellow Biennial (*Melilotus Officinalis*),	20c	18c	17c	16c
Hulled White.....	25c	22c	21c	20c
Unhulled White (*Melilotus alba*) per lb.....	14c	12c	11c	10c

The prices are all subject to market changes.

THE A. I. ROOT COMPANY, MEDINA, O.



KING EDWARD

and 40 other good varieties of Strawberries—the kinds for big profits.

500,000 Choice RASPBERRY PLANTS

Black, Red, Yellow and Purple varieties.

BLACKBERRY PLANTS by the Million

The most complete stock in the United States. Our Blackberries are of the fruiting strains, and are sure money-makers. We offer special inducements in Currents, Gooseberries, Grapes, Fruit and ornamental trees.

We sold over 11,000 bushels of Seed Corn last spring, and have a bumper crop again for sale. It is the kind that fills your cribs.

Send for our free catalog, fully describing the products of our 1,000 acre farm.

You simply cannot afford to miss this. Send today.

W. N. Scarff, New Carlisle, O.

Is your crop of white-clover honey short?

We can furnish you

ALFALFA HONEY

Both white and water-white—finest quality. Prices quoted by return mail and shipments made promptly. . . . . Beeswax wanted for cash or in exchange for bee-supplies.

Beeswax worked for you into

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Best by test. Let us send you the proof.

Early-order discounts now offered for cash. Satisfaction always guaranteed.

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Big Apples are Selling at 10 Cents Each . . . .



There is money in fruit-growing right where you are. Apples are worth twice as much as oranges. If you can not raise apples, there are are other fruits equally profitable.

Start an orchard. Those who planted orchards as advised by Green's Fruit Grower are getting their reward in big profits. You can pay for the orchard by growing small fruit in it.

Green's Fruit Grower

will tell you how and where to plant, how to prune and spray, and how to make your trees productive.

It is the oldest and most popular fruit grower's magazine. January is our 30th ANNIVERSARY NUMBER. We will start your subscription with that number.

Special offer to readers of GLEANINGS IN BEE CULTURE. We will mail new subscribers Green's Fruit Grower one year on trial for 25 cents.

GREEN'S FRUIT GROWER CO.

Box G, Rochester, N. Y.

The

Coward Shoe

No More Foot Aches

will trouble persons obliged to walk or stand a great deal, when they wear the COWARD ARCH PROP SHOE. The extension heel and the bridge of support for the arch, built into the shoe hold the instep up naturally, give a springy tread, and prevent and remedy falling arch or "flat-foot."

All sizes for Men, Women, and Children. Reasonable in price, satisfactory in wear.

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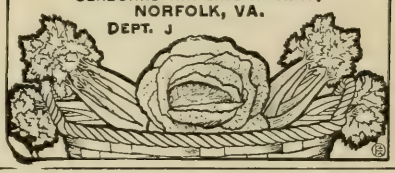
but prices are advancing—thousands of new settlers are taking advantage of the exceptional opportunities. Ideal, healthy climate, year round—plenty of high-class labor—abundant supply of pure water.

MAKE YOUR PLANS TO-DAY

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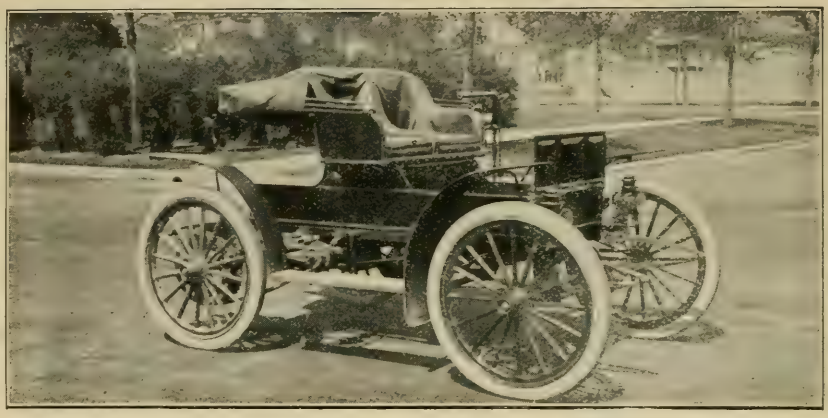
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MR. A. I. ROOT IS NOW USING THIS AUTOMOBILE IN FLORIDA



Sears Model "L," No. 21W777, Price **$475.00**

READ ON ANOTHER PAGE HIS STORY OF THE SERVICE IT GIVES

As a nestor of the bee culture industry Mr. A. I. Root is known to thousands who will read his letter with interest. At seventy-one years of age he is getting a boy's fun out of his Sears automobile and lengthening his years by saving many hours in travel.

Mr. Root's car is a Model "L," No. 21W777, price $475.00. There are seven other models in the Sears line, ranging from $325.00 to $485.00. Don't fail to send for our Automobile Catalog.

SEARS SPECIFICATIONS, MODEL "L"

Two-cylinder, 14-horse power motor, air cooled; weight, 1,000 pounds; chassis, 2x1½x3-16-inch pressed angle steel; heavy corner plates and cross frame, thoroughly riveted; speed, 25 miles an hour; suspension, four-point; 36-inch elliptic oil tempered springs; 34-inch wheels; 34x3-inch double tube detachable clincher pneumatic tires; 72-inch wheel base; 13-inch clearance; three-bow skeleton top with detachable side curtains and storm front; leather upholstered seats. Equipment includes three lamps, floor carpet, 1 gallon of lubricating oil, horn, and Sears tool kit.

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Gleanings in Bee Culture

VOL. XXXIX FEBRUARY 1, 1911 NO. 3

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Stray Straws
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A Winter Nest Better than Solid Combs of Honey — J. I. BEAUHRE
A Record of Non-swarming Stock — E. S. MILES
The Demand for Comb Honey in Cartons Increasing — H. R. WRIGHT
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The Hand System of Controlling Bees — J. E. HAND
Bee Demonstration an Attraction at Street Fair — M. E. BOND
Report of Minnesota State Convention — C. A. PALMER

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1911 SUPPLIES AND STOCK

Abundant room in this branch enables us to carry a very large stock which represents practically every article in the big Root line. All goods listed in former price lists, and still on sale, are here, together with the new and improved lines shown in this 100th, edition of our catalog. Carload lots of fresh supplies continually come from our factory to keep our stock complete. No delay in filling even the largest orders at Chicago, is our policy.

SHIPPING FACILITIES.

With 25 great railroads and 7 express companies ready to distribute our goods in all directions; freight close at hand, with every facility for quick packing and delivery at railroad, express office, or boat, we await your call. Immediate attention is our invariable rule. and we augment our facilities in the busy season with extra employees so that shipments may be quickly cleared on all occasions.

PACKING.

We do not charge for packing boxing, or delivering to freight or express offices here in Chicago. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B., Chicago. If no, agent at your station notify us and we will prepay, and bill charges after shipment. Often during the busy s ason much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what charges will be from Chicago.

We Aim to Get All Mail and Express Orders Off the Same Day They are Received. Freight Orders are Filled in Order of receipt. No Order is too Small or Large for Our Personal Attention

OUR LOCATION.—We are pleasantly located at 213-231 Institute Pl., one block north of Chicago Ave., on the 6th floor of the Jeffrey Bldg. Fine elevator service—both passenger and freight. Large, light, well-fitted display rooms, with complete line of supplies, booklets, etc., always on exhibition. You and your friends are always welcome.

HOW TO REACH US.—Telephone, telegraph, write, or call. Take any Northwestern Elevated train; get off at Chicago Ave.; walk one block north on Franklin St. and half block east on Institute Pl., or take any car running north of 5th Ave. and Wells St.; get off at Institute Pl., and walk half a block west to Jeffrey Bldg.

OUR MANAGER at the Chicago branch is an experienced bee-keeper who thoroughly understands the requirements of those engaged in this business, either for profit or pleasure. He has been identified with the **Root Line** for some twenty years, and has both the knowledge and desire to make his services of value to whoever seek his assistance.

THE A. I. ROOT COMPANY,

213-231 Institute Place, Chicago, Illinois.

R. W. BOYDEN, Mgr. :-: **Tel. 1484 North.**

1911 Catalog

Have You a Copy of the

"Falcon" RED CATALOG?

The catalog which can easily be found when you are ready to order.

Western Bee-keepers!

Has your name been sent to one of our new Western houses? If not, do it to-day.

C. C. Clemons Bee Supply Co.
128-130 Grand Avenue
Kansas City, Mo.
The center of Western railroad traffic—low freights—quick shipments.

Branch W. T. Falconer Manufacturing Co.
George W. York, Office Manager
117 North Jefferson St.
Chicago, Ill.
The ONLY bee-supply house in the business section of Chicago.

Ask for a catalog, tell them your wants, ask them for their special opening offers. We know they have something that will surprise and please you.

Fresh carloads of **"Falcon"** goods have just been put in stock by both of these houses. Why order other goods when **"Falcon"** hives, sections, foundation (all made in our own plant) are better and cost no more?

Eastern Bee-keepers!

Another New England distributing house will be opened. Watch for the announcement next issue.

There are many houses distributing **"Falcon"** bee-keepers' supplies not only in the New England States but all over the East. Write for name of nearest dealer. Catalog will be mailed you at once with the name.

W. T. Falconer Manufacturing Co.

117 No. Jefferson St.
Chicago, Ill.

Falconer, New York
Near Jamestown

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy and No. 1 white comb honey, 15 to 16: fancy white extracted, 10 to 11. Beeswax, 30. BLAKE-LEE CO.

4 Chatham Row, Boston, Mass., Jan. 20.

ALBANY.—The market is very dull and slow now for comb boney, and prices are, nominally, clover, 12 to 15; buckwheat, 9 to 10. Extracted is in better demand—8½ to 9 for white; 7½ to 8 for light; 7½ for buckwheat. Beeswax, 30.

Albany, Jan. 25. H. R. WRIGHT.

SCHENECTADY.—There is but little demand for comb honey of any grade; but we look for some improvement in February. Extracted buckwheat is plentiful but demand slow, while white is very scarce, with constant demand for New York State stock at advance price of 8 to 9 cts. per lb. in 60-lb. cans.

Schenectady, Jan. 20. CHAS. MACCULLOCH.

ZANESVILLE.—Local jobbing houses are fairly well stocked at the present time, in view of the slack demand that always follows the holidays. Prices are about as last quoted. Except in small glass packages, the demand for extracted is light. Producers are offered 28 cts. cash for beeswax, 30 in exchange for bee supplies.

Zanesville, O., Jan. 19. EDMUND W. PEIRCE.

BUFFALO.—Receipts of comb honey are more liberal lately; not much pure white; considerable buckwheat and No. 2 white. Market is steady for white, but very weak on buckwheat or No. 2 white. We quote No. 1 to fancy white comb, 16 to 18; No. 2 ditto, 12 to 14; No. 1 buckwheat comb, 12 to 12½; No. 2 ditto, 9 to 10; extracted, white, 9 to 10; amber, 7 to 8; dark, 7 to 8. Tumbers of honey, 85 to 90 per dozen. Beeswax, 28 to 35.

Buffalo, N. Y., Jan. 23. W. C. TOWNSEND.

ST. LOUIS.—Since our last, of Jan. 6th, there has been no change in our honey market. Prices are firm, but the demand is rather limited. We quote fancy white comb honey, 16 to 16½; No. 1, 15½ to 16; choice amber, 14 to 15; dark, 11 to 12. Broken and leaking honey sells at less. Extracted honey, white clover, in 5-gallon cans, 9 to 10; California, 8½ to 9 for white and light amber. Southern light amber in 5-gallon cans, 8 to 8½; in barrels and half-barrels, 7 to 7½. Beeswax, prime, 29; impure and inferior, less.

St. Louis, Jan. 21. R. HARTMANN.

Honey Markets continued on page 5.

Now for 1911 Bee-Supplies

We have already received several carloads of that "finest of all Beeware"—Falconer make—anticipating the heavy rush of orders sure to come this Spring. Prepare yourself NOW, Brother, for we are going to have a heavy honey yield this season, and those who order early are the ones who will profit most. Send for our catalog to-day, and see our "MUTH SPECIAL" Dovetailed Hive, and also our "IDEAL METAL" Cover—both DANDIES. We sell you cheaper than the rest; we have the Best. Let us figure on your wants—we will surprise you.

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Make up your mind that when you want bee-supplies, want them quickly, want the BEST, you will send your order direct to WEBER & CO.

YOU WILL NEVER REGRET such a NEW-YEAR RESOLUTION. We will not disappoint you. You will get GOOD goods, RIGHT prices, and QUICK service. We will count you as another patron won on our promises, and set out to keep our word and hold your trade.

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Our success as dealers in bee-keepers' supplies, and in honey, seeds, and other merchandise, is due to the scrupulous care we exercise in the handling of all inquiries and orders. We give prompt attention to all requests for information on bee-keeping generally, to any request for our prices on supplies needed as well as probable time it would require to deliver goods. We like to answer your questions and to attend promptly to your orders.

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The time is now at hand to order supplies for next season. If you get your goods early you will avoid the rush of the busy season later, and you can really buy to better advantage now than at any other time during the year. Even if your order is small, it will pay you to save something on it; and if you use a large quantity of goods during the season you surely can not afford not to take advantage of our **early-order discount**, which is **two per cent** for all **cash** orders during February.

You may order your goods now and have them come along later, or we will ship at once and you will have time to get them ready for the harvest next spring at your leisure during the winter. We are always glad to make suggestions and quote prices on any list submitted. If you have never bought supplies from us, try us this season and see if you do not agree with us that we furnish the best bee-supplies made, and give you the best possible service. It means a good deal to YOU to get the best of goods and service for YOUR money. We give you both. Try us.

Poultry Supplies

Write for our catalog, which we will be glad to furnish you free on request.

C. H. W. Weber & Co., Cincinnati, O.

2146 Central Avenue

Gleanings in Bee Culture

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Department Editors:—Dr. C. C. Miller, J. E. Crane, "Stenog," Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, Mrs. H. G. Acklin.

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Honey Markets continued from page 2.

KANSAS CITY.—Receipts of extracted honey are light; the demand for white is good, but sales of amber are very light. Receipts of comb are light, and the demand good. We quote No. 1 white comb honey, 24-section cases, $3.50; No. 2 ditto, $3.25; No. 1 amber ditto, $3.25; No. 2 ditto, $2.75 to $3.00; extracted, white, per lb., 8½ to 9; extracted amber, 7 to 7½. Beeswax, 30.

Kansas City, Jan. 21. C. C. CLEMONS.

INDIANAPOLIS.—There is a good and steady demand here for best grades of white-clover comb and extracted honey. Jobbing houses are well supplied, but practically none is now being offered by producers, and it is evident that there will be a shortage before the new crop can arrive. Fancy white comb is being offered at 18 cts.; No. 1, white, 17; extracted, 11, with some slight reductions on quantity lots. It is presumed that producers are being paid about 2 cents less than above quotations. Producers of beeswax are being paid 28 cents cash or 30 in trade.

Indianapolis, Jan. 20. WALTER S. POUDER.

CINCINNATI.—Comb honey is in fair demand, and is selling at $3.75 per case for No. 1 white. Amber extracted in barrels is selling at 7; in cans, 7½ to 8; white extracted honey, in 60-lb. cans, 9 to 10; California light amber, 8½. All grades of extracted honey are in fair demand. Beeswax is in fair demand at $32.00 per 100 lbs. These are our selling prices, not what we are paying.

Cincinnati, Jan. 19. C. H. W. WEBER & CO.

THE NATIONAL BEE-KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey

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Apiaries, Glen Cove, L. I.

CINCINNATI.—There is not much doing in the sale of honey. It is more quiet at this time of the year than we anticipated. From our point of view it seems to be a case of "no desire to eat honey." Lower prices would not effect a single sale. We are selling strictly fancy comb honey by the single case for $4.00; to the jobber, from $3.75 to $3.85 per case. Extracted honey, for the best, we are getting from 8½ to 12 cts. in 60-pound cans, according to the quality and quantity purchased; amber extracted honey, 6½ to 8. We are paying 30 cts. cash and 32 in trade for bright beeswax.

THE FRED W. MUTH CO.

Cincinnati, Ohio, Jan. 19.

NEW YORK.—Regarding comb honey we have nothing new to report. Trade is quiet, demand slow, even for fancy and No. 1 white, while off grades, mixed, and buckwheat are neglected altogether; and for the present we can not encourage shipments of comb honey of any kind, as we have all we can do to dispose of our present holdings. Extracted is in good demand, with prices firm. We are in the market for a fancy stock of white clover or alfalfa, and should be glad to hear from producers who have any to dispose of. Beeswax is quiet at from 29 to 30.

Jan. 19. HILDRETH & SEGELKEN.

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EDITOR BEE-KEEPERS' REVIEW,
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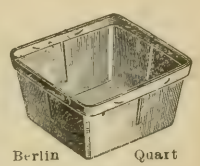
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: : BOOKLET : :

Annual Catalog Review

As is our usual custom we give below a partial list of catalogs and booklets received from our advertisers and others within the last few weeks. The purpose of our brief review of each of these publications is that readers of GLEANINGS IN BEE CULTURE may have before them a condensed list which will give an idea of the contents of catalogs issued by manufacturers of articles and goods in which they may be interested. Needless to say, we encourage all such to send direct to the person or firm whose name is given for a catalog or booklet, which may be studied in leisure moments.

It is also our suggestion that, whenever a purchase is contemplated, two or three catalogs pertaining to the one subject be asked for. With well-printed, beautifully illustrated, and thoroughly descriptive books such as those before us at the time this review is written, the prospective buyer is seemingly transposed from his comfortable position beside the fireside to a great market-place where a large variety of goods are arranged for his careful inspection, and trained salesmen await his call to explain the merits of their wares in a pleasing and understandable way.

In writing, it is, of course, advisable that you mention GLEANINGS IN BEE CULTURE; and if you will do this you will find every person or concern whose name appears below quite ready to give your request the prompt attention it will deserve.

To the best of our knowledge and belief, each of the following booklets and catalogs is put out by a reputable house such as we would advise our readers to deal with:

GASOLINE-ENGINES.

Ellis Engines for the Farm, Home, and Shop; a well-printed catalog of 34 pages, very finely illustrated in colors, giving an abundance of practical information on the subject of gasoline-engines of three and six horse power—particularly adapted to the requirements of bee-keepers and farmers. Ellis Engine Co., 41 Mullett St., Detroit, Mich.

GARDEN TOOLS AND IMPLEMENTS.

The 1911 Catalog of Planet Junior Farm and Garden Implements. S. A. Allen & Co., Box 1106S, Philadelphia Pa. A well-printed book of 56 pages, with cover. Illustrated largely from actual photographs, and covering exhaustively the subjects of tools for use in family and market-gardening, orchard cultivation, and the growing of potatoes, onions, strawberries, etc. A fully descriptive price list of each implement is shown.

Seventy-Fifth Anniversary Catalog of Iron Age Farm and Garden Implements. Finely printed book which goes into the subject to which it is devoted, without sparing details. Coming from a house with the highest reputation, this interesting book of 64 illustrated pages, with colored cover, will be a useful guide to all engaged in planting and cultivating farm or garden crops. Bateman Mfg. Co., Box 1202, Grenloch, N. J.

POULTRY AND BROODERS.

Annual Catalog of Incubators, Brooders, and Poultry Supplies, manufactured by the Robert Essex Incubator Co., 82 Henry Street, Buffalo, N. Y. This shows in natural colors, and describes in detail the Essex Model incubators for chickens, ducks, and ostriches, and covers, in addition, a complete line of poultry supplies, foods, remedies, publications, etc., with plans and prices on poultry-houses—a very interesting book. Sixty-four pages, with attractive cover.

Catalog of the Wizard Mfg. Co., Morrow, Ohio. Twenty-four pages, with cover, tells in a very practical and interesting way the merits of a novel brooder-incubator.

RAILROAD LANDS.

Norfolk & Western Ry., Roanoke, Va. A collection of well-printed, nicely illustrated booklets and folders, telling of opportunities in Virginia, giving practical information on growing different crops in that State, and listing lands now offered for sale. As a down-to-date collection put out by the representative of a responsible railroad, these booklets are worth studying by whoever may be seeking a new home or opportunity in the East.

SEEDS, PLANTS, NURSERY STOCK.

Farm and Garden Seeds, Garden Tools and Implements, Sprayers, Spraying Solutions, etc., with complete information and prices on the same. This introduction so well describes the following catalogs that we have made no attempt to review each catalog or booklet separately. It will be well to make your own choice of firms with whom you desire to deal, and write to them for their 1911 catalog at the addresses below.

Wood, Stubbs & Co., 219-221 East Jefferson St., Louisville, Ky. Blue-ribbon Seeds. Catalog of nearly 100 pages. Appropriately illustrated.

Baldwin's Railroad View Fruit-plant Farms. A 32-page catalog devoted to strawberries, potatoes, oats, etc. O. A. D. Baldwin, Bridgman, Mich.

Alneer Bros., Rockford, Ill. Seed and Plant Catalog. Very interesting bargains on roses, flower-plants, etc. Fifty pages, with colored cover.

W. F. Allen, Salisbury, Md. Strawberry-plants, Small Fruits, and Ornamental Shrubbery. A plain book well gotten up by a practical and successful grower. Thirty-two pages. Colored cover.

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We make it our business to get the best possible goods (Root Quality) to you in the quickest possible time at a low freight expense.

We also sell Berry-Baskets.

MICHIGAN

—M. H. Hunt & Son

Lansing, Mich.

Opposite Lake Shore Depot



"If goods are wanted quick, send to Pouder."

DEAR SIR: INDIANAPOLIS, Feb. 1, 1911.

Are you very busy right now? It is not yet too late to order your needed supplies early. Just the other day I shipped 50 pounds of thin super foundation to one man (C. F. Bender, Newman, Ill.). This man got it cheaper by taking the large quantity; he gets his sections all ready at his leisure, and when the honey season opens up he is ready for it. Did you ever place an order with some dealer late in the season, and then have your goods delayed because he had to get the goods from some factory? When the goods finally arrived, and you were feeling sort of out of humor, did you ever have your wife come around where you were working and have her say, "Don't you wish you had sent to Pouder?" I have had several such instances related to me. If you have occasion to visit Indianapolis be sure and call here. This Honey Store is the one that is different, and I want you to see for yourself; and when you get home you will want to tell friends what you saw here. Let me have a line from you, and I will mail my catalog.

859 Massachusetts Ave. WALTER S. POUDER.

SAVE MONEY ON YEARLY SUBSCRIPTIONS

Profitable Poultry, monthly	$ .50
Gleanings in Bee Culture, semi-monthly	1.00
Prairie Farmer, semi-monthly	.35
Our price, $1.20 Regular price	$1.85
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Our price, $1.20 Regular price	$2.00
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Breeders' Gazette, weekly	2.00
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Our price, $2.00 Regular price	$2.75
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We make low prices on any publication you want. Ask for prices. Address all orders to

PROFITABLE POULTRY, MILTON, WIS.

The Imperial and Royal Agricultural Association of Carniola, Austria, EXPORTS ONLY

Strictly Pure Carniolan Alpine Bees!

The above-named association, founded in 1767, counts as its members many thousands of agriculturists of the Austrian province of Carniola, among whom are many successful breeders of the pure Carniolan Alpine strain of bees The association is under the protection of the Austrian government, and the officials of the same are appointed, paid, and controlled by the Imperial and Royal Department of Agriculture in Vienna.

To insure the pure blood of the exported Carniolan Alpine bee, and to sustain its name as one of the best honey-producers possessed of all the other characteristics that bee-keepers appreciate most—for this purpose the Secretaries of Agriculture and Commerce of the Austrian Government have sanctioned and subsidized the new venture of the above association. Queen-bees and stock in hives shipped directly from Carniola to parties ordering in the U. S., Canada, and Mexico.

For further particulars address—

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Selected and tested. Direct and prompt shipments. . . Price $4.00 per queen.

JOHANN STRGAR . . . . Wittnach, Post Wocheiner-Feistritz, Oberkrain, Austria

Oats

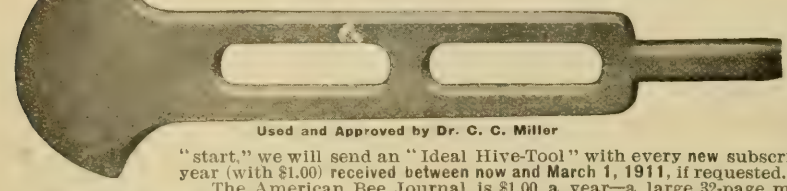
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AN IDEAL HIVE-TOOL FREE TO MARCH 1st

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Exactly half actual size.



Used and Approved by Dr. C. C. Miller

Oldest Bee Paper in America Established in 1861

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The American Bee Journal is $1.00 a year—a large 32-page monthly. Every bee-keeper ought to have it; and in order to induce several thousands of readers of Gleanings to take it for 1911 we make the above generous offer. NOW is your chance to get one of these handy, valuable hive-tools free. Better sit right down and send in your order with $1.00 for the tool and the American Bee Journal for 1911. Sample copy of Bee Journal free. Address

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that means money in your pocket, if you will send in your order now. You know from past dealings with us, and from our reputation as a firm, that we deal only in

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"Griggs, the King Bee"
Wholesale and Retail

GOLD MEDALS
St. Louis Exposition, 1904
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Danzenbaker Smoker

Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT GRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

The **ONE-PIECE** cap **CAN NOT clog.** It is the **COOLEST, CLEANEST, STRONGEST, BEST,** and **LARGEST NET CAPACITY** of all smokers, selling at one dollar ($1.00). We **GUARANTEE SATISFACTION** or **return** the price; only three complaints in **six years.**

Send your address and five other bee-keepers', for **FREE CIRCULARS** and fifty-page catalog of B-supplies, and we will send you one smoker for even dollar. We **WANT YOUR HELP** in selling Bee-ware at factory prices.

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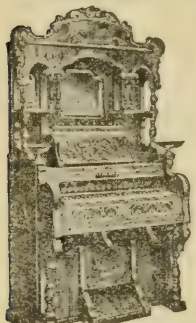
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Don't think of buying before reading it. It is the handsomest piano and organ catalog ever issued. It explains things you ought to know whether you buy from us or not and it is yours for the asking. Write for it now and please mention which you are interested in—piano or organ.

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We carry a full and complete line of Root's Celebrated Bee-keepers' Supplies. By buying in carload lots we are enabled to sell at factory prices f. o. b. Dallas. . . . . .

We also carry the largest and best assorted stock of the celebrated Texseed Brand Garden and Field Seeds in the South; Incubators and Brooders, and poultry supplies of all kinds.

Send for illustrated catalog. .

Texas Seed & Floral Co.

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When you have honey or beeswax for sale write us.

Hilton Strain of Bees and Root's Goods to the Front again



A View of Mr. Chase's Apiary.

Friend Hilton:—I started this spring with 16 colonies; bought 30 three-frame nuclei of you; have increased to 85 strong colonies with ample stores for winter without feeding. Have taken 4000 lbs fine extracted honey and a little comb (and no drawn combs to begin with) all from full sheets of foundation. My best colony gave 329 lbs.; a three-frame nucleus, received from you May 28, gave me 210 lbs extracted honey But for the drouth and fires I should have had much more.

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I am now booking orders for next season's delivery of Nuclei and Queens, and next season's supplies, and making a very liberal discount. . . . .

Write for 50-page price list, and send list of goods wanted for special discounts. All Root's Goods. Beeswax wanted, cash or trade.

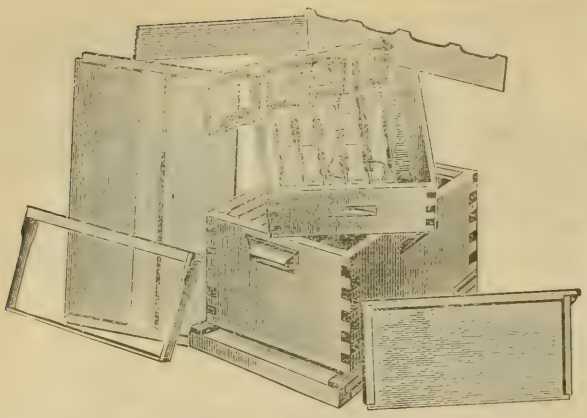
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at Factory Prices
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Send in your order now and get our 2 per cent cash discount. Our new plant is two-story, 40 by 250 feet, filled with a nice clean stock of The A. I. Root Co.'s make of bee-keepers' supplies. Our comb-foundation factory is twice the size it was last year. We give satisfaction, otherwise we should not grow. Our list of customers is growing daily; but we seek more trade from outside States. Promptness is what gets us the trade. We will give special inducements to associations or parties having large quantities of beeswax to be worked into comb foundation. We absolutely guarantee satisfaction. We manufacture comb foundation by the "Weed New Process," the best known. We retain the natural odor of the hive by carefully working the wax. Send us your name for a sample and our catalog. When in San Antonio make our office your office, and meet the bee-keepers as they come in. We have a nice cozy room especially prepared for our visitors to pass the time pleasantly. Remember our location is Corner Nolan and Cherry Streets, Fronting Subway.

Toepperwein & Mayfield
San Antonio, Texas



$9.75 Buys Complete Bee-keepers' Outfit

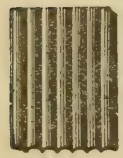
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With this outfit we send you 5 complete 1½-story 8-frame Dovetailed hives, equipped with "Improved" covers, supers, section-holders, section-follower board, spring, hive-body, Hoffman self-spacing frames, and reversible bottoms, 1 Bingham smoker, 120 honey-sections, 1 swarm-catcher, 1 lb. foundation comb, 1 heavy bee-veil.

We are headquarters for Bee Supplies, and sell direct to the consumer at regular wholesale prices. No matter how small or great your requirements, we guarantee you a saving of 30 to 50 per cent.

Our Bee Supplies represent the very best quality of materials and the highest grade of workmanship. No matter whether you are an established bee-keeper or a beginner, you will be interested in our line and our great money-saving bargains. Complete outfit, as shown and described above, $9.75.

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Economical and easy to put on, no previous experience necessary; absolutely guaranteed, brand new, clean stock—bright as a dollar. 1½-inch corrugated, unpainted steel sheets, light weight, 22 in. wide, 6 and 8 ft. long, 100 sq. ft..... **$1.85**

Painted, same as above..**$1.95**

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We pay the freight at these prices to all points east of Colorado in the U. S. Samples mailed free. Write for prices to other points, and for our Roofing Catalog.

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This is a continuous woven Galvanized Wire Fence; 12-gauge galvanized wire is used throughout, the upper and lower cable consisting of two 12-gauge wires twisted together. Stays are spaced either 6 or 12 inches apart, and are continuous, being woven into the upper and lower cables from one stay to another. No loose ends, and the wires do not break. This is the most reliable construction possible. *Special price on Hog Fencing 25 in. high; 7 line wires; 12-in. Stays, 19½c per rod.* Other heights for Cattle, Horse and field Fencing at prices ranging from 19 to 36c. Send for our Special Wire and Fence List. We guarantee a saving of 30 to 50 per cent.

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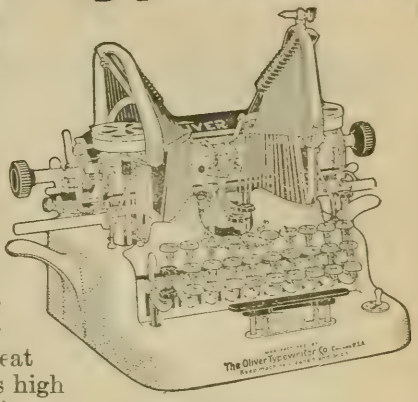
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The basic idea upon which its towering supremacy rests is its wonderful Double Type-Bar. What the Selden patent is to the automobile, this principle is to the typewriter, *only we do not license its use on any other writing machine.*

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But We Want More. . There is Room for Them

If you are interested, and have the necessary capital and experience, write us for our plan.
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Start an orchard. Those who planted orchards as advised by Green's Fruit Grower are getting their reward in big profits. You can pay for the orchard by growing small fruit in it.

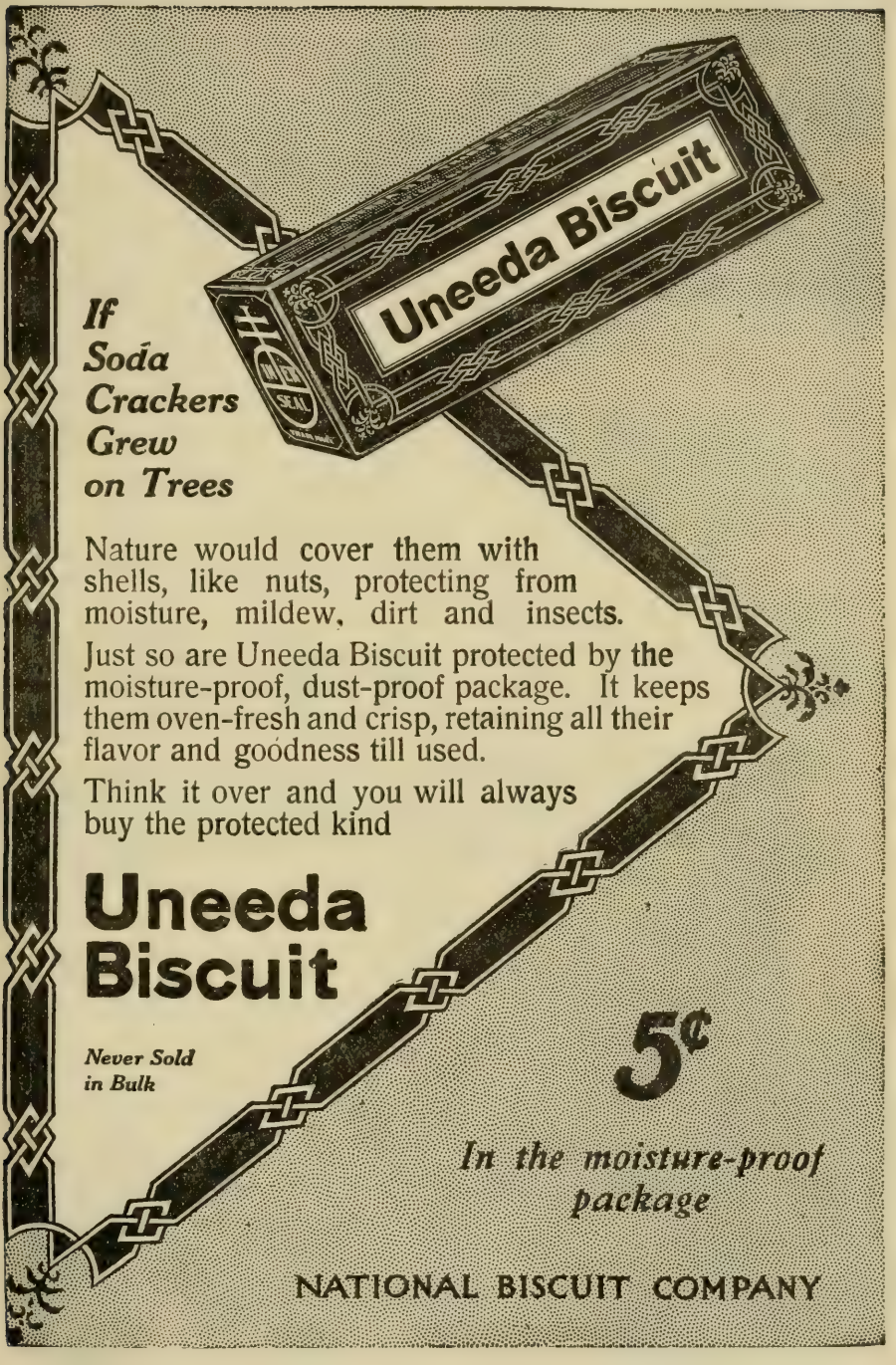
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will tell you how and where to plant, how to prune and spray, and how to make your trees productive.

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Made of **High Carbon Double Strength** Coiled Wire. **Heavily Galvanized** to prevent rust. Have **no agents.** Sell at **factory prices on 30 days' free trial.** We pay **all freight.** 37 heights of farm and poultry fence. **Catalog Free.**
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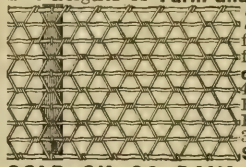


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Get Busy. We start you. Most successful Poultry Farm. Thousands to choose from. Low prices on fowls, eggs, incubators, etc. Big illustrated, valuable book "Profitable Poultry," tells how, sent for 4 cents.
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13¼ CENTS A ROD
FOR A 18 INCH HIGH HOG FENCE

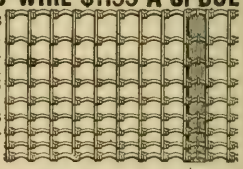
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25c A ROD
for 47-inch high farm fence; **28½ cents** a rod for a 48-inch Poultry Fence; 10-foot Farm Gate, **$3.00** 3-ft. Lawn Gate. **$2.20.**

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Return at OUR EXPENSE if not satisfied.
IDEAL BARBED WIRE $1.55 A SPOOL

contains 80 rods Made of two No. 14 galvanized Bessemer Steel Wires. Barbs 3 inches apart. Lowest Prices ever made. Catalogue free.



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To Mark Chickens
CHEAPEST AND BEST
12 for 15c; 25—25c; 50—40c; 100—75c.
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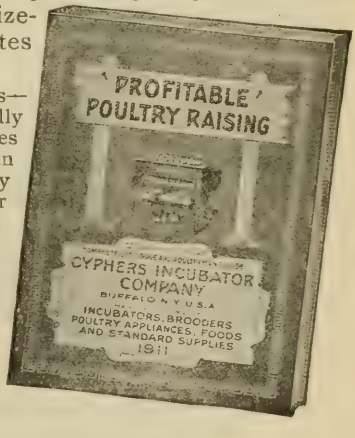
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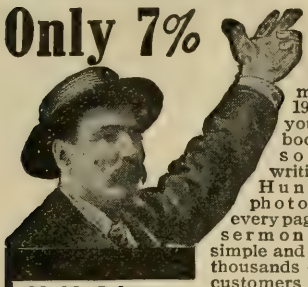
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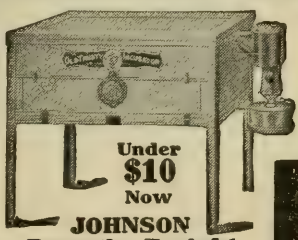


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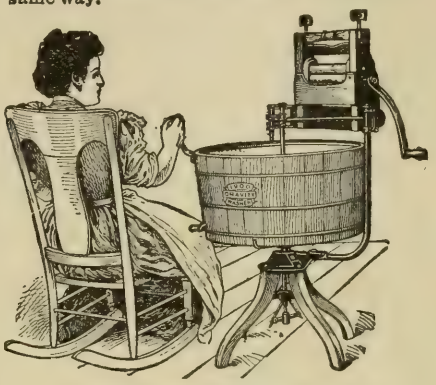
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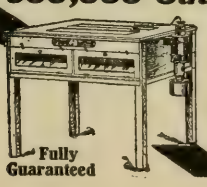
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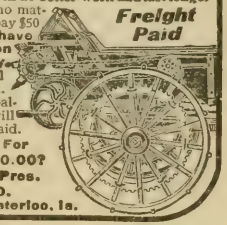
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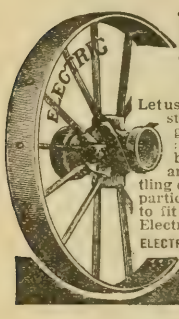
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GOVERNMENT BULLETINS

Continued from page 18, last issue.

Bulletins in this list will be sent free, so long as the supply lasts, to any resident of the United States, on application to his Senator, Representative, or Delegate in Congress, or to the Secretary of Agriculture, Washington, D. C. Because of the limited supply, applicants are urged to select only a few numbers, choosing those which are of special interest to them. Residents of foreign countries should apply to the Superintendent of Documents, Government Printing Office, Washington, D. C., who has these bulletins for sale. Price 5 cents each to Canada, Cuba and Mexico; 6 cents to other foreign countries. The bulletins entitled "Experiment Station Work" give briefly the results of experiments performed by the State experiment stations.

295 Potatoes and Other Root Crops as Food
296 Experiment Station Work—XLI
298 Food Value of Corn and Corn Products
299 Diversified Farming Under the Plantation System
301 Home-Grown Tea
302 Sea-Island Cotton: Its Culture, Improvement, and Diseases
303 Corn-Harvesting Machinery
304 Growing and Curing Hops
305 Experiment Station Work—XLII
306 Dodder in Relation to Farm Seeds
307 Roselle: Its Culture and Uses
309 Experiment Station Work—XLIII
310 A Successful Alabama Diversification Farm
311 Sand-Clay and Burnt-Clay Roads
312 A Succesful Southern Hay Farm
313 Harvesting and Storing Corn
314 A Method of Breeding Early Cotton to Escape Boll-weevil Damage
316 Experiment Station Work—XLIV
317 Experiment Station Work—XLV
318 Cowpeas
319 Demonstration Work in Co-operation with Southern Farmers
320 Experiment Station Work—XLVI
321 The Use of the Split-log Drag on Earth Roads
322 Milo as a Dry-land Grain Crop
323 Clover-Farming on the Sandy Jackpine Lands of the North
324 Sweet Potatoes
325 Small Farms in the Corn Belt
326 Building Up a Run-down Cotton Plantation
328 Silver-Fox Farming
329 Experiment Station Work—XLVII
330 Deer-Farming in the United States
331 Forage Crops for Hogs in Kansas and Oklahoma
332 Nuts and Their Uses as Food
333 Cotton Wilt
334 Experiment Station Work—XLVIII
335 Harmful and Beneficial Mammals of the Arid Interior
337 Cropping Systems for New England Dairy Farms
338 Macadam Roads
339 Alfalfa
341 The Basket Willow
342 Experiment Station Work—XLIX
344 The Boll-Weevil Problem, with Special Reference to Means of Reducing Damage
345 Some Common Disinfectants
346 The Computation of Rations for Farm Animals by their Use of Energy Values
347 The Repair of Farm Equipment
348 Bacteria in Milk
349 The Dairy Industry in the South
350 The Dehorning of Cattle
351 The Tuberculin Test of Cattle for Tuberculosis
352 The Nevada Mouse Plague of 1907-08
353 Experiment Station Work—L

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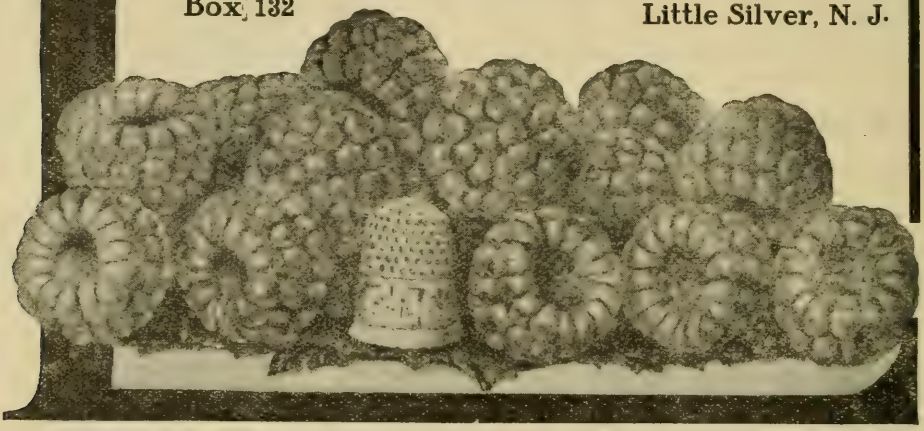
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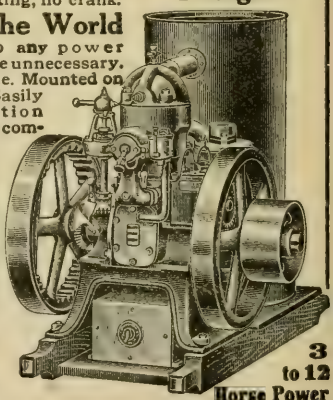
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Anuual Catalog Review

The 1911 Catalog of Field, Garden, and Flower Seeds, with complete line of bee, poultry, and garden supplies, etc. An interesting book, especially to the Southern farmer or gardener; 112 pages. Handsomely illustrated in half-tones, with cover in colors. The Texas Seed & Floral Co., Dallas, Tex.

Henry A. Dreer, 714 Chestnut St., Philadelphia, Pa. 1911 or Seventy-third Annual Edition of Dreer's Garden Stock; 228 pages, copiously and magnificently illustrated by combination of colors.

Reichardt & Schulte Co., 115-117 St. Main St., Houston, Texas, 12th Annual Catalog, Garden, Field, and Flower Seeds, Fertilizers, Poultry Supplies, and Implements. Contains sowing calendar for house add flower-garden and field. Sixty-four pages. Colored cover.

Roswell Seed Co., 115-117 S. Main St., Roswell, N. M.; 9th Annual Price List and Descriptive Catalog. Large variety of vegetable seeds, nursery stock, etc., adapted to the Southwest; also contains a number of pages devoted to poultry supplies, garden implements, and supplies for bee-keepers. Forty-four pages and cover.

W. Atlee Burpee & Co., Burpee Buildings, Philadelphia, Pa. Burpee's Annual for 1911, principally devoted to flower and garden seeds; 174 pages. Many colored plates, with colored cover.

The Flansburgh & Potter Co., Leslie, Mich. Catalog and price list of strawberry-plants and other small fruits. Thirty-two pages and cover.

Chas. C. Navlett Co., San Jose, Cal.; 1911 Planter's Guide and Catalog. Ninety-six pages, with colored cover.

C. N. Flansburgh & Son, Jackson, Mich. Catalog of Strawberry-plants and other Small Fruits. Sixteen pages of descriptive matter, with prices.

L. Templin Seed Co., Calla, Ohio. Catalog of Seeds, Small Fruits, etc., with two pages devoted to poultry. Eighty pages with colored cover.

Theo. Burt & Sons, Melrose, Ohio. Twelve-page booklet containing description and prices of tested farm seeds.

Carl Sonderegger, Box 142, Beatrice, Neb. Garden Book for 1911 of the German Nurseries and Seed-houses. Twenty-fifth Anniversary Edition of a handsome publication; 136 pages, with finely illustrated, colored inserted, and beautiful cover in colors.

SWEET-CLOVER SEED.

Sweet clover is one of the chief sources of honey in Utah, Idaho, and other regions of the West, as well as in many localities in the South and other sections of the country. In recent years farmers are also learning of its great value in enriching the soil by the introduction of nitrogen. We recently printed a booklet of about 50 pages entitled "The Truth about Sweet Clover." This contains the experience of a great many who have grown it to a greater or less extent. We shall be pleased to mail this booklet to those interested, free, on request. We have a good stock of choice fresh seed which we offer at the following prices. As to the comparative value of the different varieties, we will say that the white, or *Melilotus alba*, is most common, and therefore the best known. The yellow is desirable because it begins blooming usually from two to four weeks earlier than the white. As to the two varieties of yellow, one of the experiment stations has said there was a distinction without a difference. From the testimony available, the annual, or *Melilotus Indica*, blooms first; and in California, where our seed was procured, it is reported as growing from two to six feet high, depending on the character of soil, moisture, and other conditions.

In lots of—	1 lb.	10 lbs.	25 lbs.	100 lbs.
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Hulled White	25c	22c	21c	20c
Unhulled White (*Melilotus alba*) per lb	14c	12c	11c	10c

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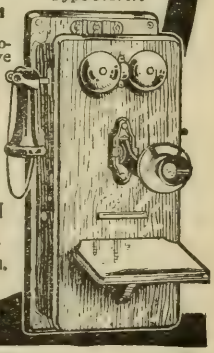
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in your home, means more happiness, more prosperity. Your folks can talk to your neighbors—to town—for miles around. The Stromberg-Carlson telephone has gained an enviable reputation among the farmers of America.

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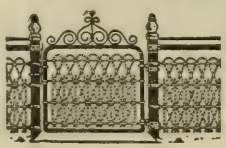
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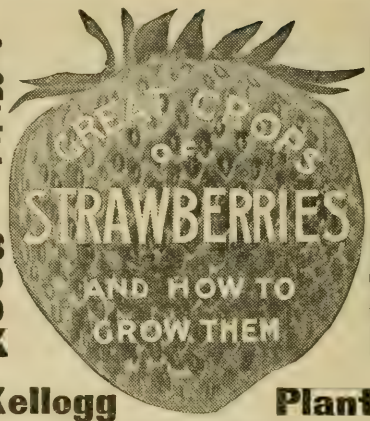
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2,600	"	Lettuce	4	"	"	4 "
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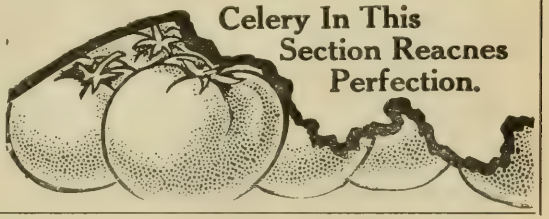
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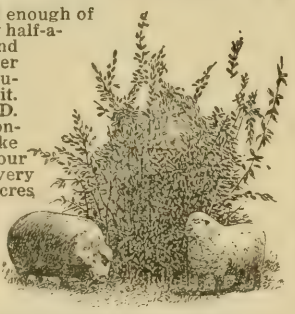
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The Fruit is black, almost coreless and the large luscious Berries borne in enormous clusters will literally melt in your mouth. It is unsurpassed for eating fresh, cooked, canned or preserved in any form and is the Greatest of all Berries for all Climates.

Everybody can and will grow this Great Berry for it is the easiest Fruit in the world to grow, is splendid for city people or any one with limited space, for it can be trained up from the ground like a tree producing Berries from 3 to 4 months, growing larger and producing more Fruit each year.

We guarantee this the Greatest of all new Fruits and can produce facts no one can get away from.

Beware of imitations. Giant Himalaya is a family by itself and highly valued wherever grown. The English Himalaya or Plants raised from seeds cannot be relied upon for fruit or hardiness. **Our plants are from tested parent stock. Complete satisfaction guaranteed**

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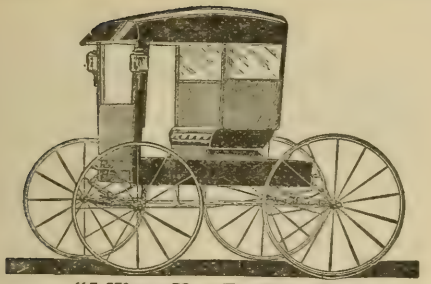




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Then at the end of that time if you don't think that my Cozy Cab is the greatest buggy ever built, that the 20 and more unique improvements which it has over any other buggy make it the only vehicle you care to put your money in, if you are not dead anxious to have this Cozy Cab,—**send it back.**

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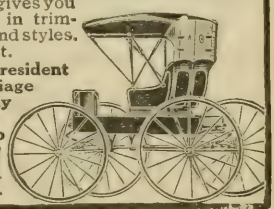
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FOR SALE.—3000 lbs. of fine buckwheat honey in cans holding 57½ lbs. net, two in a case, at 7½ cents per lb. Satisfaction guaranteed to all buyers.
EARL RUI ISON, Route 1, Amsterdam, N. Y.

We have a small shipment of fine Honey produced by a leading bee-keeper in Schoharie Co., N. Y. This honey is in barrels weighing about 160 lbs. net each, and is practically all clover and basswood, with just enough autumn flowers in it to give a dark tinge. We offer it at the low price of 8½ cts. per lb. If you want a sample before ordering a barrel, ask for lot No. 16.
THE A. I. ROOT CO., Medina, O.

For Sale

A. I. Root bee-supplies. Send for catalog and save freight. JOHN L. SWAN, Union City, Mich.

FOR SALE.—One-man folding sawing-machine, as good as new. D. COOLEY, Kendall, Mich.

FOR SALE.—Quantity of ten-frame hives.
E. EWELL, 704 Elm St., Waseca, Minn.

FOR SALE.—Cheap or will exchange for honey or wax, 19 complete eight-frame hives, nearly new.
H. A. GOOCH, Batavia, N. Y.

FOR SALE.—A $30.00 comb-foundation mill, medium brood; rolls 2½ x 10, round cell, as good as new. Price $15.00. H. F. HAGEN, Reno, Nev.

FOR SALE.—New crop of alfalfa seed; 4 lbs. by mail, prepaid, $1.10; 25 lbs. by freight or express, at 17 cts.; 50 lbs. at 16 cts.; 100 lbs., $15.00.
R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successors to W. P. Smith.) Penn, Miss.

FOR SALE.—After four years' experience with power extractors I find that a 1 H. P. gasoline-engine is not sufficient to run an 8-frame extractor satisfactorily, so I have decided to take the agency of the Rome Gasoline-engine, 2½ H. P., water-cooled, at $75.00 each. I am using one of these engines, and it gives perfect satisfaction. All orders will be filled in rotation.
FRANK C. ALEXANDER, Delanson, N. Y.

Real Estate

FOR SALE.—California bee-ranch; first-class apiary; concrete buildings in excellent repair; good spring water and healthful climate; a comfortable home near the cleanest town in the United States at moderate price. H. E. WILDER, Riverside, Cal.

FOR SALE.—A good location for bees, poultry, and trucking; twelve acres—eight in cultivation; the rest is occupied by buildings and a small piece of woods; eight-room brick residence worth all that is asked for the entire place. A big bargain to the right man. Terms very easy. Particulars free.
GEO. H. REA, Reynoldsville, Pa.

California—opportunity for a bee-keeper; 40 acres of good land near Etiwanda at $25.00 per acre; will give purchaser about 100 colonies of bees in modern hives, with tools, extras, and two cabins; enough extra hives to make about 300 colonies. Will submit views if interested. Apiary, with cabins, worth at least $600. Genuine bargain to first comer.
M. R. KUEHNE, 1116 West 2d St., Pomona, Cal.

FOR SALE.—One mile from station, 2000 acres; $1000 worth of stock; farm and house furnishings included; $8.50 per acre; 125 acres James River low grounds, 275 acres, upland cleared; the remainder woodland, much good timber. New eight-room house, and office of two rooms. Farm bounded by roads, well situated for division. All fertile soil. Other farms, large and small. Write what you are wanting. All inquiries answered.
B. F. AVERILL, Howardsville, Albemarle Co., Va.

Snap—irrigated farm $30 per acre; 310 acres choice tillable land, river front; every acre can be cultivated; about 75 acres now in cultivation, the rest heavily wooded. This farm is improved; also has a modern irrigating-plant in operation; also two good wells of pure water, Anville railroad station is less than one mile distant. Fine alfalfa-patch; improved road leading to place. This farm is 27 miles east of San Antonio, and three miles west of Sutherland Springs, the great health resort on the Gulf Shore Railroad. Motor cars will be running through the place from San Antonio to Sutherland Springs as soon as the wire at Sutherland Springs is completed, which is already graded.
TOEPPERWEIN & MAYFIELD, San Antonio, Texas.

Wants and Exchanges

WANTED.—To sell for cash, or trade for U. S. or Canada land, best bee-outfit in Iowa.
D. E. LHOMMEDIEU, Colo, Story Co., Iowa.

WANTED.—To buy bees or bee-outfits in or around Michigan. Please state what condition they are in—whether free from disease, and lowest cash price, in first letter. Address HAIGHT & SMITH,
116 Court St., Binghamton, N. Y.

WANTED.—Fine qualities of white and light-amber extracted honey. Send samples with lowest prices f. o. b. New York. Also state how packed, and quantity you have. Are always in the market for beeswax. HILDRETH & SEGELKEN, New York.

WANTED.—Our bee-keeping friends to know we are now located ½ mile from freight, express, and post offices; four mail-trains every day, where we will be prepared to rear and ship superior golden Italian queens. T. S. HALL,
Talking Rock, Pickins Co., Ga.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & Co., 199 S. Water St., Chicago.

Bees and Queens

FOR SALE.—Golden-all-over queens, and bee-keepers' supplies. T. L. MCMURRAY, Silverton, W. Va.

Queens, 5 and 6 band goldens, 3-band Italians. Send for circular and price list. GEO. M. STEELE, 30 South Fortieth St., Philadelphia, Pa.

Missouri-bred Italian queens; none better; prices right; write for circular. L. E. ALTWEIN, St. Joseph, Mo.

FOR SALE.—500 colonies of bees in eight-frame hives. A. J. MCCARTY, 712 Coffman St., Longmont, Col.

FOR SALE.—Golden's queens that will produce from 50 to 100 per cent five-banded bees. Address J. B. BROCKWELL, Bradley's Store, Va.

Golden and red-clover Italian queens; superior stock. Write for prices. WM. A. SHUFF, Aldan, Delaware Co., Pa.

WANTED.—100 or more colonies of Italian bees in or near New York State. Give full particulars and price. Box 7713, GLEANINGS, Medina, O.

WANTED.—Between 300 and 400 hives of bees on shares for the season of 1911; experience in both extracted and comb honey. SMITH BROTHERS, Route 2, Box 73, Mifflintown, Pa.

FOR SALE.—Fifty colonies of bees in ten-frame hives in good condition, free from disease, and all the fixtures for running a first-class apiary; very reasonable. ALFRED STRUCK, Webster, N. Y.

Queens of the celebrated Highland Farm strain of hardy northern-bred three-band Italians: line bred for honey-gathering qualities Send for circular. J. E. HAND, Birmingham, O.

FOR SALE.—120 colonies, all furnished with 2 and 3 sets of 6-inch extracting-combs; extractor; supplies of all kinds; also good location and good home market included in the bargain. ALONZO RUSK, Port Kenyon, Humboldt Co., Cal.

Position Wanted

WANTED.—Position in apiary; 3 years' experience in 400-colony yard; have also complete knowledge of bottling and packing honey for shipment. In reply, state salary, etc. BOX F 3145, GLEANINGS, Medina, O.

WANTED.—Situation by a young man who has successfully passed examination after taking course of lectures and practical work in apiculture at the Ontario Agricultural College. Any one desiring help of this kind for the season of 1911, kindly correspond with MORLEY PETTIT, Provincial Apiarist, Ontario Agricultural College, Guelph, Canada.

Help Wanted

WANTED.—Man with experience in bee business for the season of 1911. Give age, experience, wages wanted, etc., in first letter. D. L. WOODWARD, Voorheesville, N. Y.

WANTED.—Another assistant; reliable, sober, no user of tobacco, and married; right place for the right man, and many advantages in our extensive business. Write full particulars and wages expected, at once. THE LOUIS H. SCHOLL APIARIES, New Braunfels, Texas.

WANTED.—Young man to work with bees and poultry, season of 1911. Must have had some experience in handling bees. Address E. L. LANE, Trumansburg, N. Y.

WANTED.—Strong, active farm-bred young man of good habits, with some experience with bees, who wishes to learn more. Every opportunity to learn business on large scale, but wages will be low. Give full particulars and wages wanted. Box 7713, care of GLEANINGS, Medina, Ohio.

WANTED.—Application from an able-bodied and intelligent young man who is a total abstainer and is willing to work for his board and plain washing, and something more—if he and I do well, he getting the benefit of thirty years' experience in bee-keeping. Address R. F. HOLTERMANN, Brantford, Canada.

WANTED.—Practical apiarist for California and Nevada; work for salary, or bees on shares. I have produced four distinguished crops of extracted honey in one season with my full equipment for shipping bees in mid-summer in honey-gathering condition. State in first letter experience, and where; reference and financial standing. C. I. GRAHAM, Lemon Cove, Tulare Co., Cal.

Poultry

FOR SALE.—Duston White Wyandottes, $2.00; 15 eggs, $1; $5 per 100. ELMER GIMLIN, Taylorville, Ill.

Day-old chicks? Seven breeds hatched. Circular free. D. Y. TAYLOR, Lyons, N. Y.

Buttercups for utility and beauty; selected pens; unlike others. H. V. MEEKER, Earl St., Toledo, O.

R. C. Red eggs. Sterile eggs replaced free. Write. A. H. GOFF, Farmdale, Ohio.

FOR SALE.—Indian Runner duck, White Wyandotte eggs. Utility stock, $1.00 per setting. J. F. MICHAEL, Winchester, Ind.

Indian Runner ducks. Trio, $8.00; eggs, 14 for $2.00. FISH RIVER POULTRY YARDS, Magnolia Springs, Ala.

Barred Rock cockerels; Ringlet strain; beautiful birds; $2.00 and $3.00 while they last. Satisfaction guaranteed. SADIE THOMAS, Osceola Mills, Pa.

ANCONAS.—The *great* egg-layers; 3 fine cockerels, $1.50 each; also choice Buff Wyandottes. W. K. LEWIS, Dep't 2, Dry Ridge, Ky.

Cockerel, S. C. White Leghorn, $1.00 each and up; eggs, $5.00 per 100; also Pekin Ducks, Barred Rocks. Premuim Poultry Farm, Box 40, La Harpe, Ill.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog. L. E. ALTWEIN, oliginator, St. Joseph, Mo.

FOR SALE.—200 roosters, P. Rocks, White Leghorns; eggs, $1.00 per setting; $5.00 per 100. Baby chicks, $10.00 per 100. Sweet-clover seed, 15 cts. per lb., the purest stock. Book your order at once. THE CHESTNUT HILL POULTRY FARM, Biglerville, Pa.

Buff Leghorn eggs of quality. Our birds speak for themselves. Your order will be filled from hens that lay at 5 months; big layers, good payers. Do not wait—order to-day. Only $3.00 per setting. WM. BRITTON, Prop. Hillside Poultry Farm, Huntington, Ind.

S. C. R. I. Reds, large and beautiful, rich in color, and rich egg-layers; the winning strain. Eggs from exhibition pens, $2.00 per 15; $10.00 per 100. Eggs from standard pens, $1.00 per 15; $5.00 per 100. I can please you, sure. C. O. YOST, Rt. 4, Winchester, Ind.

Black Langshan cockerels, $2.00 to $5.00, according to quality. Every thing on my farm is of the best quality, and my aim is to please. Birds are big strong fellows, fine in color. A trial order will convince you. H. J. CORNISH, Box 9, Hebron, Ind.

Order your copy of "American Standard of Perfection" through GLEANINGS. The new edition of this greatest of all poultry-books is now ready. Beautiful plates show feather-markings, etc., of every standard breed. Price $1.50, postpaid, in cloth; $2.25 in morocco binding.
BUYERS' BUREAU, GLEANINGS IN BEE CULTURE.

Indian Runner ducks from imported stock, fawn and white; very easy to raise and easy to keep. They are beauties too — lay eggs all the year; lay heaviest in winter. Eggs, $1.50 per 13; $7.00 per 100. Let me start you to success.
C. O. YOST, Rt. 4, Winchester, Ind.

FOR SALE.—A few choice Single Comb White Leghorn cockerels from the Young & Wyckoff strain; also extra-fine lot of Rhode Island cockerels. Eggs for setting from Fawn and White Indian Runner ducks. All birds have range, and are healthy and vigorous. We have the quality, and our prices are very reasonable. Correspondence solicited.
LEWIS H. RANDALL, Medina, O.

Miscellaneous

Free for stamp—Breeding a Better Bee.
LEE KERR, Germania, Ark.

HOME CANNING OUTFITS.—For free catalog address RANEY CANNER CO., Texarkana, Ark.-Tex.

FOR SALE.—Brush automobile in good running order. Cheap runabout.
L. WERNER, Edwardsville, Ill.

Rifle and shotgun — new Marlin, never used; discount from price paid. Investigate.
T. P. H., care of GLEANINGS, Medina, O.

American Hen Magazine, Council Bluffs, Iowa. Subscribe now—25 cts. a year. Descriptive circular free.

Premo, 3¼ x 5½, film pack, automatic shutter; takes motion pictures; complete outfit. Cost $30.00; will take $18.00. CHESTER RYAN, Medina, O.

FOR SALE.—250 good strawberry-plants, best standard varieties; enough for nice family patch; sent postpaid for $1.26; 500, expressage paid, $2.45. Send card for particulars. T. M. PALMER, Rodney, O.

WANTED.—Railway mail clerks; city carriers; postoffice; customs; internal-revenue employees. Avg. salary about $1100. Send for a schedule showing places of coming examinations. Free coaching. FRANKLIN INSTITUTE, Dep't F, 124, Rochester, N. Y.

BOOKS THAT SHOULD BE IN EVERY HOME, ON SEX, SOCIAL PURITY, AND HEREDITY.
Safe, sane, sound, scientific, scriptural, inexpensive, and adapted in size to busy people.
Perfect Manhood (men); cloth, 50 cts.; paper, 25.
Twentieth-century Boy (boys under 15); cloth, 40 cents.
Heredity (parents); cloth, 40 cents.
Guide to Sex Instruction (parents); cloth. 15 cts.
How to Tell the Story of Life (parents); paper, 15 cents.
The Girl and Her Mother (young women); paper, 25 cents.
Sour Grapes (four lectures on heredity); paper, 25 cents.
Agents wanted. Circular free. Order from
PROF. T. W. SHANNON, Fredericktown, Mo.

Bee-keepers' Directory

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York City.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Italian queens from direct imported mothers, red-clover strain. After June 1, $1.00. Circular.
A. W. YATES, 3 Chapman St., Hartford, Ct.

Improved golden-yellow Italian queens for 1911. Beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in '08-'09 without a single loss. For prices get circular. QUIRIN-THE-QUEEN-BREEDER,
Bellevue, Ohio.

Convention Notices.

The Southern Minnesota and Western Wisconsin Bee-keepers' Association will hold its annual convention Feb. 21 and 22 in the Winona County Courthouse, at which time an interesting program will be carried out. Those interested are welcome.
O. S. HOLLAND, Sec.

The Wisconsin State Bee-keepers' Association will hold its next convention Feb. 23, 24, in Madison. Ten dollars in cash prizes given for three best-written papers of practical value to Wisconsin bee-keepers. Prizes, $5.00, $3.00, $2.00, each writer to choose his topic. The State Inspector will exhibit a steam-heated uncapping-knife that, for 2 cts. a day, did the work of two men; also a self-measuring honey-faucet that weighs any amount without running the can over; also a practical double brush that, in single stroke, brushes all the bees from a comb. An easily made device that will attach to any beam scale and tell when the amount wanted is on scales. Premiums at fairs—how to win. Sales of honey, fall of 1911. Prominent bee-keepers from abroad will attend.
GUS DITTMER, Sec., Augusta, Wis.

The Ohio State Bee-keepers' Association will hold its annual convention Feb. 16 and 17, at Cincinnati. All bee-keepers of the State are invited to attend, to make this meeting (the second of its kind) a grand success. Headquarters will be at Grand Hotel, halls Nos. 1 and 2. Ohio bee-keepers wishing to read papers on bee culture are urged to do so. Now is the time for bee-men to get together and make their influence felt through the General Assembly of the State. We have a few local bee-keepers' associations throughout the State; but single-handed they can not accomplish much. Last year the Ohio State Bee-keepers' Association, through the General Assembly, passed a new foul-brood law — the best one, experts say, in the country. It is a model which bee-keepers of other States are putting up to their legislators. The program will be announced later. HENRY REDDERT, Secretary.
J. H. MOORE, Pres.

Gentlemen:—I have enjoyed and been benefited by each number of GLEANINGS for the past year. It is helpful to hear the serious opinions of practical bee-men on all the problems that confront us as amateurs and as those who have laid some foundation along practical lines. It is a good work you do when you carefully anticipate the needs of the bee-keeper in the way of meeting every emergency and for informing him, asking and answering the questions that are continually springing up in our minds. All together we think GLEANINGS a very strong and meritorious journal. We are well satisfied with the service it has given us.
Muncie, Ind. W. W. TUTTLE.

Special Notices

By Our Business Manager

SYRUP-CANS.

We can supply those who make maple syrup with their cans at good prices. Write, stating number required, and size, and we will quote you. We have ¼, ½, and 1 gallon square cans; also 5-gallon cans, one or two in a box if you use that size.

EARLY-ORDER DISCOUNT.

The early-order discount for cash orders during the next four weeks, or before March first, is 2 per cent. This will go quite a way toward paying the freight on your order. You ought to know pretty well by this time what you will need for your bees this spring. Take time by the forelock, and be prepared in time. Order now and make up the goods while you have time during the winter months.

SWEET-CLOVER SEED.

Insure a crop of honey by seeding all waste places in sweet clover, giving the bees something to work on for weeks and months. If you have no waste places you can make it pay to seed some of your cultivated ground. One or two seasons in sweet clover will do your run-down field more good than summer fallow, as there is nothing better for introducing nitrogen to the soil. See adv't in another column for price of seed. It should be sown in early spring for a good stand.

TOBACCO DUST.

Those who grow early vegetables under glass, especially lettuce, can not well get along without tobacco dust to sprinkle over the beds. This acts not only as an insecticide to kill the plant-lice, but is an excellent fertilizer as well. We have in stock a supply of two kinds—fine tobacco dust, 3 cts. per lb.; 10 lbs., 20 cts.; 100 lbs., $1.25; 200 lbs., $2.00; coarse tobacco siftings, 6 cts. per lb.; 10 lbs., 50 cts.; 100 lbs., $4.00. The latter variety is all from the leaves, and is much stronger than the fine dust, which comes largely from ground-up stems.

HOT-BED SASH.

This is the time of year when those who grow early vegetables are planning for hot-beds and cold-frames for protecting the young plants from the frost. If in need of hot-bed sash, remember we make them in large quantities. We are making up a carload for a seed dealer in Columbus, O. Our sash are made of cypress, the most durable wood for outside exposure subject to dampness or weather. They are 3 ft. 4 in. by 6 ft. for four rows of 8-inch glass, and are usually shipped in flat or K. D. Price 90 cts. each; 5 for $4.25, or ten or more at 80 cts. each; 8 by 10 glass for same at $3.00 a box of 90 lights; 3 boxes fit up 10 sash.

MAPLE SUGAR AND SYRUP.

In order not to disappoint many of our old customers, as we did last season, we have decided to commence booking orders for maple sugar and syrup in advance of the season at these prices:

1 one-gallon can	$1.25 per gal.
1 case 6 one-gallon cans	1.15 " "
1 case 10 one-gallon cans	1.10 " "
1 lb. best sugar	.15
10 to 25 lbs.	.14
25 to 50 lbs.	.13
50 to 100 lbs.	.12

The present outlook for a good run of syrup is not now very encouraging, owing to the very open weather here in Northern Ohio for the past few weeks. We have contracted with several of the best producers in Medina County, and we can give you some fine goods if the weather is favorable.

Send us 25 per cent of the value of your order now, and we will notify you when we are ready to ship, then you can send the balance.

Special Notices by A. I. Root.

THE "FARM JOURNAL" POULTRY-BOOKS.

I have before made mention of the beautiful books the *Farm Journal* has been giving us each year on poultry and other subjects. Well, this past year they have sent out at least three books, so bright and attractive (even on the outside) that I uttered an exclamation of surprise when I first took them from their wrappers. On looking them over on the inside I was even more pleased. The *Farm Journal* seems to have a peculiarly happy faculty for getting out little books for premiums, hitting subjects that particularly interest rural people, and, above all, getting at the matter in such a way as to catch and hold the attention of the reader. I will not need to take space to describe the two new poultry-books, for one of them is described on the front cover of our Dec. 15th issue, and the other on the last cover of Jan. 1st, and I do not consider the claims made for them extravagant either.

The third book sent out this year is entitled "Shall I Farm?" and the price marked is 25 cents; but the beautiful little book, if read and studied as it should be by every one contemplating "back to the soil," might easily be worth *$25.00*. Here are a few brief extracts from a single page. The following sentence alone, if read and "followed," might save our northern people thousands if not a million dollars:

CONSULT FIVE FARMERS.

Before signing a contract to buy a farm, talk with at least five neighboring farmers and get their opinion.

Almost daily I get letters from those who have made payments on land here in Florida while a thousand miles away, solely because of something they saw in a printed circular or read in some family paper that advertises any thing it gets pay for. Here is some more wise advice following right after the above:

Also get some practical farmer friend, if you have one, to go over the farm with you, examining the soil, the subsoil, the drainage, the condition of the barns and other buildings.

And here is just one more clipping from the same page:

Those who are tempted to buy distant tracts of land on the installment plan should read this bit of experience contributed by a man who lives at Milton, Pa.: "I purchased a ten-acre plot of Cuban land of a company extensively advertised in American publications. I completed payments on this land December 1, last. The contract of sale states that a deed will be delivered upon surrender of all receipts and contracts. Six months have already elapsed, and no deed in sight; and I am unable to get either the deed or the return of the amount paid. Each time that I write them relative to the same they come back at me with some flimsy pretext or other. I have threatened to sue them, and to expose them to the Federal authorities and to the public generally, but all to no avail."

Now, I should be glad to stop right here; but candor compels me to add that *one* of the poultry-books describes the plant of W. R. Curtiss & Co., of Ransomville, N. Y., the same firm I have "written up" at least twice in the past year or so. This is the firm that charged a dollar for a book of only 12 very small and miserably printed pages (besides the advertising). See p. 471, July 15, last year. If they really have the "largest general poultry enterprise in the world," one can not help thinking they got some of their capital to build it up in some other ways than selling honest goods. Notwithstanding, the description of this great plant contains many helpful hints. I suppose most of you know you can get these valuable little books without expending even the trifling sum of 25 cts. by subscribing for the very helpful monthly *Farm Journal;* and almost everybody wants this any way, because it is so bright and clean to have in the family, and costs so little.

Gentlemen:—Your circular letter of the 12th inst. received, and in replying to same will say that the best evidence I can give that GLEANINGS is satisfactory to me is that I do not think I have missed a single copy in over twenty years. In many issues I find articles from practical bee-men that alone are worth the year's subscription. Besides the information obtained in bee culture, "Our Homes," by A. I. Root, is worth many times the price paid for GLEANINGS. May he live long to fight the whisky traffic. His writings are an inspiration to any man loving truth, but hard on the evil doer. Keep on sending the old *reliable* GLEANINGS.

Webster, Iowa. M. D. JOHNSON.

Is your crop of white-clover honey short?

We can furnish you

ALFALFA HONEY

Both white and water-white—finest quality. Prices quoted by return mail and shipments made promptly. . . . . Beeswax wanted for cash or in exchange for bee-supplies.

Beeswax worked for you into

DADANT'S FOUNDATION

Best by test. Let us send you the proof.

Early-order discounts now offered for cash.
Satisfaction always guaranteed.

Dadant & Sons, Hamilton, Illinois

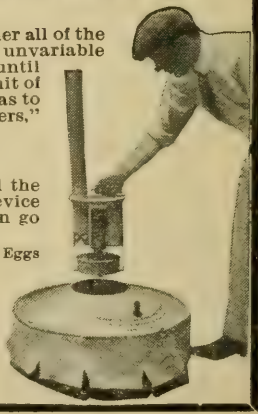
Perfect Equipment is THE Secret of Our Success!

With the experience gained in operating the Largest Poultry Plant in the World, our knowledge of the several makes of incubators is greater than the manufacturers'. For the sake of economy WE built an incubator giving *results never secured by any other make*, and we now offer it to the public. The



International Self-Humidifying Incubator

is responsible for *our great* success, and will give to the struggling beginner all of the profits and none of the losses. Absolutely automatic in every function, unvariable temperature, certain moisture from the moment of starting the hatch until nature requires a cessation in order to properly dry the newly-hatched unit of future profit—so thoroughly safe-guarding its entrance into poultrydom as to guarantee its livability when raised under the very acme of "Foster Mothers,"



THE **INTERNATIONAL** SANITARY HOVERS

This Hover makes possible the rearing of the maximum of chicks and the minimum of deaths—90 to 95% live and thrive and grow. It is the only device that contains the *active principle of the hen*, and the ingenuity of man can go no further.

Our best efforts are centered in the production of Day-Old-Chicks and Hatching Eggs from matured stock. No pullets' eggs are used except for table purposes.

We have just completed our 1916 catalog on incubators and hovers, also our stock catalog on **Rancocas Strain BABY CHICKS and HATCHING EGGS.** You are welcome to either or both of these catalogs.

Send to-day.

INTERNATIONAL POULTRY SALES COMPANY
Home Office, Box 310 Brown's Mills-in-the-Pines, N. J.
Branch, 21 Barclay Street, New York City



J. V. ROHAN, Pres.

AND NOW YOU CAN BUY THE .... WORLD'S CHAMPION 140-EGG INCUBATOR COMPLETE for Only $7.55

Freight Paid E. of Rockies

WHY buy any other incubator at any price? Yet, why not own a World's Champion Belle City? Yet, my price is only $7.55, and remember I furnish you a big full-size 140-egg machine at that figure.

Mrs. M. J. Clifton, of Quinlan, Oklahoma, settled the world's championship by winning the Successful Farming Hatching Contest against all other machines, March 29, 1910, by hatching 140 chickens—the full capacity of her machine, a 140-egg Belle City Incubator.

Many other machines were in the contest—other machines had high scores—but *no* other machine hatched its full capacity—140-egg size—140 eggs set—140 chicks hatched.

Why pay much more than my price for as large a capacity as the Belle City, or the same price for a much smaller machine, and yet get an unknown hatcher? I take great pride in the fact that I have started thousands and thousands of people in the money-making, poultry-raising business, at small expense for their complete outfit. What you want is a hatching outfit that is right in every detail—that's known to be perfect, yet simple in its operation—that will make a success from the very start, out of your very first hatch.

Complete Hatching Outfit—My $7.55 Belle City Incubator and $4.85 Brooder, Ordered Together Only $11.50—Freight Prepaid East of Rockies.

Let me ship you one of these complete outfits, all freight charges prepaid, to your station, on 90 days' free trial. The Belle City Incubator is an old, tried, tested, proven machine. I have been in the incubator business and my machines have been on the market for 28 years. I print thousands of testimonials and photographs of people who are using my machines in my printed matter. My plan is quick sales and a lot of them at a low price.

A brief description of the Championship Belle City Incubator is as follows:

Double walls—dead air space all over—copper tank and boiler—hot-water heater—best regulator—deep, roomy nursery—strong egg tray—hind legs—double door—and everything that's any good on an incubator—all in the Belle City. "Tycos" thermometer—egg-tester—burner and safety lamp included.

The Belle City 140-chick Brooder is the only one having double walls and dead air spaces. I guarantee it to raise more healthy chicks than any other brooder made. Hot-water top heat—large, roomy, wire runway yard, with platform—metal safety lamp and burner.

I will be glad to send my literature of this complete hatching outfit free, giving you all the information you may want. I advise you to get your outfit early. Have it on hand all ready to run when your eggs are ready.

I have sold thousands of machines direct from my advertisement. Everyone that reads farm papers knows I am responsible. If you want to, you take no risk in ordering direct from this advertisement.

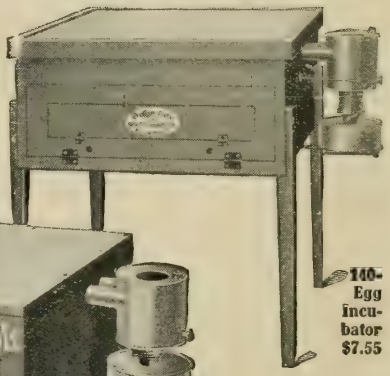
Thousands Order direct from this Advertisement and Save Money. Why not You?

By ordering my Championship Belle City Incubator and Brooder together, you get the complete outfit for $11.50—freight charges prepaid (E. of Rockies). This saves you 90 cents on the regular price of the incubator and brooder and gets the outfit delivered to you at your station, all freight charges prepaid—be ready to run when your eggs are ready to set.

By ordering from this advertisement, you save time, save money, do away with possible delay in getting your machine and take no risk, because I guarantee to refund your money at end of 90 days' free test if everything about my complete hatching outfit is not exactly as represented in this advertisement.

You can hold me to every claim made here. The editors of this paper protect your interests and stand back of me and my factory in guaranteeing to do as represented. Why not cut out this advertisement, keep it for reference, send me your order, get your outfit at once, and be ready for the season?

I Guarantee the Belle City Incubator to outhatch any machine made—when operated under like conditions—no matter what kind or what the price. Your money back if this test proves untrue.



140-Egg incubator $7.55



140-Chick Brooder, $4.85

I ship quick from Buffalo, Kansas City, St. Paul or Racine—
And I Guarantee to ship all orders sent from this ad on day received.

The Largest Manufacturer in the World of 140-Egg Incubators — the Best Size Under All Conditions.

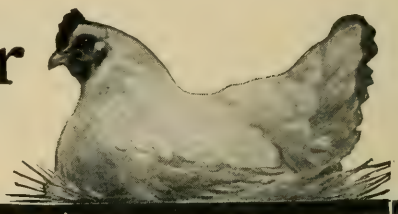
J. V. ROHAN, President

BELLE CITY INCUBATOR CO., Box 69, RACINE, WIS.

"Keep chickens,"

says the FARM JOURNAL,

and live better at less cost.



THOUSANDS of families, in city and country, have found this the easy way to IMPROVE their standard of living, and at the same time LOWER THE COST. With chickens you always have delicious food, for the family or for "company." Their eggs supply you with ready money or ready food. They are pets that *pay their board.* By keeping chickens, boys and girls can earn money, and also get an excellent training. Sometimes the back-yard plant grows into a large business, like those of CORNING, CURTISS, and FOSTER, who make many thousands of dollars a year.

Raising chickens pays if you know how, whether you keep a dozen hens, or run a large poultry-farm; but **you need the best guides.** Many get from their chickens less than HALF as much as they might get with the guidance of any of these **three splendid modern poultry-books,** which tell the experience and methods of the most successful modern poultry-raisers.

These methods have all been *tested* by actual experience and proved successful. The FARM JOURNAL stands back of them, for it has investigated them and KNOWS. They can be used with six hens or six thousand. Of the Corning Egg-Book alone, **OVER 100,000 COPIES** were sold in one year. Many are using these methods with splendid success and profit.

The Corning Egg-Book is the great guide-book for back-yard chicken-raisers. It tells how two city men in poor health, with no experience, starting with thirty hens, built up in four years an egg business which in one year, with 1953 hens, made an average profit of **$6.41 a year per hen.** These men learned how to make hens **lay the most eggs in winter,** when they get 60 and 70 cents a dozen. This book tells how they found the best breed, why they raise only white-shelled, sterile eggs, how they keep hens **LAYING ALL WINTER,** when they hatch chicks to do their best laying in January, how to mix the feed that produces most eggs, and how their whole system works to that one end—eggs, EGGS, EGGS. It gives photographs and complete working plans of their buildings, which you can build in SECTIONS, large or small as needed.

Curtiss Poultry Book tells how Roy Curtiss, a farmer's boy, starting with a few neglected hens, has built up at NIAGARA FARM one of the **best-paying poultry plants in the world.** Roy agreed that if his father would furnish feed he (Roy) would supply eggs and chickens for the farm table, and all left over were to belong to him. In two years Roy was using so much feed that his father had to cry quits, but the boy kept right on. His brother joined him, and the business grew and grew. But they had no guidance, and had to learn by their own mistakes. Such a guide as the **Curtiss Poultry Book** would have saved them thousands of dollars This capital book was written right at Niagara Farm by the veteran poultryman, **Michael K. Boyer.** He says he never saw a general poultry plant so well managed. Every day shipments go off, every day money comes in. Their percentage of fertile eggs, of live strong chickens hatched, of day-old chicks shipped without loss, is really wonderful. This book gives all their methods and feed formulas, tested and improved by years of experience. Many pictures. Whether you raise chickens, ducks, or eggs, have a dozen fowls or thousands, you will find in this book help that you can get in no other way.

"Poultry Secrets" is a remarkable collection of successful "wrinkles" in poultry-raising, secured and edited by MICHAEL K. BOYER (known to poultrymen as "Uncle Mike"). Many of these were treasured secrets of famous poultrymen, guarded with jealous care because of their great value. We paid hundreds of dollars for them. This is the ELEVENTH EDITION, and thousands are using these methods with great profit.

W. R. Curtiss tells his successful method of hatching **50 per cent** more pullets than cockerels; the Philo System is described and explained; the "15-cents-a-bushel" and "8-cents-a-bushel" green feed secrets; secrets of the Angell, Palmer, and Hogan Systems; Boyer's method of absolutely insuring fertility of eggs for hatching; Townsend's System for preventing death of chicks in the shell; Felch's famous mating chart, suppressed for many years; feeding and fattening secrets; and MANY OTHER PRICELESS SECRETS, are here disclosed for the first time.

ANY ONE of these books and Farm Journal balance of 1911 and all of 1912,	ANY TWO of the books and the Farm Journal for three years,	ALL THREE of the books, and Farm Journal for two years.
50 cents	**$1.00**	**$1.00**

Be sure to say plainly WHICH BOOK *or books you want.*

Farm Journal is the standard paper for everyone who grows or wants to grow fruit, vegetables, poultry, or stock of any kind. It is 33 years old, and has **over 750,000 subscribers,** in all parts of the country. "Judge Biggle" and "Peter Tumbledown" are characters better known to many than Hamlet or Micawber. It has a fine poultry department, more valuable than most poultry papers. It is a favorite paper with housekeepers. Clean, clever, cheerful, amusing, intensely practical. Cut to fit everybody, young or old, village, suburbs, or rural routes. Unlike any other paper and always has been.

On any one-dollar offer, if your order is mailed within TEN DAYS of the date of this paper, we will send you also the famous Poor Richard Almanac for 1911, full of wit and wisdom for the rural home. Address your letter just like this: —

FARM JOURNAL, 117 Clifton St., Philadelphia.

Gleanings in Bee Culture

College

VOL. XXXIX FEBRUARY 15, 1911 NO. 4

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Conversations with Doolittle

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Bee-keeping in the Sugar-cane Regions — ARTHUR DROSSAERTS
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Heads of Grain **Our Homes**

A MAIN POINT OF DISTRIBUTION!

NATURALLY the center of our large export business, and logically the source from which a majority of Eastern Bee-keepers expect their supplies to come, our NEW YORK BRANCH has been made A MAIN POINT OF DISTRIBUTION for all goods in the big ROOT LINE. Equipped for service in the fullest meaning of the word, well stocked, well managed, familiarity with every appliance for successful bee-keeping and the highways and byways of shipping, here, as perhaps at no other point are we thoroughly prepared to care for the wants of our Eastern bee-keeping friends.

1911 Supplies and Stock.

We have a complete line of all goods listed in the ROOT catalog, and carloads of fresh-stock goods come on continually from our factory. The capacity of our river-front warehouse is about twenty carloads. Orders for special-sized goods may be sent here—and we will order same from our factory to be shipped in car to New York and we will re-ship from here, thus saving an item on your freight charges. When ordering goods, be specific. Try to use our "KEY TABLE" as much as possible in specifying hives or parts of hives ordered. If not familiar or uncertain of articles ordered or letters representing some of our goods, give illustration and page number. : :

Shipping Facilities.

Insure yourself of quick delivery by sending your orders to New York. Here is the terminal of nearly all railroads —north, west, south, and the main steamspip lines whereby we can ship goods direct to you without change or delay. All express companies call at our warehouse daily, thus assisting us in serving you. Our facilities for shipping by freight, express, and boat are truly unexcelled. Avail yourself of this opportunity of quick delivery and low shipping charges which you certainly will obtain by ordering your goods of the New York Branch of The A. I. Root Co. : : : : :

Packing.

We do not charge for packing, boxing, or delivering to freight offices in New York or Hoboken, N. J. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B. New York. If no agent at your station, notify us and we will prepay, and bill charges after shipment. Often during the busy season much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what charges will be from New York. : :

Careful Attention and Prompt Service is Our Aim. We Try to Ship Mail and Express Orders the Day They are Received. Freight Orders are Filled in Order of Receipt. No Order is too Small or Large for Our Personal Attention.

OUR LOCATION.—We are located on 6th floor of the Evening Post Building, 20-24 Vesey St., in the downtown district. Our office is convenient to surface, subway, and elevated stations and to all downtown ferries. Here you will find well-fitted display rooms, with complete line of supplies, booklets, etc., always on exhibition, and our manager or attendant always present to explain our appliances and discuss the subject of bee-keeping. You and your friends are always welcome.

REMITTANCES.—Remittance with orders should be made by draft, check, postal money order, express money order, or stamps. Do not remit in currency or coin, unless registered, as it often goes astray. We do not care to ship C. O. D.

Order your supplies early. Do not wait until you are in a rush for them. Order now. We want your acquaintance.

Our Manager at the New York branch is thoroughly familiar with every appliance required for successful bee-keeping. His knowledge of outfits for beginners will be found especially beneficial to suburbanites who may want to engage in bee-keeping on a large or small scale. You will find him always willing and ready to make his services of value to whoever seeks his assistance.

Export Orders.—We pay especial attention to all orders for export. For the use of foreign customers we can furnish catalogs in Spanish and French.

THE A. I. ROOT COMPANY, NEW YORK CITY.

Phone Cortlandt 543. **603 Evening Post Bldg.,** **20 Vesey Street.**

Worcester, Massachusetts

Bee-Supply House

ROSS BROTHERS COMPANY, 90 Front St., Worcester, Mass., will handle the famous **"falcon"** bee-keepers' supplies. This firm, with large warehouses adjacent to the railroads, is fitted in the most minute detail to give orders attention the same day received. Bee-keepers in this section who have formerly sent to Boston for goods can now get them in much less time and with great saving in freight from Worcester, the railroad center of the New England States. Ross Brothers Company have for years handled a complete line of poultry supplies, farming implements, and seeds, and bee-keepers will often find it a great convenience and saving in freight to have these articles come along with their bee-supplies. Write them to-day for a bee catalog, and if interested in any of their other lines let them know it.

Don't fail to get in touch with Ross Brothers at once before you place your order for 1911.

FRESH carloads of **"falcon"** goods will be forwarded to them constantly, and they have something interesting to offer you.

The "Fifteen" Offer

As an introductory offer at Worcester, Mass., Ross Brothers Company had decided to give "DEWEY Foundation-Fasteners" with their first orders. The idea was such a good one that we decided to extend it to the three new 1911 FALCON Carload Distributing Houses, and here is the offer:

Beginning February 15, for the first fifteen orders for FALCON supplies amounting to fifteen dollars or more, will be given fifteen DEWEY FOUNDATION-FASTENERS at each of the following houses:

Ross Brothers Co., 90 Front Street, Worcester, Mass.
The Freight Center of the New England States

C. C. Clemons Bee Supply Co., 130 Grand Avenue., KANSAS CITY, MO.
The Freight Center of the West

W. T. Falconer Manufacturing Co., 117 No. Jefferson St., Chicago, Ill.
The ONLY Bee-Supply House in the Business Section of Chicago — the Freight Center of the Middle States.

THREE CENTERS for FALCON goods—each with fifteen Dewey Foundation-Fasteners for first fifteen orders amounting to fifteen dollars each.

If you do not need a machine for fastening starters in sections they have other articles to interest you. Be quick. Write to-day to the house nearest you. Ask for a 1911 "Red" Catalog.

W. T. Falconer Mfg. Company

Factory
FALCONER, N. Y.

Branch
117 No. Jefferson St., Chicago, Ills.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

SCHENECTADY.—Trade continues very quiet, with little demand for comb honey; and while there is some call for dark extracted it is not as great as usual at this season of the year. White extracted is very scarce.

Jan. 31. CHAS. MACCULLOCH.

CINCINNATI.—Comb honey is in fair demand, and is selling at $3.75 per case for No. 1 white. Amber extracted in barrels is selling at 7 cts.; in cans, 7½ to 8. White extracted honey in 60-lb. cans, 9 to 10; California light amber, 8½. All grades of extracted honey are in fair demand. Beeswax is in fair demand at $32.00 per 100 lbs. These are our selling prices, not what we are paying.

Cincinnati, O., Feb. 4. C. H. W. WEBER & CO.

KANSAS CITY.—The supply of both comb and extracted honey is light, and the demand is not as large as it should be at this time of the year. We quote No. 1 white comb, 24-section cases, per case, $3.50; No. 2 ditto, $3.25; No. 1 amber ditto, $3.25; No. 2 ditto, $2.75 to $3.00; white extracted, per lb., 8½ to 9; amber ditto, 7 to 7½. Beeswax, 28 to 30.

C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., Feb. 4.

CHICAGO.—Fancy white comb honey of the clover grade is strong at 18 cts.; but the lower grades of white comb are accumulating, and this indicates a downward tendency. The market receipts have been more liberal than was expected at this time. Extracted honey is scarce and in demand, with very little white selling at less than 9 to 10 that has any clover or linden in it. The alfalfa and sweet-clover grades are also held above 8 cts.; amber at 7 to 8, with dark and undesirable flavors at 6. Beeswax is in good demand at 32 if free from sediment.

Chicago, Ill., Feb. 7. R. A. BURNETT & CO.

ST. LOUIS.—The honey market since our last is unchanged. The stocks of comb honey are ample for the limited demand. Extracted honey is rather scarce, especially of the Southern grades, and shipments of this description are wanted. We quote fancy white comb honey, 16 to 16½; No. 1, 15½ to 16; choice amber, 14 to 15; dark, 11 to 12. Broken and leaking honey sells at less. Extracted white-clover honey, in five-gallon cans, 9 to 10; California, 8½ to 9 for white and light amber; Southern light amber, in five-gallon cans, 8 to 8½; in barrels and half-barrels, 7 to 7½. Beeswax, prime, 29; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Feb. 6.

Honey Markets continued on page 5.

Now for 1911 Bee-Supplies

We have already received several carloads of that "finest of all Beeware"—Falconer make—anticipating the heavy rush of orders sure to come this Spring. Prepare yourself NOW, Brother, for we are going to have a heavy honey yield this season, and those who order early are the ones who will profit most. Send for our catalog to-day, and see our "MUTH SPECIAL" Dovetailed Hive, and also our "IDEAL METAL" Cover—both DANDIES. We sell you cheaper than the rest; we have the Best. Let us figure on your wants—we will surprise you.

THE FRED W. MUTH CO.

51 Walnut Street "The Busy Bee Men" Cincinnati, Ohio

Get This Extra Discount

NO BEE-KEEPER can afford to ignore our early-order appeal. Past experience must have shown you that it does not pay to wait until the honey-flow is on to place orders for bee-supplies. The prudent bee-keeper does not delay. Not only does he anticipate his requirements for the coming season, but he seeks to save the 2 PER CENT DISCOUNT ON FEBRUARY ORDERS we now offer. If you get your goods early you will avoid the rush of the busy season later on, and you can really buy to better advantage now than at any other time during the year.

You may order your goods now and have them come along later, or we will ship at once and you will have time to get them ready for the harvest next spring at your leisure. We are always glad to make suggestions and quote prices on any list submitted. If you have never bought supplies from us, try us this season and see if you do not agree with us that we furnish the best bee-supplies made, and give you the best possible service. It means a good deal to YOU to get the best of goods and service for YOUR money. We give you both. Try us.

Remember Cincinnati!

There are good reasons why it is to your advantage to order your supplies from us. LOCATION, which means prompt service and low freight and express rates; OUR STOCK, the largest in this vicinity; OUR EXPERIENCE—these are a few you should carefully consider. You will indeed do well if you REMEMBER WEBER, CINCINNATI.

Be Sure You Have Our New Catalog!

This is the complete book of bee-keepers' supplies. In it you will find conveniently arranged and clearly described every thing from A to Z in the way of appliances for successful bee-keeping. Many new supplies are listed this year, and changes in former goods have been made so it is essential that you should order from our newest catalog. Of course, you are entitled to a copy. If you have dealt with us in past seasons one has been mailed to you without suggestion or request from you, but this may have gone astray. Do not lose time in telling us if you are without our money-saving price list—we want you to have a copy every year.

Poultry Supplies

A special catalog of these goods, which we will gladly furnish free upon request.

C. H. W. Weber & Co., Cincinnati, O.

2146 Central Avenue

Gleanings in Bee Culture

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Department Editors:—Dr. C. C. Miller, J. E. Crane, "Stenog," Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, Mrs. H. G. Acklin.

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HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

PARIS, FRANCE. E. Bondonneau, 56 & 58 Ave. Felix Faure, Paris 15. *Per year, postpaid, 8 fr.*

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Extracted Honey Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

Honey Markets continued from page 2.

ZANESVILLE.—The demand for honey is about what would naturally be expected at this time of year, and the market is rather better stocked than was anticipated. There are no offerings now to speak of. Comb honey sells to the retail grocery trade at 18 to 19 for No. 1 to fancy white. The principal demand for extracted here is in small glass packages. We quote white clover in 60-lb. cans at 10½ cts. Producers are offered for beeswax 28 in cash or 30 in exchange for bee-supplies.

Zanesville, O., Feb. 4. E. W. PEIRCE.

CHICAGO.—Trade in the comb-honey line still continues very dull. It doesn't seem to be a question of price, but lack of demand and consumption. Whether this is only temporary remains to be seen. Extracted honey is in very good demand. We quote fancy white comb honey, put up in 24-section glass-front cases, 16 to 17; No. 1 white, 15 to 16; No. 2 white and light amber, 13 to 14; New York State buckwheat comb honey, 12 to 14; white extracted, 8 to 9. Bright pure beeswax is firm at 30 to 31.

Chicago, Feb. 6. S. T. FISH & Co.

LIVERPOOL.—A good business has been done in Chilian for export and partly for home trade. Considerable sales were made of Pile 1 and Pile 2 last week. However, the prices have not been reported, but we know that they are in the neighborhood of $6.12 for Pile No. 2, and $6.60 for Pile 1. For Haitien honey we anticipate a better market during the next month or two. The quotations for other qualities are as follows: Haitien, $6.24 to $7.60; Chilian, $4.44 to $6.72; California, $10.56; Peruvian, $3.84 to $4.80; Jamaican, $6.00, to $6.72. The beeswax market is steady, but supplies are small. Sales of good yellow Chilian have been made at $38.72. Quotations for other qualities are as follows: African, $32.64 to $33.48; American, $33.88 to $37.48; West Indian, $32.64 to $36.28; Chilian, $38.72; Jamaican, $38.80.

Liverpool, Jan. 18. TAYLOR & Co.

THE NATIONAL BEE-KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey

MEMBERSHIP DUES

One dollar a year.

OFFICERS AND EXECUTIVE COMMITTEE

PRESIDENT.—George W. York, Chicago, Ills.
VICE-PRESIDENT.—W. D. Wright, Altamont, N. Y.
SECRETARY.—E. B. Tyrrell, Detroit, Mich.
TREASURER AND GENERAL MANAGER.—N. E. France, Platteville, Wis.

Are you a member? If not, why not send the annual dues of $1.00 at once to Treasurer France? Every progressive bee-keeper should be a member of this, the greatest bee-keepers' organization in America.

FOR 20 YEARS

we have been furnishing bees and supplies for the production of honey to successful eastern bee-keepers. Can we not furnish you this season? Catalog free. Discount on early orders.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

DENVER.—The demand for honey is light. Prices are well maintained, especially on first-class extracted. We quote strictly No. 1 white, per case of 24 sections, $3.60; No. 1 light amber, $3.38; No. 2, $3.15; extracted white, 9; light amber, 8 to 8¼; strained, 6¾ to 7½. We pay 25 to 26 cents for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSO'N,
Denver, Col., Feb. 6. F. Rauchfuss, Manager.

BUFFALO.—There is nothing new to report since our last report. It is more quiet than usual for this time of the year. We have a little demand for white-clover comb; No. 2 white and buckwheat are very much neglected. Lower prices would not effect sales—strictly a case of very little demand. We quote No. 1 to fancy white comb, 16 to 17; No. 2 ditto, 12 to 14; No. 1 buckwheat, comb, 12 to 13; No. 2 ditto, 9 to 10; extracted white, 8½ to 10; extracted amber, 6½ to 7; extracted dark, 6½ to 7; tumblers, 85 to 90 per dozen. Beeswax, 28 to 30.

Buffalo, Feb. 6, W. C. TOWNSEND.

INDIANAPOLIS.—There is a good and steady demand here for best grades of white-clover comb and extracted honey. Jobbing houses are well supplied, but practically none is now being offered by producers, and it is evident that there will be a shortage before the new crop can arrive. Fancy white comb is being offered at 18 cts.; No. 1, white, 17; extracted, 11, with some slight reductions on quantity lots. It is presumed that producers are being paid about 2 cents less than above quotations. Producers of beeswax are being paid 28 cents cash or 30 in trade.

Indianapolis, Feb. 3. WALTER S. POUDER.

CINCINNATI.—The demand for comb honey has slackened up to such an extent that those who have any on hand are sacrificing it in order to get rid of it. On the other hand, it does not seem as if the trade is craving for honey in the comb at this time of the year. Extracted honey is not moving as freely as we expected; nevertheless, for strictly fancy we are getting from 9 to 10 in 60-pound cans, 2 cans to the crate, according to the quality and quantity bought. Amber honey in barrels brings from 6½ to 8. We are paying 30 cts. cash or 32 in trade for nice bright yellow beeswax free from dirt.

Cincinnati, Feb. 6. THE FRED W. MUTH CO.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873 CIRCULATION 35,000 72 Pages Semi-monthly

A. L. BOYDEN, Advertising Manager

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SPACE RATES. To be used in one issue: Fourth-page; $12.50; half-page, $25; page, $50.
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No medical or objectionable advertising accepted.
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Some Queens that Will

Double Your Honey Crop

Wonderful Results from Care in Breeding



THE one apicultural field left nearly untrodden is that of improvement of stock. None holds out greater rewards for the efforts put forth. This is proven by the wonderful yields secured by the few enterprising men who have ventured into this fertile realm. For instance, when attending conventions and visiting bee-keepers in New York, in the winter of 1909, I repeatedly heard of the wonderful strain of Italians and the bountiful yields secured by Mr. Geo. B. Howe, of Black River, N. Y. After my return I corresponded with Mr. Howe, and learned that for 14 years he had been working in the direction of improving his stock; and that, of late, it was not unusual for him to secure 200 pounds of comb honey per colony. He said that bee-keepers who visited him could scarcely believe it possible that he secured such crops.

At my earnest solicitation, Mr. Howe consented to tell in the Review the story of his success; how he secured the best stock to begin with; how the work of weeding out was performed; his methods of breeding, etc. This article occupied five pages of the Review for July, 1910.

Origin of this Stock

Of course, there is not room here to give details, but it seems that the foundation of this strain came from a red-clover or "long-tongued" queen from the A. I. Root Co., and from stock procured from L. H. Robey—principally from the latter. Then followed a judicious crossing and a systematic selection that has enabled Mr. Howe practically to double his honey crops.

Following the publication of his article in the Review, life was made a burden to Mr. Howe by the deluge of letters that came to him from all over the country, asking for prices on queens. He had none for sale. He could not afford to sell his breeding queens—in fact, for three or four years he has offered and would gladly pay $100 for a queen whose progeny would prove superior to his present stock.

Twenty-five Dollars for a Queen

Feeling sure that the dissemination of this stock would be of immense advantage to bee-keepers, I have paid Mr. Howe $25 00 for one of his choice breeding queens to be shipped in the spring, in a full colony; and, during the honey-flow of June and July, I shall use this queen as a breeder in rearing for sale a few choice queens, doing the work with *my own hands*. In my apiary here at Flint I have a dozen colonies, headed by choice tested queens, secured last year from L. H. Robey, and these colonies will be used as drone-mothers, no other drones being allowed to fly, and, as my apiary is isolated, queens are almost certain to be mated to the Robey stock. Cells will be built in full colonies, made unusually strong by shaking into them large quantities of bees from other colonies, thus securing great, big, luxuriant, corrugated cells from which hatch those large, plump, vigorous, fully developed queens. Considering the stock, and the manner of rearing, such queens are well worth $5.00; in fact, the introduction of such a queen into an apiary may mean hundreds of dollars, but I shall offer them at only $2.50 each. Some may consider even that a high price. To such let me say that my customers will make DOLLARS where I make CENTS; besides, just notice

The Guarantees

under which they are sold. I will guarantee safe arrival, safe introduction (if directions are followed), purity of mating; and *entire satisfaction*, to the extent that, if so desired, the queen may be returned any time inside of two years and the money will be refunded, together with $1.00 extra to pay for the trouble. It will be seen that the producer *runs no risk whatever*, and, if not *entirely satisfied*, can have his money back, plus $1.00, any time inside of two years.



A Special Offer

I said that the price of a queen would be $2 50. There is only one condition under which a queen will be sold for less, and that is in connection with a subscription to the Bee-keepers' Review for 1911. The Review is $1.00 a year, the queen is $2.50, but I will send both for an even $3.00. Send in your order now, and I will put your name on the subscription list, send you the back numbers from January, continue to send you the Review the rest of the year, book your order for the queen, and send it to you when your turn comes. Orders will be filled *strictly in rotation;* so, if you want a queen as early as possible, don't wait—order today—*right now*.

W. Z. HUTCHINSON, Flint, Mich.

LEWIS BEE-WARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY CO. (Not Inc.)
Successors to YORK HONEY & BEE-SUPPLY COMPANY

148 W. Superior St., Chicago, Ill.
Send for catalog. ENOUGH SAID.

Now is the Time to Plan

for Next Season

Secure your Bee-supplies
in Advance of the
Busy Season

The A. I. Root Company

Syracuse, N. Y.



Established 1885

We carry an
up-to-date
line of

Bee-keepers' Supplies

At this season of the year we give the usual customary early-order discounts. If you are figuring your wants now to buy early and get the benefit of lowest prices, don't fail to consult us. We have

THE ROOT COMPANY'S Make of SUPPLIES

Nothing to fear as to quality. Beeswax taken in exchange for supplies.

John Nebel & Son Supply Co. High Hill, Montg. Co., Mo.

BEE SUPPLIES

We carry a full and complete line of Root's Celebrated Bee-keepers' Supplies. By buying in carload lots we are enabled to sell at factory prices f. o. b. Dallas. . . . . .

We also carry the largest and best assorted stock of the celebrated Texseed Brand Garden and Field Seeds in the South; Incubators and Brooders, and poultry supplies of all kinds.

Send for illustrated catalog. .

Texas Seed & Floral Co.

Dallas, Texas

When you have honey or beeswax for sale write us.

Annual Catalog Review

Continued from Feb. 1

As is our usual custom we give below a partial list of catalogs and booklets received from our advertisers and others within the last few weeks. The purpose of our brief review of each of these publications is that readers of GLEANINGS IN BEE CULTURE may have before them a condensed list which will give an idea of the contents of catalogs issued by manufacturers of articles and goods in which they may be interested. Needless to say, we encourage all such to send direct to the person or firm whose name is given for a catalog or booklet, which may be studied in leisure moments.

It is also our suggestion that, whenever a purchase is contemplated, two or three catalogs pertaining to the one subject be asked for. With well-printed, beautifully illustrated, and thoroughly descriptive books such as those before us at the time this review is written, the prospective buyer is seemingly transposed from his comfortable position beside the fireside to a great market-place where a large variety of goods are arranged for his careful inspection, and trained salesmen await his call to explain the merits of their wares in a pleasing and understandable way.

In writing, it is, of course, advisable that you mention GLEANINGS IN BEE CULTURE; and if you will do this you will find every person or concern whose name appears below quite ready to give your request the prompt attention it will deserve.

To the best of our knowledge and belief, each of the following booklets and catalogs is put out by a reputable house such as we would advise our readers to deal with:

SEEDS, PLANTS, NURSERY STOCK.

Shumway's Catalog of "Good Seeds;" 56 pages with cover in colors; quotes prices on small and large quantities of reliable seeds produced and sold by the well-known house of R. H. Shumway, Rockford, Ill.

John Lewis Childs, Floral Park, N. Y.—Annual Catalog of specialties and novelties in seeds, bulbs, and plants. A 32-page book with cover in colors.

The 1911 Spring Catalog of H. H. Berger & Co., 70 Warren St., New York—a very pretty little book of a rather different nature from the average seed catalog. It lists a number of novelties not usually offered. It has 80 pages, some in colors, with prettily colored cover.

Catalog of Strawberry-plants, issued by W. W. Thomas, "the strawberry-plant man," Anna, Ills. A well-printed little book devoted to a specialty, and published by a grower who has achieved considerable success.

The 1911 Guide for the Farm and Garden, published by T. W. Wood & Sons, Richmond, Va.; an 88-page catalog, listing and describing a complete line of field and garden seeds.

Catalog of Plants, Vines, and Trees, issued by Green's Nursery Co., Rochester, N. Y.; an annual publication by the well-known nurseryman C. A. Green, who publishes Green's Fruit Grower—a very useful book to all engaged in fruit culture to any extent.

Flowers for Springtime. The 1911 catalog of flower and garden seeds, issued by Miss Mary E. Martin, Jericho Road, Floral Park, N. Y.; 64 pages with colored cover.

The 24th Annual Catalog of Olds' Seeds for Farm and Garden, issued by the L. L. Olds Seed Company, Madison, Wis.; a book of 88 pages, which lists and describes a very complete line of seeds for field and garden. It specializes upon potatoes and field seeds of a high pedigree. It also contains a descriptive price list of implements and poultry-supplies. Nicely printed with a novel colored cover.

The 1911 Catalog of the Germain Seed and Plant Co., Los Angeles, Cal. This is one of the most attractive catalogs we have received this year. It is prettily printed, with colored plates, 112 pages, with cover in true-to-life colors. It specializes seeds and plants native to California and the far West. It contains a sowing-table and much useful and interesting information on novelty seeds and plants.

The 1911 Seed Annual of D. M. Ferry & Co., Detroit, Mich., is an interesting and attractive book of 98 pages, containing colored plates and prettily printed colored cover. It describes and quotes prices on an extensive line of seeds grown and sold by this well-known house.

Rich Land Nurseries, Rochester, N. Y. Annual catalog of fruit and ornamental trees, roses, shrubs, etc.; 32 pages and cover.

Peter Henderson & Co., 35—37 Cortlandt St., New York; 1911 catalog of every thing for the garden; a 200-page book of unusual elegance and completeness.

Wm. Rennie Co., Toronto, Montreal, Winnipeg, Vancouver, Canada. Handsome catalog of one of the leading Dominion seed-houses. Will be greatly appreciated by our Canadian friends. Ninety-six pages. Well illustrated. Cover in colors.

"Novelties in Trees, Shrubs, Roses, and Hardy Plants," is the title of a 24-page illustrated booklet issued by Ellwanger & Barry, world-famous horticulturists, Rochester, N. Y. Many beautiful specimens of ornamental trees, shrubs, and plants are cataloged in this brief circular which announces a complete general catalog for the asking.

Bee . . . Keepers IN . . . . .

A Seasonable Suggestion:

Send for Our 1911 Catalog

We make it our business to get the best possible goods (Root Quality) to you in the quickest possible time at a low freight expense.

We also sell Berry-Baskets.

MICHIGAN

M. H. Hunt & Son

Lansing, Mich.

Opposite Lake Shore Depot



"If goods are wanted quick, send to Pouder."

Orders for Bee-supplies are now increasing daily as the season advances, and the indications are favorable for a good season for the bee-keeper as well as for the supply-dealer. The past season has proved that the demand for honey is on the increase, and the bee-business is looking up. I recently shipped 3000 pounds of extracted honey to one man (A. A. Roush, Straughn, Ind.). This is only a small portion of what this man has handled during the past winter. He retails it and gets 25 cents per lb. for it. Says he formerly sold at 20 cents, but can sell more at the 25-cent price. The secret is that he sells only finest grades, and he insists on his prospective patrons tasting it. I was pleased when he came to me for his honey, for he could have bought other quality elsewhere for less money, but he got the best. If you are new in the business, and in doubt where best to send for your supplies, I wish you would ask some established bee-keeper. If he doesn't advise sending to Pouder I will miss my guess. A free catalog real prompt.

859 Massachusetts Ave. WALTER S. POUDER.

Mrs. Beekeeper

Your husband is interested in bees. Here is something that will interest YOU.

You know, don't you, that good baking-powders are expensive? But are you aware that most of the cheaper powders contain ALUM—a POISON? If you could get a low-priced baking-powder as good as the high-priced ones, and yet perfectly wholesome, you'd cut down your living expenses by using it, wouldn't you?

At last I HAVE IT! and for four cents in stamps, and the name of your dealer, I will send you a full description and a sample large enough for several bakings; also a nice bee-supply catalog for your husband.

(This offer is good whether you are a "Mrs." or just want to be one.)

EDMUND W. PEIRCE
136 West Main St. ZANESVILLE, OHIO



EVERY FRUIT-GROWER

and FARMER; every commercial Bee-keeper and City Dweller would do well to have this easy way of getting honey. Send 50 cts. for the book, "The Pearce Method of Bee-keeping."

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Route 1, Grand Rapids, Michigan
IT TELLS YOU HOW

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Falconer's Goods
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C. C. CLEMONS BEE SUPPLY CO.
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Is the Shipping Center of New England

Bee-keepers should bear this in mind when ordering their supplies. . . . A full line of supplies always in stock. . . . . Send for catalog.

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182 Friend St. . . Boston, Mass.

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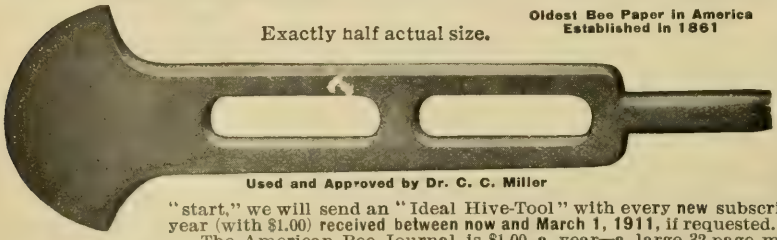
THAT YIELD. Our Sensation Oats breaks all records. Nothing like it. Also **SEED CORN.** For samples and catalog write

Theo. Burt & Sons Melrose, Ohio

AN IDEAL HIVE-TOOL FREE TO MARCH 1st

with the AMERICAN BEE JOURNAL One Year—Both for $1.00

Exactly half actual size.



Used and Approved by Dr. C. C. Miller

Oldest Bee Paper in America Established in 1861

Read the Following Particulars:

No doubt there are thousands of readers of GLEANINGS who would be glad to read the old American Bee Journal regularly if they once get started. In order to induce them to make this "start," we will send an "Ideal Hive-Tool" with every new subscription order for one year (with $1.00) received between now and March 1, 1911, if requested.

The American Bee Journal is $1.00 a year—a large 32-page monthly. Every bee-keeper ought to have it; and in order to induce several thousands of readers of Gleanings to take it for 1911 we make the above generous offer. NOW is your chance to get one of these handy, valuable hive-tools free. Better sit right down and send in your order with $1.00 for the tool and the American Bee Journal for 1911. Sample copy of Bee Journal free. Address

George W. York & Co., - 117 No. Jefferson St., Chicago, Ill.

BEE-KEEPERS
SAVE MONEY NOW

Here is your opportunity to make a nice saving on all supplies. We are making a

Special Cash-discount Offer

that means money in your pocket, if you will send in your order now. You know from past dealings with us, and from our reputation as a firm, that we deal only in

The Right Kind of Supplies

We are fitted to serve you best in every way. Our location, stock, and low prices are all to your advantage.

We have every thing you can need in successful bee culture, and give the smallest order the same prompt attention as a large one. All orders invariably shipped the same day received.

OUR BIG BOOK SENT FREE. Tells all about keeping bees, and how to make them profitable. Sure to contain information and suggestions of real value to you.

Send to-day for catalog of money-savers and full information concerning Special Cash-discount Offer. The Bee-book will be sent you, too.

Blanke & Hauk Supply Co.
1051 Lucas Ave., St. Louis, Mo.

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is the place to buy your Beeware. . .

GRIGGS

is the man who can tell you what to use —how to use it. .

He is a practical bee-man.
His 25-years' experience is at your service.
Send for his catalog.
At the old stand.

S. J. Griggs & Co.
25 North Erie St.
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"Griggs, the King Bee"
Wholesale and Retail

GOLD MEDALS
St. Louis Exposition, 1904
Jamestown Centennial, 1907



Danzenbaker Smoker

Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT GRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

The **ONE-PIECE** cap **CAN NOT clog.** It is the **COOLEST, CLEANEST, STRONGEST, BEST,** and **LARGEST NET CAPACITY** of all smokers, selling at one dollar ($1.00). We **GUARANTEE SATISFACTION** or **return** the price; only three complaints in **six years.**

Send your address and five other bee-keepers', for **FREE CIRCULARS** and fifty-page catalog of B-supplies, and we will send you one smoker for even dollar. We **WANT YOUR HELP** in selling Bee-ware at factory prices.

Smoker by mail, $1.25; with Gleanings a year by mail, $1.50 for medium; $1.75 for large size, during January.

F. DANZENBAKER, - NORFOLK, VA.

ROOT'S GOODS
For WESTERN PENNNSYLVANIA

Liberal early-order discounts. Gleanings and choice queens GIVEN AWAY. Write at once for circular. . . Time is limited.

GEO. H. REA, - Reynoldsville, Penn.
Successor to Rea Bee & Honey Co.

BEE-KEEPERS

We appear here to tell you that our New Catalog on Bee Supplies is yours for asking. . It is free. . Get one.

August Lotz & Co., Boyd, Wisconsin

PATENTS
25 YEARS' PRACTICE

CHAS. J. WILLIAMSON, Rooms 304 to 307, Savings Bank Bldg., 7th and E. Sts., WASHINGTON, D. C.

Patent Practice in Patent Office and Courts.

Patent Counsel of The A. I. Root Co

Hilton Strain of Bees and Root's Goods to the Front again



A View of Mr. Chase's Apiary.

Friend Hilton:—I started this spring with 16 colonies; bought 30 three-frame nuclei of you; have increased to 85 strong colonies with ample stores for winter without feeding. Have taken 4000 lbs fine extracted honey and a little comb (and no drawn combs to begin with) all from full sheets of foundation. My best colony gave 329 lbs.; a three-frame nucleus, received from you May 28, gave me 210 lbs. extracted honey But for the drouth and fires I should have had much more.

Very truly yours, G. C. CHASE, Robbins, Wis.

I am now booking orders for next season's delivery of Nuclei and Queens, and next season's supplies, and making a very liberal discount. . . . .

Write for 50-page price list, and send list of goods wanted for special discounts. All Root's Goods. Beeswax wanted, cash or trade.

Geo. E. Hilton, Fremont, Michigan

Nature Education and Recreation

For Boys and Girls:
NATURE AND SCIENCE (of St. Nicholas Magazine), . Per year, $3.00

For Men and Women:
THE GUIDE TO NATURE (monthly, illustrated) . . Per year, 1.00
$4.00
BOTH, ONE YEAR, $3.00; sample of either, 10c.

For Teachers:
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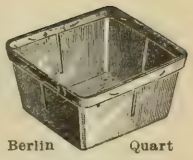
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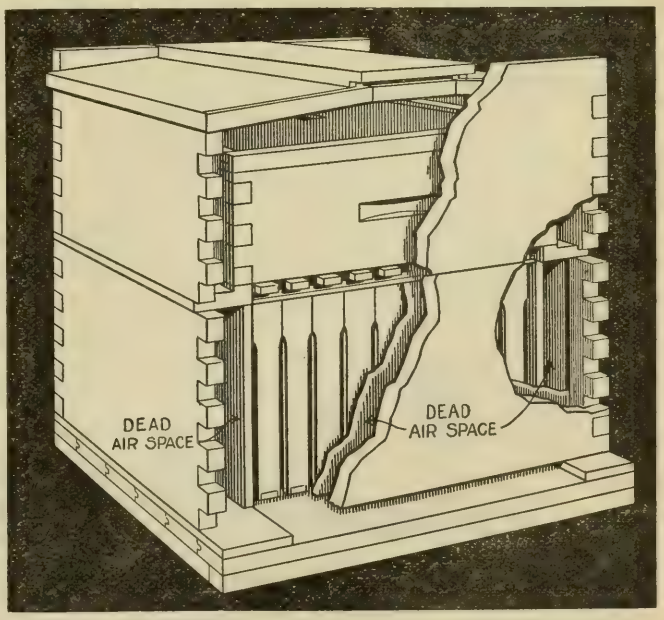
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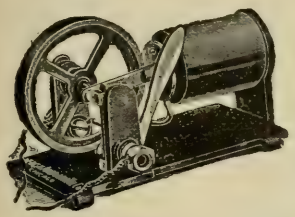
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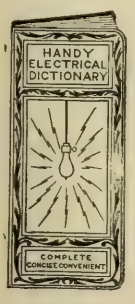
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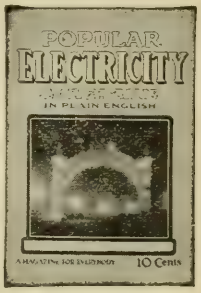
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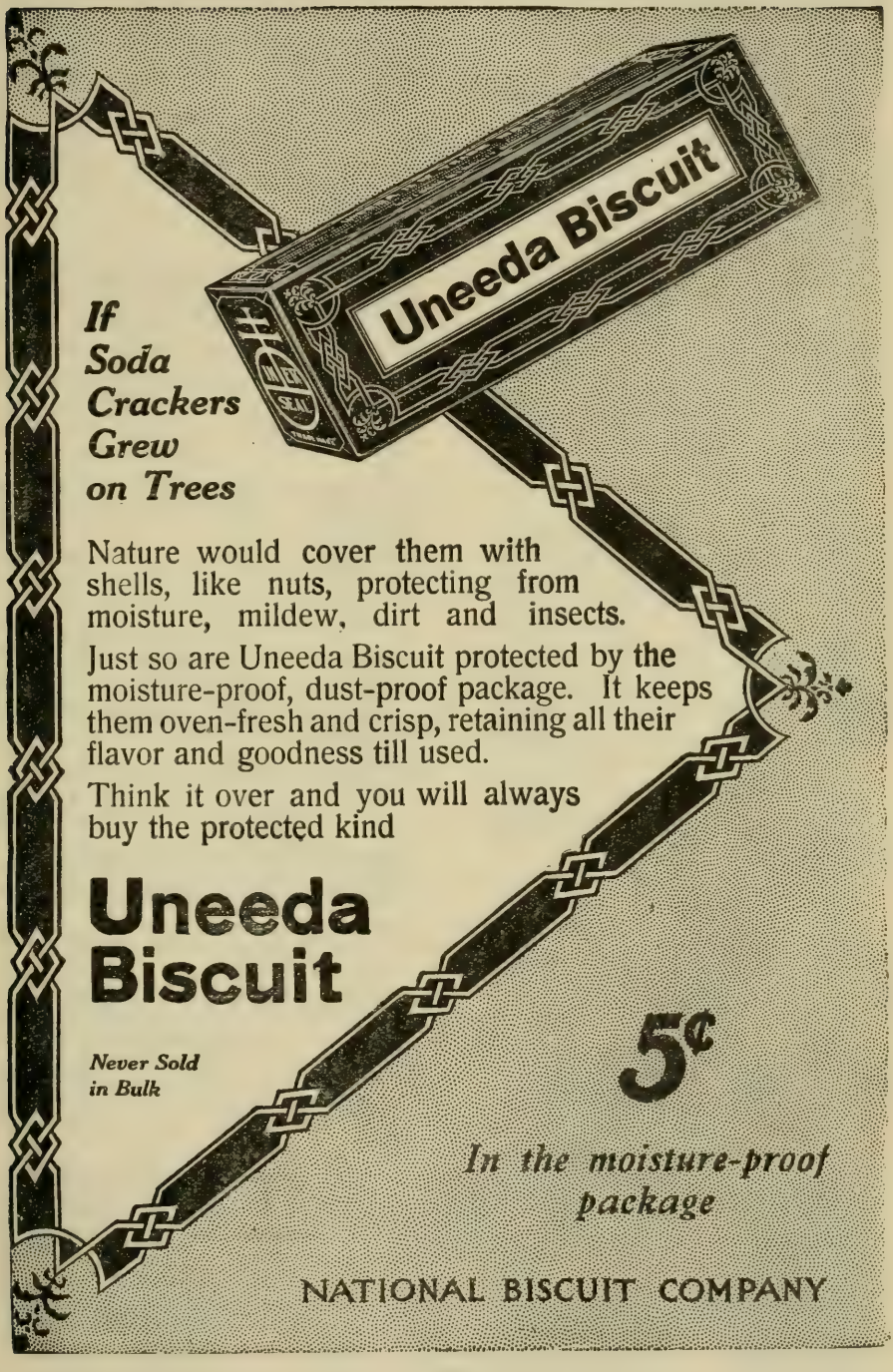
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710 White clover.
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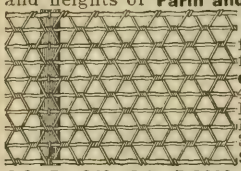
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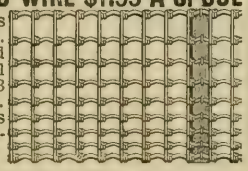
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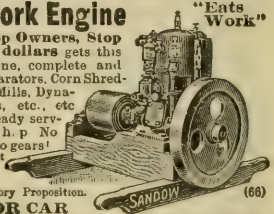
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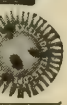
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We are manufacturers, not merchants. Save dealers, jobbers and catalog house profit. I'll save you from $50 to $300 on my High Grade Standard Gasoline Engines from 1¾ to 28-h-p. Price direct to you lower than dealers or jobbers have to pay for similar engines in carload lots for spot cash.

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Price and quality speak for themselves and you are to be the sole judge. Sell your poorest horse and buy a

5-H.-P. only $119.50



Direct From My Factory on 30 Days' Free Trial. Satisfaction or money back. Write for special proposition. All you pay me is for raw material, labor and one small profit. Send for my big **BOOK FREE.**

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"KANT-KLOG" SPRAYERS

Something New

Gets twice the results with same labor and fluid. Flat or round, fine or coarse sprays from same nozzle. Ten styles. For trees, potatoes, gardens, whitewashing, etc. **Agents Wanted.** Booklet Free.



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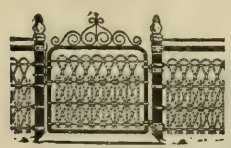
and do whitewashing in most effectual, economical, rapid way. Satisfaction guaranteed. BROWN'S

HAND OR POWER Auto-Sprays

No. 1, shown here, is fitted with Auto-Pop Nozzle—does work of 3 ordinary sprayers. Endorsed by Experiment Stations and 300,000 others. 40 styles and sizes of hand and power sprayers—also prices and valuable spraying guide in our Free Book. Write postal now.



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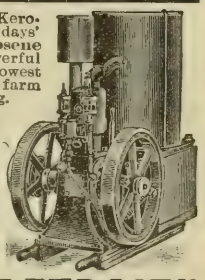
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Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves **kerosene** cheapest, safest, most powerful fuel. If **satisfied,** pay lowest price ever given on reliable farm engine; if **not,** pay nothing.



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Automobile owners are burning up so much gasoline that the world's supply is running short. Gasoline is 9c to 15c higher than coal oil. Still going up. **Two** pints coal oil do work of **three** pints gasoline. No waste, no evaporation, no explosion from coal oil.

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Only $45.00 and up. The "DETROIT" is the **only** engine that handles **coal oil** successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Basic patent—only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h.p., in stock ready to ship. Engine tested just before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric-lighting plant.

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The farm labor saver that lasts a lifetime. Broad tired steel wheels carry any load. No wear-out to them. Don't be a wagon slave. The Electric saves thousands of high lifts. Best for hauling manure, grain, stone, fodder—everything you have to haul. Easier on the horses. Why not do your hauling the easy way? Send now for free book telling all about the one long-lived, steel-wheeled, real handy wagon. Address

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Mine are true to name. Free booklet tells all about the 150 acres I am growing for telephone poles. **H. C. ROGERS, Box 113, Mechanicsburg, O.**



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In the heart of wholesale, retail, and theatrical district.

Fireproof construction.

Remodeled and refurnished at an expense of over $150,000.

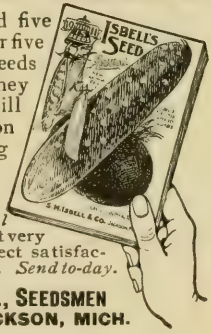
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Of potatoes is what you will get with good seed and an Iron Age Planter. It plants 100 per cent. without misses or doubles or injury to the seed. Every seed piece placed, just right, at even spaces and covered uniformly. The boy pays for his labor 10 to 20 times over, and the planter pays for itself—ask any user. With or without fertilizer distributor.

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have "made good" and proven their superiority for 75 years. Send postal to-day for our Anniversary Catalog—it tells all about our Potato Planters, Cultivators, Diggers, Sprayers, Garden Tools, Wheel Hoes, Drills, etc., and is FREE. Don't delay.



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vary in character. It is safest to look the ground over before investing. Plenty of good land, also much that is not suitable for farming. Diversified farming pays best. We have lands that produce three crops a year. Let us help you to locate right. . . . . For further information address

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Your address on a postal brings latest edition of "Hatching Facts"—best Booklet published on Incubators and Brooders—tells how to start right at least expense. Belle City won World's Championship last season. "Hatching Facts" tells all. Write today—or if in a hurry order direct from this ad below. Anyway read remarkable offer: J. V Rohan, Pres. Belle City Incubator Co.

$7.55 Buys the Best 140-Egg Incubator



Ever Made
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Both Incubator and Brooder, ordered together cost but $11.50—Freight Prepaid (E. of Rockies). The Belle City Incubator has double walls and dead air space all over, copper tank, hot-water heat, self-regulator, thermometer, egg tester, safety lamp, nursery, high legs, double door. The Belle City Brooder is the only double-walled brooder made, hot-water heat, platform, metal lamp. No machines at any price are better.



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Satisfaction Guaranteed

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ROOT CONVERTIBLE BROODER

Is used indoors with the sash, and outdoors with the galvanized covered doors.

Have You Lost Any Young Chicks

Because of leg weakness?
Because of sour crop and bowel trouble?
Because the chicks pile up and smother each other?

There must have been unnatural conditions that caused your losses, and it is to your interest to look into your brooding equipment.

You will Agree with Us that

It's warm dry floors that cause leg weakness; the chicks' feet dry up. With the mother hen the chicks would be running on cool, moist earth, and their feet would be cold, but strong and stocky.

You will also agree that the chicks breathing warm air, as they do under the old-fashioned hovers, is what causes sour crops and bowel trouble.

These unnatural conditions do not exist in the Root Brooders, as there the chicks have a cool floor to run on, and there is no hover; the air is not confined; it's free and continually changing.

Our Catalog gives an accurate and thorough description of the Root Brooders, and it will be sent to you upon request.

The Root Incubator Co.

Dept. C, Cleveland, Ohio

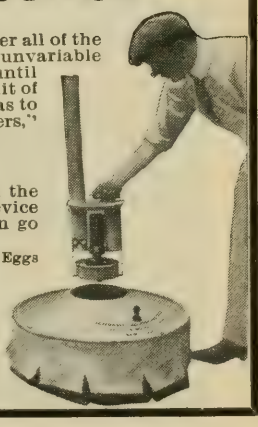
Perfect Equipment is THE Secret of Our Success!

With the experience gained in operating the Largest Poultry Plant in the World, our knowledge of the several makes of incubators is greater than the manufacturers'. For the sake of economy WE built an incubator giving *results never secured by any other make*, and we now offer it to the public. The



International Self-Humidifying Incubator

is responsible for *our great* success, and will give to the struggling beginner all of the profits and none of the losses. Absolutely automatic in every function, unvariable temperature, certain moisture from the moment of starting the hatch until nature requires a cessation in order to properly dry the newly-hatched unit of future profit—so thoroughly safe-guarding its entrance into poultrydom as to guarantee its livability when raised under the very acme of "Foster Mothers,"



THE INTERNATIONAL SANITARY HOVERS

This Hover makes possible the rearing of the maximum of chicks and the minimum of deaths—90 to 95% live and thrive and grow. It is the only device that contains the *active principle of the hen*, and the ingenuity of man can go no further.

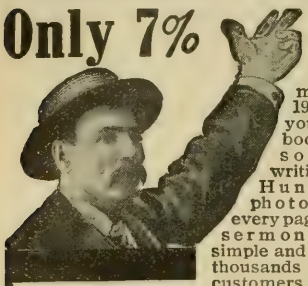
Our best efforts are centered in the production of Day-Old-Chicks and Hatching Eggs from matured stock. No pullets' eggs are used except for table purposes.

We have just completed our 1911 catalog on incubators and hovers, also our stock catalog on **Rancocas Strain BABY CHICKS and HATCHING EGGS.** You are welcome to either or both of these catalogs.

Send to-day.

INTERNATIONAL POULTRY SALES COMPANY
Home Office, Box 310 Brown's Mills-in-the-Pines, N. J.
Branch, 21 Barclay Street, New York City

Johnson's Share Only 7%



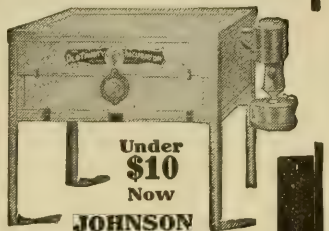
I've got a most profitable chicken raising message for 1911 to send you—and my book, Johnson's own writings again. Hundreds of photographs—every page a poultry sermon on how simple and sure many thousands of satisfied customers of mine have proved Old Trusty. I'll write my price to you personally—less than $10—freight prepaid (E. of Rockies) and show you how I'll make less than 7%—less than 70c on every Old Trusty on over 100,000 output this year.

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I used to have to make as high as 16% when I sold one-half as many. But I'd rather put down the price and sell more than twice as many on 7% making profit. And Old Trustys are better than ever this year—over 80% hatches guaranteed and my guarantee to last you ten years. Handsome metal encased over asbestos covering, Beginners find them simple, easy to run and sure. Expert poultry raisers praise Old Trustys for highest standard success.

30 60 or 90 Days' Trial — 10 Year Guarantee



Under $10 Now

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Whatever else you do—don't miss this offer. Don't miss my 1911 Old Trusty Book with hundreds of photographs. Be sure to write me a postal before you buy anybody's machine this time. Address

M. M. JOHNSON
Clay Center Nebraska

Ideal Hatcher and Brooder BOTH FOR $10



Freight Prepaid

Not "cheap"—but the biggest value ever offered. Output limited at this price. Famous Ideal Incubator, 120 egg size, metal covered all 'round; safest, surest, simplest profitmaker for beginner or old timer. Self ventilating; self regulating. 120-chick Ideal Brooder never equaled. Both complete, **$10.00.** I pay freight east of Missouri River and north of Tennessee. Write for delivered prices beyond. Don't miss this big value. Get my **Free Book** anyway. Best guide to poultry success and biggest profits. Equally attractive prices on larger size Ideals. Send your name now to

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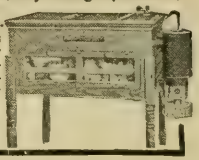


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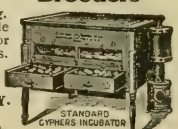
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the self-regulating, self-ventilating, non-moisture, fireproof, insurable and guaranteed hatchers. Write for this free book and get all the facts. Address store nearest you.



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Quality Higher—Price Lower

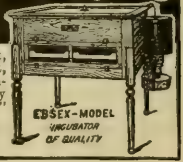


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We beat them all again. Get our DIRECT-TO-YOU proposition, low prices, and BIG FREE BOOK on **SUCCESSFUL** Incubators and Brooders before you buy anywhere this year—the greatest value ever offered. Catalog FREE—send name. If you want a book on "Proper Care of Chicks, Ducks, Turkeys"—send 10 cents.

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The 1911 catalog by Robert H. Essex, poultry and incubator expert, will start you right. Improved incubators and brooders. Read "Why Some Succeed Where others Fail."

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GET EGGS NOW

Humphrey's newest book, "The Golden Egg," will show you how to get eggs all winter, and from 150 to 250 eggs a hen a year. I will give you, FREE, my secret of reducing feeding cost one half and of doubling your poultry income.

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Where Humphrey's Bone Cutters, Clover Cutters Brooders and other Poultry Helps are made.

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BEAUTIFULLY ILLUSTRATED CATALOG
144 Large Pages **Mailed Free**



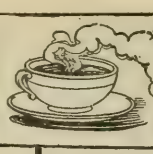
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ESCHSCHOLTZIA THORBURNI
(California Poppy)

HARDY annual. Sow outdoors in Spring. The grandest of all Eschscholtzias. The unopened buds on outer side of petals are of deepest crimson, toning down on the inner side to bright flame color and molten gold. We will mail a packet of this valuable novelty and a copy of our beautiful catalog—*the best Seed annual published in America*—for only **10 cents,** stamps or coin. (Regular price of Seed, 15 cents packet.) Write to-day.

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A wholesome drink! The healthiest ever; you can grow it in your own garden on a small patch 10 feet by 10, producing 50 lbs. or more. Ripens in Wisconsin in 90 days. Used in great quantities in France, Germany and all over Europe.

Send **15** cents in stamps and we will mail you a package giving full culture directions, as also our Mammoth seed catalog free; or send **31** cents and get, in addition to above, 10,000 kernels unsurpassable vegetable and flower seeds—enough for bushels of luscious, different vegetables and brilliant flowers.

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fine, stocky, hardy, grown on the bank of Lake Erie. Free from borers and other diseases. All kinds of **Fruit Trees** in large supply. Headquarters for **Ornamentals,** 50 acres in **Hardy Roses,** none better grown. The **Best Flower and Vegetable Seeds.** 44 greenhouses of **Everblooming Roses, Palms, Ferns, Ficus, Geraniums,** and other things too numerous to mention. Mail size postpaid, safe arrival and satisfaction guaranteed. **Immense** stock of **SUPERB CANNAS,** the queen of bedding plants. Acres of **Peonies** and other **Perennials.** No. 1 Catalog, 112 pages, for **Fruits** and **Ornamentals;** No. 2, 168 pages, for **Seeds** and **Plants.** Both **FREE. Direct deal will insure you the best at first cost. Try it.** 57 years. 1,200 acres. (18)

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10,000 SEEDS 10c.

We want you to try our **Prize** Seeds this year and have selected **50 best varieties** and put up **10,000** seeds especially to grow Prize Vegetables and Flowers. They will produce more than $25. worth of Vegetables and 10 bushels of Flowers.

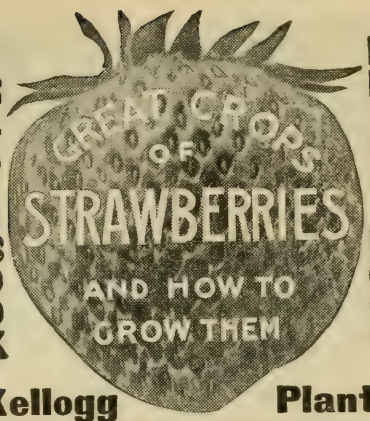
800	Seeds	Cabbage	3	Best	Varieties	3 pkts.
2,600	"	Lettuce	4	"	"	4 "
800	"	Onion	2	"	"	2 "
1,000	"	Radish	4	"	"	4 "
300	"	Tomato	3	"	"	3 "
2,000	"	Turnip	4	"	"	4 "
2,500	"	Flowers	30	Grand	Flowering	Varieties

In all **10,000** Seeds, and our new Seed Book with a **10c** Credit Check good for 10c selection, postpaid, 10c.
FAIRVIEW SEED FARMS, Box 122, Syracuse, N. Y.

Every American Planter knows that

Burpee's Seeds Grow!

BUT—do YOU know *why* they are the Best Seeds that can be grown for planting in 1911? Our address is **W. ATLEE BURPEE & CO., Burpee Buildings, Philadelphia.** Send us *your address,* and we shall mail, without cost, a copy of THE LEADING AMERICAN SEED CATALOG FOR 1911, a bright New Book of 174 pages that tells The Plain Truth About THE BURPEE-QUALITY SEEDS.



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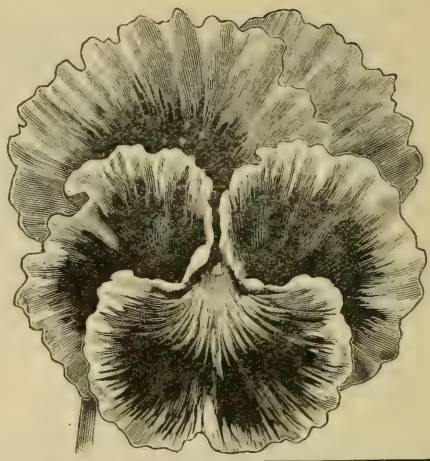
THE Kellogg 1911 strawberry book is the most complete treatise on strawberry growing ever written. It tells the farmer how to grow big crops of big, red strawberries and how to sell them at big prices. No matter where you live or what kind of soil you have, this book will tell you how to prepare your soil, what varieties to set, and how to manage the plants to insure best results. One acre of Kellogg Thoroughbred plants grown the Kellogg way will yield $500 to $800. Get this beautifully illustrated 64-page book and learn how easy it is to grow strawberries for market or home use. It's free.

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10 Strong, Hardy, Two-year-old **Grapevines** **$1.00** **Postpaid.**

Best varieties—red, white, black. Just the kind for planting around the house, along fences, or in the garden. We also offer **5 three-year-old vines for $1.** Will bear year after planting. Our valuable book, how to plant and prune, free with every order. Grapes are easily grown. Mention this paper and we'll add free one new, large, red currant. **T. S. HUBBARD CO. Grapevine Specialists. 355 Central Ave., Fredonia, N. Y. Established 44 years.**



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ONCE GROWN ALWAYS GROWN

is the reason why for many years past I have done such an enormous seed business. 79,430 customers in Pennsylvania alone, with almost half a million the world over. My New Seed Book for 1911 is a wonder; contains everything in seeds, bulbs and plants worth growing. Weighs 12 ounces; 600 illustrations, 4 colored plates, 176 pages. Any gardener sending his name on a postal card can have it for the asking. Address

WM. HENRY MAULE
1707-09-11 Filbert St., Philadelphia, Pa.

Send 5 cents (stamps) and mention this paper and I will enclose in the catalogue a packet of seed of the above choice pansy.

450,000 TREES

200 Varieties. Also **Grapes, Small Fruits, etc. Best** rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Catalog free. **LEWIS ROESCH & SON, Box A, Fredonia, N. Y.**

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20 Pkts. Northern Grown Seeds 10c

OLDS' SEEDS

Are planted every year by thousands of the most successful gardeners. To induce new business we will mail for **10c.** the **20 packets,** named below.

LETTUCE,—Good all the year round.
CABBAGE,—Best early variety.
CARROT,—The general favorite.
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ONION,—The best Red Wethersfield.
PARSNIP,—The smoothest and best.
WATERMELON,—The leading melon.
PARSLEY,—Just right for seasoning.
MUSKMELON, Golden-flesh Rocky Ford.
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Is an 88-page book, is the easiest catalogue to order from, contains a full list of Farm and Garden Seeds and is **mailed FREE.**

PUMPKIN,—The best for pies.
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L. L. OLDS SEED CO. **Madison, Wis.** Drawer, C



Hardy "Blizzard Belt" Giant Strawberry Plants FREE

Everybody likes fine strawberries, and to prove that our new GIANT variety is the largest and strongest grower, as well as the heaviest fruiter, we offer to send you TWO PLANTS (worth 30 cents) absolutely FREE. We have picked 12 quarts of fine berries from a test bed grown from but two GIANT plants set the year before. You can do as well, and at the same time raise young plants for a new bed. If you care to send 10 cents for mailing expense, we will add 6 BABY EVERGREENS 2 years old, and send all to you at proper planting time in the spring. It will pay you to get acquainted with our "HARDY BLIZZARD BELT" Trees and Plants. Write to-day and we will reserve the plants for you and send you our catalog by next mail. Address



THE GARDNER NURSERY CO., Box 319, Osage, Iowa

Buyer's Bureau

More than twenty-five bee-keepers have returned the coupon printed under the head of "Automobiles" in this department a month ago. We knew there was considerable interest in motor cars for business use among our friends, and it has been a pleasure indeed to supply our several inquirers with the information asked for. In addition to returned coupons there have been dozens of letters and postal cards asking about automobiles—small and large—trucks and pleasure-cars.

Another popular request is for gasoline-engines. We have had considerable experience with small engines suitable for bee-keepers' use, and have not found it difficult to answer any questions which have been asked so far.

Next to automobiles and gasoline-engines in point of number have been requests for incubators, brooders, and poultry. Very great interest is being shown everywhere in the poultry business, and bee-keepers are not slow to take up this work, which so admirably combines with the keeping of bees. Never before have we carried so many announcements from reliable incubator, brooder, and poultry-supply manufacturers, and we are always glad when we are called upon to give our opinion on just where a machine of a certain size or style can be procured at the price which our correspondent wants to pay. Not a few bee-keepers seem to be engaged in raising chickens on a very extensive scale. Several have asked about incubators up to the 400-egg size, and one friend said he already had three such incubators in use and now sought a fourth.

The confidence our readers hold in advertisers whom we permit to use our columns is one of the greatest assets of GLEANINGS. Every now and then we are permitted to get an inner glimpse, as it were, of the good opinion bee-keepers have of this, their journal. Just a few days ago we handed an inquiry for a certain breed of chickens over to a local fancier who has made marked progress with this variety. He immediately wrote our subscriber and quoted prices on the stock desired. It seems that, in the meantime, some home friend had arranged to supply our inquirer's wants so that, by the time the quotation we had arranged for arrived, no further stock was desired. Bee-keepers are an appreciative folk, however, and the courtesy of the man who had written at our suggestion was not overlooked. He has shown us a letter which contains the following paragraph—true evidence of the loyalty of our readers to this journal:

"However, I shall keep your address for future use. We will undoubtedly need some cockerels this fall, and I shall try to deal with you, as I have all confidence in any one recommended through the instrumentality of GLEANINGS."

A very encouraging letter, both to our friend the poultry fancier and ourselves.

Inquiries for queens are beginning to come in. We have suggested to a number of breeders who carry advertisements in our coloumns year after year that it would be well to encourage early orders, and we hope soon to announce offers on queens for the coming season. Those who have experienced unfortunate delays in past seasons will not need to be reminded that, in furnishing queens, it is always "first come first served," and that it is none too early to anticipate your queen requirements.



King Edward

and 40 other good varieties of Strawberries—the kinds for big profits.

500,000 Choice Raspberry Plants

Black, Red, Yellow and Purple varieties.

Blackberry Plants by the million

The most complete stock in the United States Our Blackberries are of the fruiting strains, and are sure money makers. We offer special inducements in Currants, Gooseberries, Grapes, Fruit and Ornamental Trees.

We sold over 11,000 bushels of Seed Corn last spring, and have a bumper crop again for sale. It is the kind that fills your cribs.

Send for our free catalog, fully describing the products of our 1,000 acre farm. You simply can't afford to miss this Send today.

W. N. SCARFF **New Carlisle, Ohio**



Seeds, Plants, Roses,

Bulbs, Vines, Shrubs, etc. Hundreds of car lots of **FRUIT and ORNAMENTAL TREES.** 1,200 acres, 50 in hardy **Roses**, none better grown. 44 greenhouses of **Palms, Ferns, Ficus, Geraniums** and other things too numerous to mention. **Seeds, Plants, Bulbs, Roses, Small Trees,** etc., by mail, postpaid. Safe arrival and satisfaction guaranteed. Immense stock of **SUPERB CANNAS**, the queen of bedding plants. Acres of **Pæonias** and other **Perennials.** 50 choice collections cheap in Seeds, Plants, Roses, etc. Elegant 168-page Catalog **FREE.** Send for it today and see what values we give for your money. Direct deal will insure you the best at first cost. 57 years. (11)

The Storrs & Harrison Co., Box 116, Painesville, O.

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Flansburgh's - Strawberry - Catalog

for 1911. Reliable, interesting, and instructive. HIGHLAND, ST. LOUIS, GOLDEN GATE, and all the best varieties. Address

C. N. FLANSBURGH & SON
JACKSON, MICH.

New Strawberries

Nearly 100 varieties to select from. We guarantee our plants to be high grade and equal to any. Our 18th annual catalog is ready; write for one

The Flansburgh & Potter Co.
Box 330, Leslie, Mich.



Do Your Own Printing

Cards, circulars, book, newspaper Press, $5 Larger, $18; Rotary, $60. Save money. Big profit printing for others. All easy; rules sent. Write factory for press catalog, TYPE, cards, paper.

THE PRESS CO., Meriden, Conn.

Cornish One Year's Free Trial



Cornish Instruments for real merit, are unexcelled by any other, whatever the price or name or reputation.

This is our offer to you—select any Cornish piano or organ, from the least expensive to the finest ever built and we, without one bit of obligation on your part, will send the instrument to you **direct from our factory** with the distinct understanding that if the instrument does not come up to your fullest expectations you are not to keep it, and that the

Trial Will Cost You Absolutely Nothing

If the instrument does not prove better value for the money than you can get anywhere else—if it is not as good an instrument as you can buy for one-third more than we ask—if at any time within a year you feel that you have not a good bargain, send it back; we won't find one word of fault with your decision, and you will not be one cent out of pocket for freight or for use of the instrument.

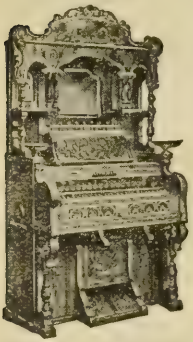
Two Years Credit If Needed



We Save You $100 and more On a Piano

The Cornish Bond Protects You

Easy Terms



Buy On The Cornish Plan—Save One-Third

and holds us strictly to this offer. You are to have the privilege of any terms of payment that you may choose. You risk nothing. **We assume all responsibility,** because we know all about the great beauty of material and workmanship in Cornish pianos and organs and we know all about the pure, sweet, rich tone quality of our instruments and we know what **a quarter of a million satisfied purchasers** think of them.

If you keep the instrument it will cost you the **Rock-Bottom Factory Price,** not one cent more, and you will receive with it our **Bonded Guarantee** which insures the instrument for **25 years** against defect in material or workmanship.

Send For The New Cornish Book

Don't think of buying before reading it. It is the handsomest piano and organ catalog ever issued. It explains things you ought to know whether you buy from us or not and it is yours for the asking. Write for it now and please mention which you are interested in—piano or organ.

Cornish Co. WASHINGTON, N. J. Established Over Half a Century

STRAWBERRY PLANTS

Guaranteed as good as grow, at $1.00 per 1000 and up. . . Catalog free.

ALLEN BROS., PAW PAW, MICHIGAN

GOVERNMENT BULLETINS

Continued from page 22, last issue.

Bulletins in this list will be sent free, so long as the supply lasts, to any resident of the United States, on application to his Senator, Representative, or Delegate in Congress, or to the Secretary of Agriculture, Washington, D. C. Because of the limited supply, applicants are urged to select only a few numbers, choosing those which are of special interest to them. Residents of foreign countries should apply to the Superintendent of Documents, Government Printing Office, Washington, D. C., who has these bulletins for sale. Price 5 cents each to Canada, Cuba and Mexico; 6 cents to other foreign countries. The bulletins entitled "Experiment Station Work" give briefly the results of experiments performed by the State experiment stations.

354 Onion Culture
355 A Successful Poultry and Dairy Farm
356 Peanuts
357 Methods of Poultry Management at the Maine Agricultural Experiment Station
358 A Primer of Forestry. Part II: Practical Forestry
359 Canning Vegetables in the Home
360 Experiment Station Work—LI
361 Meadow Fescue: Its Culture and Uses
362 Conditions Affecting the Value of Market Hay
363 The Use of Milk as Food
364 A Profitable Cotton Farm
365 Farm Management in Northern Potato-growing Sections
366 Experiment Station Work—LII
367 Lightning and Lightning Conductors
368 The Eradication of Bindweed, or Wild Morning-glory
369 How to Destroy Rats
370 Replanning a Farm for Profit
371 Drainage of Irrigated Lands
372 Soy Beans
373 Irrigation of Alfalfa
374 Experiment Station Work—LIII
375 Care of Food in the Home
376 Game Laws for 1909
377 Harmfulness of Headache Mixtures
378 Methods of Exterminating Texas-fever Tick
379 Hog Cholera
380 The Loco-weed Disease
381 Experiment Station Work—LIV
382 The Adulteration of Forage-plant Seeds
383 How to Destroy English Sparrows
384 Experiment Station Work—LV
385 Boys' and Girls' Agricultural Clubs
386 Potato Culture on Irrigated Farms of the West
387 The Preservative Treatment of Farm Timbers
388 Experiment Station Work—LVI
389 Bread and Bread-making
390 Pheasant-Raising in the United States
391 Economical Use of Meat in the Home
392 Irrigation of Sugar Beets
393 Habit-Forming Agents
394 Windmills in Irrigation in Semi-Arid West
395 Sixty-day and Kherson Oats
396 The Muskrat
397 Bees
398 Farm Practice in the Use of Commercial Fertilizers in the South-Atlantic States
399 Irrigation of Grain
400 A More Profitable Corn-planting Method
401 Protection of Orchards in Northwest from Spring Frosts by Fires and Smudges
402 Canada Bluegrass: Its Culture and Uses
403 The Construction of Concrete Fence-posts
404 Irrigation of Orchards
405 Experiment Station Work—LVII
406 Soil Conservation
407 The Potato as a Truck Crop
408 School Exercises in Plant Production

FERRY'S SEEDS

To grow the finest flowers and most luscious vegetables, plant the best seeds. Ferry's Seeds are best because they never fail in yield or quality. The best gardeners and farmers everywhere know Ferry's seeds to be the highest standard of quality yet attained. For sale everywhere.

FERRY'S 1911 Seed Annual
Free on request
D. M. FERRY & CO.,
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GOOD SEEDS



BEST IN THE WORLD
PRICES BELOW ALL OTHERS

I give a lot of new sorts for trial with every order I fill. A Grand Big Catalog Illustrated with over 700 engravings of vegetables and flowers. Send yours and your neighbors' addresses. **FREE**

R. H. SHUMWAY, Rockford, Illinois

STRAWBERRY PLANTS



200 ACRES OF THEM. I GROW NOTHING ELSE

I do not run a nursery—or seed business. I devote all my time to Strawberry Plants. I personally superintend my farm. Every plant guaranteed "true to name." Plants grown in *Natural Strawberry Climate*; soil right, too. Strong rooted, prolific bearers. Prices right. Get my 1911 Catalog. Write to-day.—NOW.

W. W. THOMAS. The Strawberry Plant Man 260 Main St., Anna, Ill.

"Great oaks from little acorns grow"

—and just so surely do successful results come from the insertion of an advertisement in this department. Here is the market-place where bee-keepers come to buy, to sell, to express their wants or satisfy their requirements. Read this letter:

> The honey advertised in GLEANINGS is all sold now except two cases (240 lbs.). I had 11,000 lbs., and got 9 cts. for all of it, one party taking 5400 lbs.
>
> C. J. BALDRIDGE,
> Jan. 10, 1911. New York.

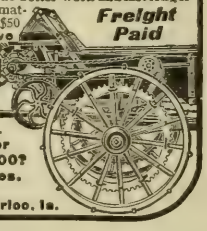
Better use the classified advertising columns of GLEANINGS IN BEE CULTURE if you have something to sell—if you want to buy. Read the offerings here—NOW.

I'll Save You $50

On a Manure Spreader
If You'll Let Me

This is just a little ad—but a postal will bring my **Big Book**—and give you my $80.00 Saving Price and Special Proposition. You can save as much answering this little advertisement as if it covered a page.

My Spreader positively will do better work and last longer than any Spreader made—no matter what the price—so why pay $50 more? **20,000 farmers have stamped their O. K. on my spreader and money-saving price.** My Special Proposition will interest you. Just a postal addressed to Galloway of Waterloo, Iowa, will bring you everything postpaid.



Will You Pay a Penny For The Postal and Save $50.00?

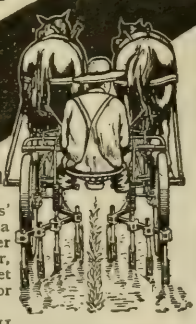
Address **Wm. Galloway, Pres.**
WM. GALLOWAY CO.
1689 Galloway Sta. Waterloo, Ia.

Planet Jr

Planet Jr New No. 76 Pivot-Wheel Riding Cultivator Plow Furrower and Ridger

The greatest one-row cultivator ever invented for cotton or corn. It is a combination of the best features of former cultivating implements, and is really an "all-star" cultivator—without an equal.

Does thorough work, yet is light in draft. It is simple, strong and durable. Made of finest quality materials throughout. **Fully guaranteed.**



Backed by more than 35 years' experience of a practical farmer and manufacturer, which has made all Planet Jr implements the leaders for their different kinds of work.

Write for the illustrated 1911 Planet Jr catalogue fully describing one-and-two-horse cultivators, and combination hand garden tools. **Free and postpaid.**

S L Allen & Co Box 1106 S Philadelphia Pa



Yes! Phelps

Will Save You $25.00 to $75.00 or No Sale——

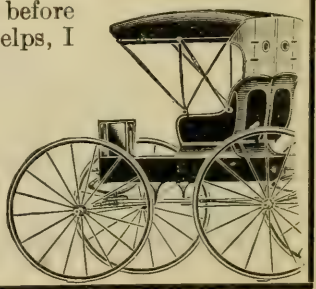
according to kind and style of buggy you need. This he guarantees — and asks you to let him prove it to you by sending you his latest Book for 1911—that he wrote himself — showing, with big photographs, all the important parts about a buggy—how it should be made—what it should be made of — and Phelps knows.



Here is the Free Book Don't You Want It?

If you took all the Buggies found in 25 big stores—and put them all together—you wouldn't have as many styles and kinds to choose from as are shown in this Big Show Room Book of Phelps'—over 125 styles of Auto Seat Buggies—Runabouts—Surreys—Driving Carts—Carriages—Spring Wagons, etc.—all GENUINE SPLIT HICKORIES — sold on 30 Days' Free Road Test — 2 years' Guarantee — direct from factory.

Write today—while this advertisement is before you. Just say on a postal card—"Phelps, I want the Book"—and he'll do the rest.



Address H. C. PHELPS, President,

The Ohio Carriage M'f'g Company

Station 293, Columbus, Ohio

Largest Factory in the World Selling Vehicles Direct

Book Notices

AMERICAN NEWSPAPER ANNUAL AND DIRECTORY.

1418 pages Royal octavo, cloth, $5 00 net, carriage extra, postage 60 cents, published by N. W. Ayer & Son, Advertising Agents, Philadelphia.

For the thirty-first time a comprehensive review of the newspaper and magazine field is presented by this publication. To the publishers of this country and to those having dealings with them, this work is most useful. The facts and figures pertaining to each publication are presented in a condensed and get-at-able form.

The Annual and Directory is now the only publication of its kind which is compiled from information gathered each year from original sources. Mr. Geo. P. Rowell was the first to compile such a work, and for forty years he issued the American Newspaper Directory in the interest of publishers and advertisers. Following his death, the Directory, with its records, copyrights, and property, was sold to N. W. Ayer & Son, who combined it with their own work.

As heretofore, special attention has been given to the important matter of circulation figures. Where satisfactory signed or sworn statements have been made these figures are presented; otherwise the editor of the Annual has estimated the circulation from the facts at his command.

Supplementary to the general catalog are lists of daily papers, magazines, women's publications, mail-order publications, agricultural and religious papers, together with groupings of publications pertaining to various classes and trades. As an illustration of the up-to-date character of this section we notice a list of publications devoted to aeronautics, also one showing those which deal with the manufacture and exhibition of moving pictures.

The Annual and Directory likewise presents a vast amount of up-to-date gazetteer information showing the transportation, banking, and other facilities of every town in which a newspaper is published, together with references to its leading industries and characteristics. This feature is supplemented by a specially prepared map of each State, showing every newspaper town. Convenience and conciseness have been carefully studied throughout, and the book places at the disposal of publishers, of advertisers, of businessmen, of students, librarians, etc., a vast amount of fresh information not elsewhere to be procured.

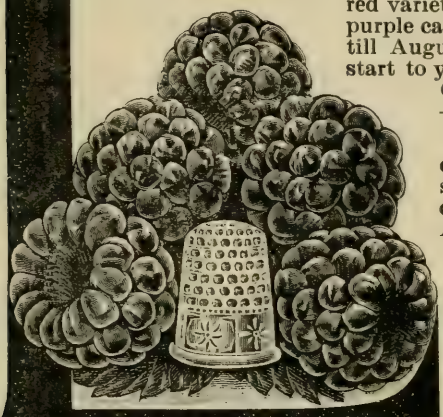
Asters All flower-lovers should grow this beautiful annual. My seeds are true to name. Write for free descriptive folder.

R. H. DAVIS, 98 Burt St., Taunton, Mass.

ST. REGIS EVERBEARING RASPBERRY.....

Bears first, last, and all the time.

Large crops of luscious berries, June to frost.
Plant it this April, it will yield continuously from June to October, this year.



Will Ship 200 Miles in Fine Condition

The first or main crop alone exceeds any other red variety—fully equal to the prolific black cap or purple cane sorts. Continues fruiting on old canes till August when new canes of the current year start to yield increasing quantities of finest fruit. Continues to bear till ground freezes hard—plenty of berries in October.

Canes are hardy as an oak—stand severest cold uninjured. Leaves never scald or sunburn. Succeeds on all soils like Concord Grape, Bartlett Pear, and Baldwin Apple. The whole story and color plate of fruit mailed free, along with catalog of "small fruits that produce profits." Write for them today.

J. T. LOVETT

Box 132 Little Silver, N. J.

Send for our Valuable FREE Book



It tells you how you can save the agent's commission by ordering your fruit and ornamental trees and shrubs direct from us by mail.

We have thousands of satisfied customers all over the country which proves that our trees are the kind you want to get.

We grow our own stock and guarantee it

Some great bargains for spring planting are offered in the book and you owe it to yourself to write for it now. Read these specials:

2 Early Harvest Apples 2 Dyehouse Cherries
2 King Apples 2 Black Tartarian Cherries
2 Walter Pease Apples 2 Gov. Wood Cherries
All are first-class X grade trees. **12 trees for $1.13**

1 Japan Ivy 6 Lily of the Valley
2 Honeysuckle Hall's Jap. 2 Phlox
73c Mail Prepaid

6 Assorted Paeonies, colors, red white, purple, blush, yellow and pink, for **$1.00 Prepaid.**

ALLEN L. WOOD, Woodlawn Nurseries
626 Culver Road, Rochester, N. Y.

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Small and large red, and alfalfa seed for sale. Catalog apiary supplies free.

F. A. SNELL, Milledgeville, Carroll County, Illinois



SEEDS

If you love Flowers write me a letter (not postal) for **Park's Floral Guide,** teeming with floral notes, pronouncing the big flower names, giving a germination table, showing nearly 1000 flower pictures. It's different. It insures success. Be sure to see it. **Best seeds at lowest prices.** 42d yr.

5 Fine Gloxinias, 5 colors, 25c
7 Double Begonias, 7 " 25c
5 Fringed Begonias, 5 " 25c
25 Fine Mixed Gladiolus, 25c

10 Pkts. Choice Flower Seeds, 10 cts.

Aster, Q. of Market, Mxd.	Pinks, New Japan, Mxd.
Larkspur, Stock-flowd, "	Poppy, New Shirley "
Pansy, Giant Fragrant "	Portulaca, Large-flwd, "
Petunia, New Bedding, "	Sweet Peas " "
Phlox Drummondi, new "	Mixed Seeds, 1000 kinds.

10 Pkts. Choice Vegetables, 10 cts.

Beet, Imp. Early Turnip.	Onion, Danvers Yellow.
Cabbage, Early Solid Cone	Parsnip, Large Guernsey.
Cabbage, Late Flat Dutch	Radish, Special Mixture
Cucumber, White Spine.	Tomato, New Matchless.
Lettuce, Malta Drumhead	Turnip, Purple-top Globe

Send 10c for either lot, or 20c for both. Or, send 60c for club of three (60 pkts.) and I'll add four 2-oz. pkts. (worth 40c) Best Sweet Corn, Beans, Peas and Squash, also, trial subscription to **Park's Floral Magazine,** which cheers and brightens more than **600,000 homes every month.** Six lots (124 pkts.), $1.00. Club with friends.

GEO. W. PARK, B21, La Park, Pa.

A REMARKABLE OFFER OF

HENDERSON'S SPECIALTIES

To demonstrate the superiority of Henderson's Tested Seeds, we have made up six of the best we have, into a Henderson Collection, consisting of one packet each of the following great specialties:



Ponderosa Tomato
Big Boston Lettuce
Scarlet Globe Radish
Henderson's Invincible Asters
Mammoth Butterfly Pansies
Giant Spencer Sweet Peas

To obtain for our annual catalog, "Everything for the Garden," described below, the largest possible distribution, we make the following unusual offer: To every one who will mail us ten cents, mentioning this publication, we will mail the catalog and also send our Henderson Specialty Collection as above.

Every Empty Envelope Counts as Cash

This Collection is enclosed in a coupon envelope, which, when emptied and returned, will be accepted as 25c cash payment on any order of one dollar or over.

"Everything for the Garden"

(our 1911 catalog) is without exception the best we have ever issued; 208 pages, 8 colored plates, 800 photo engravings, showing actual results without exaggeration, make it the most complete as well as beautiful horticultural publication of the year. Also contains full cultural directions for flowers and vegetables.

PETER HENDERSON & CO. 35 & 37 CORTLANDT ST. NEW YORK CITY.



EVERGREENS

We Have Over Fifty Million Evergreens
All hardy, tested, nursery grown stock. We ship to all parts of the world. Large as well as small trees supplied, $4.00 and up per thousand. Our prices are lowest of all. Quality the highest.

Hill's Trees Grow
because they are hardy and have good roots
You can have a beautiful windbreak, hedge, shelterbelt or screen with the hardiest of evergreens at a very low cost. Our beautiful catalog, illustrated in colors, is a mine of information on evergreens, shade, ornamental and fruit trees, shrubs, roses and vines. Don't buy until you get free catalog and sheet describing 50 wonderful bargain lots. Send for them today.
D. Hill Nursery Company, Box 246, Dundee, Illinois
Evergreen Specialists

TREES AND SEEDS THAT GROW

All kinds Farm, Garden and Flower Seed to select from. Best quality fruit trees, large bearers, grafted stock, not seedlings. Apple 4c, Peach 6c, Plum 15c, Cherry 12c, Concord Grapes $2.50 per 100. Forest tree seedlings $1.25 per 1000, up. We pay freight on $10 orders nursery stock

GERMAN NURSERIES AND SEED HOUSE
CARL SONNENBERGER, PRES.

We celebrate our 25th Anniversary in the Tree and Seed business this year by offering our customers Anniversary Collections. Send your name and address today for list of Collections and 25th Anniversary Garden Book, 136 pages; also Free packet "Incomparable Lettuce."

GERMAN NURSERIES, BOX 142, BEATRICE, NEB.



SPRAY with the Empire King.

He who attempts to grow fruits without a Sprayer is handicapped. Blight and bugs, rot and rust, mold and mildew, all conspire to damage the crop, and in all cases succeed if the farmer does not spray. This is the only hand pump having automatic agitator and brush for cleaning strainer. Valuable book of instruction free. **FIELD FORCE PUMP CO., 881 11TH ST., ELMIRA, N. Y.**



Six Months for 15 Cents

Bee Culture and Fruit Growing make a happy combination. Every reader of Gleanings ought by all means read the Southern Fruit Grower. Devoted to fruit growing, small fruits, nut growing, gardening, poultry, household, etc., etc. 32 to 40 pages monthly. In order to get every reader of Gleanings to read the Southern Fruit Grower, we have decided to send it for six months for 15 cents. This is absolutely restricted to new subscribers. Send in 15 cents to-day. Address **THE SOUTHERN FRUIT GROWER, Dept. B C., Chattanooga, Tenn.**



"There is just this about it," said Mr. Prosperous Beekeeper to the neighborly Novice who had dropped in for an afternoon chat,

"YOU can run along very well in a way producing comb honey, and feel perfectly satisfied with the profits of your season's work while you meet the exacting conditions of comb-honey production; but if you are ambitious, if you enjoy bee-keeping, have the location and the inclination, then take my advice—adopt all ten-frame hives, buy a good extractor, and go into the business on a broad scale. And let me say a word on this subject of extractors. I feel I am entitled to give a little advice, for I am still using the Novice honey-extractor I purchased from A. I. Root twenty-six years ago."

"Twenty-six years!" exclaimed our beginner in bee-keeping; "why, that's a pretty long time to use any machine, isn't it?"

"Well, yes," replied Mr. P. B.; "but it's about nine-tenths in the machine, you know, and the other tenth in the man who keeps it up," he answered, with a twinkle in his eye. "You see, when I bought this machine (it is one of two I am using) I calculated to get the best they had, and I guess I did it. Quite a few new-fangled notions have been added to the Root extractor of to-day, and they are improvements too, though we old fellows are pretty conservative sometimes, and it takes a lot of arguin' to convince us that every thing new is best. But come into my honey-house. I want to show you my new extractor. She's a dandy, I can tell you, and sucks the honey out of the comb like some of them long-tongued bees you've hearn tell of. Just see if you don't think this machine will last me twenty-six years," said Mr. P. B., as he and the Novice entered the honey-house together. "Never saw a better-built piece of machinery in my life—solid, well-braced, well-finished inside and out; large honey-gate down here so that you can't clog her, no matter how fast you are handling combs; and, what I like best of all, is these little ball-bearing arrangements at the top and bottom of the reel. You won't believe that they make so much difference, may be, until you try; but come over here some day when I am extracting and take a turn for a few hours on the faithful Novice extractor; then try this modern contraption. I'll bet the best queen I've got in the South yard you'll swear by ball bearings for ever afterward."



"What's this lever up here on the crank frame?" asked the Novice of his entertaining friend."

"Oh! well, I should say yes," replied P. B.; "that's one of the slickest things you ever saw—the reversing lever. I had read quite a little about how this worked before I went down to Root's and saw it work; but I was a little shy at first on getting a machine with too many improvements all at once. I felt that, if a common Novice extractor of the earliest pattern had stood by me for more than a quarter of a century I needn't be so particular about gettin' any thing that would last more'n twenty-five years more; but when I saw the way this thing finished up one side of the comb, then, flash like that" (and P. B. threw the lever down, with the result that the comb-frames gracefully slowed down and turned the other side toward the extractor walls) "well, I wanted it—that's all, and here it is, giving me better service than the old machine, and with a whole lot less effort too. Why! with this machine I put in my first set of combs; start the machine going with very little effort, and, after a few revolutions, let 'er coast along without me for a few minutes—does it without power after I've given a few good turns (that's the ball bearings), and I have time to uncap a new set of combs ready for the next load, and hardly lose a minute.

"I want to tell you, Mr. Novice, this honey business is all right, and a good proposition. I've been in the game long enough, and ain't making no complaint, for this place of mine's paid for — every last dollar—and the boys and girls are pretty well fixed so far's education and comforts of life go; but you've got to know what's right and take up with every thing good that will help along. The bee-keeper who tries to work modern methods with old-time ideas, or who thinks he can just as well drag along a year or two more with what he's got, be it good or bad, is sliding backward. There's very little chance for him, and I ain't slightin' my own Novice extractor either. That machine was good enough for a long time — best I could get, I guess, and better'n many of 'em to-day; but when you compare that extractor with my new Root Automatic — well, you would not need to see—you could feel the difference. Next year I'm going to rearrange my honey-house, put in a small gasoline-engine, and turn that extractor with power. I saw how they do it at Medina, and this Root catalog tells about it too. I figure I'll save a few hours on every job, and with quite a little saving on myself too, and I'm gettin' too old to do any unnecessary turns.

"Goin', eh? Well, drop in again — come round when I'm puttin' some combs through, and I'll let you learn all about this extractor problem in a practical way," said Mr. P. B., as he chuckled, and our young friend closed the gate.



THE sequel of this dialog—founded upon true statements taken from original letters on file in our office—is the detailed description of the ROOT AUTOMATIC HONEY-EXTRACTORS contained in our 1911 catalog of bee-supplies, and the booklets, "Power Extractors" and "How to Produce Extracted Honey;" all of which may be had free for the asking, together with answers to any other questions that may occur to you.

THE A. I. ROOT COMPANY, MEDINA, OHIO
20 Vesey Street, New York City 213-231 Institute Place, Chicago

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

Amber extracted honey in 60-lb. cans, 8½c per lb. HAROLD HORNOR, 8 Vine St., Philadelphia, Pa.

Raspberry and clover honey, finest quality and flavor; also light-amber honey. Write for sample. LONGFELLOW BROTHERS, Hallowell, Maine.

FOR SALE.—Choice light-amber extracted honey—thick, well-ripened, delicious flavor. Price 9 cents per lb. in new 60-lb. cans.
J. P. MOORE, Morgan, Ky.

FOR SALE.—3000 lbs. of fine buckwheat honey in cans holding 57½ lbs. net, two in a case, at 7½ cents per lb. Satisfaction guaranteed to all buyers.
EARL RUHISON, Route 1, Amsterdam, N. Y.

FOR SALE.—1000 lbs. extracted from sealed combs on bees till approach of cold weather; basswood, willowherb, and raspberry mixed; quality second to none; in 60-lb. (net) square cans, two in a box; 10 cts. per lb. Sample, 10 cts.; may be deducted from an order. E. WOODALL,
Goodman, Marinette Co., Wis.

We have a small shipment of fine honey produced by a leading bee-keeper in Schoharie Co., N. Y. This honey is in barrels weighing about 160 lbs. net each, and is practically all clover and basswood, with just enough autumn flowers in it to give a dark tinge. We offer it at the low price of 8½ cts. per lb. If you want a sample before ordering a barrel, ask for lot No. 16.
THE A. I. ROOT CO., Medina, O.

Wants and Exchanges

WANTED.—100 or more colonies of bees, free from disease, within moving distance of Northern New Jersey. State kind of hive, price, etc., in first letter. Address GLEANINGS, Medina, O., 35,441.

WANTED.—Fine qualities of white and light-amber extracted honey. Send samples with lowest prices f. o. b. New York. Also state how packed, and quantity you have. Are always in the market for beeswax. HILDRETH & SEGELKEN, New York,

WANTED.—Our bee-keeping friends to know we are now located ½ mile from freight, express, and post offices; four mail-trains every day, where we will be prepared to rear and ship superior golden Italian queens. T. S. HALL,
Talking Rock, Pickins Co., Ga.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 199 S. Water St., Chicago.

For Sale

A. I. Root bee-supplies. Send for catalog and save freight. JOHN L. SWAN, Union City, Mich.

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

FOR SALE.—One-man folding sawing-machine, as good as new. D. COOLEY, Kendall, Mich.

FOR SALE.—New unhulled white-sweet-clover seed, 15 cts. per lb.; postage, 8 cts. per lb. extra.
ANTON G. ANDERSON, Holden, Mo.

FOR SALE.—One 2-frame Cowan extractor, $8.00; Barnes foot-power saw, $15.00; both in good condition. C. W. PIPER, De Soto, Ill.

FOR SALE.—A. I. Root foundation-mill, size 2½x10 in., hexagon cell, light brood; has not turned out over 25 lbs.; good as new; $15.00.
GEO. LINDMEIER, Lyons, Iowa.

A BARGAIN.—200 lbs. Dadant's medium brood foundation in first-class condition. The lot at 45 cts. per lb. For smaller quantity write
JAY NORTH, North Adams, Mich.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successor to J. M. Jenkins), Penn, Miss.

FOR SALE,—New crop of alfalfa seed; 4 lbs. by mail, prepaid, $1.10; 25 lbs. by freight or express, at 17 cts.; 50 lbs. at 16 cts.; 100 lbs., $15.00.
R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

FOR SALE.—I am overstocked, and will sell 75 lbs. Dadant's extra-thin foundation; 5000 Root's No. 1 sections, 4¼ x 4¼ x 1⅞. Goods have never been opened. Will make price right. Address
CHAS. S. HURLBUT, Timnath, Col.

Real Estate

FOR SALE.—Forty acres of land, 37 acres cleared, new house, new windmill and tanks, 6 acres of peach orchard. Price $2300.
D. COOLEY, Kendall, Mich.

FOR SALE.—Five-acre citrus grove, 166 colonies of bees, complete outfit, honey-house; honey 85 to 90 cents per gallon, N. Y.; large living-house; well; horse; harness; $50 carpenter outfit. $2000 cash.
F. MCCANN, La Gloria, Cuba.

FOR SALE.—California bee-ranch; first-class apiary; concrete buildings in excellent repair; good spring water and healthful climate; a comfortable home near the cleanest town in the United States at moderate price. H. E. WILDER, Riverside, Cal.

FOR SALE.—65 acres of land—50 cleared; 4 acres of timber; small orchard; frame barn; log house; other small buildings. This land is two miles from Vanderbilt, Mich. Part cash; remainder on time. If interested, write. CHAS. BETTIS,
Vanderbilt, Mich.

FOR RENT.—A 39-acre tract of land situated in Isabella Co., Mich.; convenient to station and village of Blanchard; substantially fenced; district schoolhouse on corner; R. F. D. mail route. Suitable for an out-apiary location; sheep pasture; shipper's feed lot or camping-ground. No buildings. For further information address
WM. FINDLAY, Basco, Ill.

Snap—irrigated farm $30 per acre; 310 acres choice tillable land, river front; every acre can be cultivated; about 75 acres now in cultivation, the rest heavily wooded. This farm is improved; also has a modern irrigating-plant in operation; also two good wells of pure water. Anville railroad station is less than one mile distant. Fine alfalfa-patch; improved road leading to place. This farm is 27 miles east of San Antonio, and three miles west of Sutherland Springs, the great health resort on the Gulf Shore Railroad. Motor cars will be running through the place from San Antonio to Sutherland Springs as soon as the wire at Sutherland Springs is completed, which is already graded. Apply to owner, UDO TOEPPERWEIN, San Antonio, Tex.

Bees and Queens

FOR SALE.—Golden-all-over queens, and bee-keepers' supplies. T. L. McMURRAY, Silverton, W. Va.

Tested queens, like those we use, $1.00.
L. E. KERR, Germania, Ark.

FOR SALE.—Fifty colonies of bees in 8-frame hives for $2.50 per colony. EDWIN BEVINS, Leon, Iowa.

Big bargain—100 colonies of bees for $200. Write T. M. COLLINS, Bardwell, Carlisle Co., Ky.

Extra early golden queens, $1.00. No disease. Cheaper in lots. MORGAN & MARSHALL, Hamburg, La.

45 strong stands of high-bred bees in new 8-fr. hives, painted, free from any disease, cheap if taken before March. C. O. KELLEY, Dunlap, Kan. Rt. 2.

FOR SALE.—If our bees winter as usual, I will sell 100 or 200 colonies in 8-frame hives, April or May.
E. F. ATWATER, Meridian, Ida.

Golden queens, untested, $1.00; select untested, $1.50; breeders, $5.00 to $10; also Root's bee-supplies. Write for catalog. ROB'T INGHRAM, Sycamore, Pa.

Missouri-bred Italian queens; none better; prices right; write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

Golden and red-clover Italian queens; superior stock. Write for prices. WM. A. SHUFF,
Aldan, Delaware Co., Pa.

FOR SALE.—One-half interest in 200 colonies of bees and fixtures, with a good honey trade established. No disease. P. B. RAMER, Harmony, Minn.

FOR SALE.—Golden Italian queens that will produce from fifty to one hundred per cent five-banded bees. Address
J. B. BROCKWELL, Bradley's Store, Va.

FOR SALE.—Golden untested queens, April 1, 25 cts. each; also three-band if wanted. Safe arrival and perfect satisfaction.
R. O. COX, Rt. 4, Greenville, Ala.

FOR SALE.—Over 500 colonies of bees; apiary sites; house; land; fixtures; good proposition; will sell cheap. McCLUGHAN & DEXTER,
Albuquerque, New Mexico.

Queens of the celebrated Highland Farm strain of hardy northern-bred three-band Italians; line bred for honey-gathering qualities. Send for circular.
J. E. HAND, Birmingham, O.

I have for sale or to lease on shares 200 colonies of bees in 8-frame hives, Hoffman frames, in fine condition. Located in south part of this State. Plenty of alfalfa and sweet clover. No foul brood.
A. G. WILSON, 829 Brass St., Longmont, Col.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white, sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

WANTED.—100 young, vigorous, mismated or hybrid queens, April, May, or June delivery. Advise how many you have, and whether all can be sent in one lot or at different times. Address
GLEANINGS IN BEE CULTURE, Box 50268.

Golden queens—very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei, and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Help Wanted

WANTED.—Young man to work with bees and poultry, season of 1911. Must have had some experience in handling bees. Address
E. L. LANE, Trumansburg, N. Y.

WANTED.—A man with experience in bee-keeping for the season of 1911, either single or married; give experience, wages wanted, etc., in first letter.
W. LINDENMEIER, Ft. Collins, Colorado.

WANTED.—At once, an experienced bee-man, single; comb-honey position permanent in connection with farm work. Give particulars and wages wanted in first letter. W. P. SMITH, Artesia, Miss.

WANTED.—An active intelligent young man, with a little experience with bees, to assist with our bees. Can give as good an opportunity to learn the bee-business as there is in this country. My last year's crop was over 79,000 lbs. Write immediately, with references; give age, experience, height, weight, health, wages; no liquor or tobacco.
E. F. ATWATER, Meridian, Ida.

Position Wanted

WANTED.—Apiary to work on shares, with privilege of buying; must be in good location, free from disease. Good reference.
R. S. BECKTELL, Grand Valley, Colo.

WANTED. — Position as queen-breeder in Southern California; have had long experience, and all-round knowledge of bees; the right man where first-class queens are wanted. Low wages.
Address J. LAWRENCE,
Soldiers' Home, Los Angeles Co., Cal.

Poultry

FOR SALE.—Duston White Wyandottes, $2.00; 15 eggs, $1; $5 per 100. ELMER GIMLIN, Taylorville, Ill.

Day-old chicks? Seven breeds hatched. Circular free. D. Y. TAYLOR, Lyons, N. Y.

Buttercups for utility and beauty; selected pens; unlike others. H. V. MEEKER, Earl St., Toledo, O.

R. C. Red eggs. Sterile eggs replaced free. Write.
A. H. GOFF, Farmdale, Ohio.

Eggs, circular free. Thousand Leghorns, Rocks, Orpingtons. M. A. BROWN, Rt. 3, Attleboro, Mass.

FOR SALE.—Indian Runner duck, White Wyandotte eggs. Utility stock, $1.00 per setting.
J. F. MICHAEL, Winchester, Ind.

FOR SALE.—Select eggs for hatching Fischel strain White Rocks. 15, $1.00; 45, $2.25.
B. T. BOSSERMAN, Williamstown, Ohio.

S. C. B. Leghorns, bred from record layers. Eggs, $2.00 per 15; $3.50 per 30. E. M. SHIRK,
Edgwood, Wheeling, W. Va.

Kellerstrass S. C. C. Wh. Orpingtons direct; chicks 90 cts. each and up, according to age. Eggs $5.00 per 15. W. B. HESS, Mem. Am. Orp. Club, office 4399 Hamilton Ave., Cleveland, Ohio.

ANCONAS.—The *great* egg-layers; 3 fine cockerels, $1.50 each; also choice Buff Wyandottes.
W. K. LEWIS, Dep't 2, Dry Ridge, Ky.

Cockerel, S. C. White Leghorn, $1,00 each and up; eggs, $5.00 per 100; also Pekin Ducks, Barred Rocks.
Premuim Poultry Farm, Box 40, La Harpe, Ill.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, oliginator, St. Joseph, Mo.

SICILIAN BUTTERCUPS.—Stock and eggs for sale from original imported blood and from my ribbon-winners at the Appalachian Exposition and other shows. Free circular. MRS. J. S. DUMARESQ,
Cato's Hall, Easton, Md.

Indian Runner ducks from imported stock, fawn and white; very easy to raise and easy to keep. They are beauties too—lay eggs all the year; lay heaviest in winter. Eggs, $1.50 per 13; $7.00 per 100. Let me start you to success.
C. O. YOST. Rt. 4, Winchester, Ind.

EGGS FOR HATCHING.—Partridge Plymouth Rock, direct from originator; $5.00 for 15. White Wyandottes, Regal strain, birds scoring 90 to 95, $3.00 for 15; $5.00 for 30. S. C. Reds, Crowther & Tompkins strain—winners wherever shown; $3.00 for 15.
W. J. LANPHEAR, Route 3, Medina, Ohio.

Buff Leghorn eggs of quality. Our birds speak for themselves. Your order will be filled from hens that lay at 5 months; big layers, good payers. Do not wait—order to-day. Only $3.00 per setting.
WM. BRITTON,
Prop. Hillside Poultry Farm, Huntington, Ind.

S. C. R. I. Reds, large and beautiful, rich in color, and rich egg-layers; the winning strain. Eggs from exhibition pens, $2.00 per 15; $10.00 per 100. Eggs from standard pens, $1.00 per 15; $5.00 per 100. I can please you, sure.
C. O. YOST, Rt. 4, Winchester, Ind.

Order your copy of "American Standard of Perfection" through GLEANINGS. The new edition of this greatest of all poultry-books is now ready. Beautiful plates show feather-markings, etc., of every standard breed. Price $1.50, postpaid, in cloth; $2.25 in morocco binding.
BUYERS' BUREAU, GLEANINGS IN BEE CULTURE.

WHITE PLYMOUTH ROCKS.—Call my stock "Egg Strain of White Rocks" because of their unusual productivity. Original stock direct from Fishel. Have selected very best layers by trapnesting, and am now booking orders for delivery March 1st and after. All eggs from selected layers bred for eggs—especially winter eggs. Eggs, $2.50 per 15. Order promptly. JAY SMITH, Vincennes, Ind.

Miscellaneous

HOME CANNING OUTFITS.—For free catalog address RANEY CANNER CO., Texarkana, Ark.-Tex.

Rifle and shotgun—new Marlin, never used; discount from price paid. Investigate.
T. P. H., care of GLEANINGS, Medina, O.

American Hen Magazine, Council Bluffs, Iowa. Subscribe now—25 cts. a year. Descriptive circular free.

FOR SALE.—Strawberry-plants, 300, $1.00; $3.00 per 1000. Eleven different varieties. Send for list.
FRANK RASMUSEN, Greenville, Mich.

FOR SALE.—250 good strawberry-plants, best standard varieties; enough for nice family patch; sent postpaid for $1.26; 500, expressage paid, $2.45. Send card for particulars. T. M. PALMER, Rodney, O.

WANTED.—Railway mail clerks; city carriers; postoffice; customs; internal-revenue employees. Avg. salary about $1100. Send for a schedule showing places of coming examinations. Free coaching. FRANKLIN INSTITUTE, Dep't F, 124, Rochester, N. Y.

A WONDERFUL PHOTOGRAPH.—I have photographed a mountain range 95 miles away, beating all previous distance records by 30 miles. Better still, I have made a picture, a most unusual thing in tele-photography. The subject is Mount Baker, Washington, a snow-clad mountain 11,100 ft. high. The point of view is Victoria, British Columbia. For beauty the scene is not excelled on earth. In the immediate foreground is a solid bank of primeval forest; then come the Haro Straits, 45 miles wide, dotted with many islands; next rise the foothills, blending into the snowy grandeur of the Rocky Mountains, with Baker towering high above, a silent sentinel. I have also photographed the Olympic Mountains, Washington, from Victoria, a distance of 65 miles, again getting a picture. It took me 18 months of persistent effort to get them; but I will not bother you with my troubles. I am selling prints from the original negatives, 6½ x 8½, at $1.50 each, but will supply the pair for $2.00. They are printed on heavy cream paper, ready for framing. F. DUNDAS TODD,
Market St., Victoria, B. C., Canada.

Bee-keepers' Directory

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York City.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Italian queens from direct imported mothers, red-clover strain. After June 1, $1.00. Circular.
A. W. YATES, 3 Chapman St., Hartford, Ct.

Improved golden-yellow Italian queens for 1911. Beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in '08-'09 without a single loss. For prices get circular. QUIRIN-THE-QUEEN-BREEDER,
Bellevue, Ohio.

Convention Notices.

The Southern Minnesota and Western Wisconsin Bee-keepers' Association will hold its annnal convention Feb. 21 and 22 in the Winona County Courthouse, at which time an interesting program will be carried out. Those interested are welcome.
O. S. HOLLAND, Sec.

PECOS VALLEY BEE-KEEPERS' ASSOCIATION OF NEW MEXICO.

The members thereof, and friends, will assemble in quarterly convention at Roswell, March 1, 1911, at 10 o'clock A.M. An attractive program will be carried out. All bee-keepers are invited. We should be pleased to have all lovers of the bee meet with us. HENRY C. BARRON, Sec.,
Hagerman, New Mex. R. B. SLESAE, Pres.

The Wisconsin State Bee-keepers' Association will hold its next convention Feb. 23, 24, in Madison. Ten dollars in cash prizes given for three best-written papers of practical value to Wisconsin bee-keepers. Prizes, $5.00, $3.00, $2.00, each writer to choose his topic. The State Inspector will exhibit a steam-heated uncapping-knife that, for 2 cts. a day, did the work of two men; also a self-measuring honey-faucet that weighs any amount without running the can over; also a practical double brush that, in single stroke, brushes all the bees from a comb. An easily made device that will attach to any beam scale and tell when the amount wanted is on scales. Premiums at fairs—how to win. Sales of honey, fall of 1911. Prominent bee-keepers from abroad will attend.

Augusta, Wis. GUS DITTMER, Sec.

The Northern Michigan Bee-keepers' Association will hold its annual meeting at Traverse City, Michigan, March 15, 16, 1911. A live program is in course of preparation, and liberal premiums will be offered for the products of the hive. Northern Michigan, the home of Michigan's most extensive bee-keepers, assures a most prosperous and successful meeting. The season of the year is most favorable, and the management look forward for the best-attended meeting in years. Many prominent bee-keepers from this and other States are being invited. You are especially invited. Ask the secretary, Ira D. Bartlett, East Jordan, Mich., for a program, which will give place of meeting and other information.

Remus, Mich. E. D. TOWNSEND.

PENNSYLVANIA BEE-KEEPERS, LISTEN.

At the last annual convention, held in Philadelphia last fall, a committee was appointed to draft a foul-brood bill and present it to the legislature. The bill was drawn up and presented to both the State Horticultural Society and the State Board of Agriculture which were in session in Harrisburg at the time. They sent the bill to their respective legislative committees, which reported it back favorably, after which it was endorsed by each body.

The bill was then placed in the hands of Representative Hibshman, who introduced it in the House. Mr. Hibshman is the chairman of the Committee on Agriculture in the House. The bill was carefully drawn, and every thing possible, so far, has been done to facilitate its passage.

We want every bee-keeper to write to his Representative and Senator who are now at Harrisburg, and urge them to vote for this bill. If you do this, every member in the legislature will receive a number of letters, and will see the importance of this legislation. We attempted to have a law passed twice before, and failed for some reason or other. Let us win out this time.

Dr. Phillips, of the Bureau of Entomology, Washington, D. C., reports that samples of American foul brood have been sent to him from 18 counties, and European foul brood from 29 counties out of the 67 in the State. A number of counties have not been heard from. This is sufficient evidence for alarm. If we fail to have State inspection, the disease is bound to wipe out our industry. Now is the time to get busy. As soon as you have read this, write a letter to your reprentatives in each house and tell them to support the bill.

Liverpool, Pa. H. C. KLINGER, Sec.

COLORADO BEE-KEEPERS, WRITE YOUR LEGISLATORS.

The Colorado State Bee-keepers' Association has a bill before the legislature, now in session, to establish a division of apiary investigation and inspection under the supervision of the State Entomologist. The bill provides for investigations in bee culture, such as the introduction of nectar-secreting plants, better-bred bees, and improvement in the methods of bee culture. This is a work that will prove of great value to the State—work that has never been done here, but should have been started years ago. Impress these points on the minds of your legislators, and write them at once.

1. Centralizes the work of inspection, utilizing the machinery of the State Entomologist's office and that of the Agricultural College, placing this equipment at the disposal of this division.

2. It will greatly increase the wealth of the State by increasing the production of honey through the introduction of honey-plants, better-bred bees, and better methods.

3. Hundreds of thousands of dollars' worth of honey is shipped from the State every year, besides the great amounts sold in the home markets.

4. Bee diseases are prevalent throughout the State, and means must at once be taken for their eradication.

5. This bill is recommended by the Department of Agriculture at Washington, by the Agricultural College at Ft. Collins, and by every intelligent bee-keeper in the State.

6. Tell your legislators to support the "Bee-keepers' Bill," placing the division of apiary inspection and investigation under the State Entomologist.

The Colorado State Bee-keepers' Association is the originator of this bill, and it embraces the demands of the bee-keepers of the State.

Urging you to lose no time in writing your senators and representatives on this question, I am yours for better bee-keeping.

WESLEY FOSTER,
Secretary Colorado State Bee-keepers' Ass'n.

Special Notices

BY OUR BUSINESS MANAGER

ALSIKE-CLOVER SEED.

We have secured some choice seed of alsike clover which we offer for sale at 30 cts. per lb. by mail, postpaid; not prepaid, bag included, 22 cts. per lb.; $2.75 per peck; $5.25 for ½ bushel; $10.00 per bushel. Seed should be sown early in the spring, four to eight or ten pounds to the acre. It pays well to encourage the growing of alsike within a mile or two of your apiary.

SWEET-CLOVER SEED.

We still have an abundant supply of yellow sweet clover seed, both annual and biennial; but our stock of the white is limited, and will be exhausted long before the new crop is ready this season. We shall be pleased to hear from those who have a supply of white sweet-clover seed for sale, whether hulled or unhulled. Mail sample, and state price at which you will sell, and how many pounds you can furnish.

LARGE CAPPING-MELTER.

Those who would use a capping-melter in taking their crop of extracted honey, and who have found the melter listed in our catalog too small, will be interested in a larger size which we are preparing to furnish. We have supplied several of them already, one to E. D. Townsend, and should like to put out others this season. We want to have them thoroughly proved out before we put them in our catalog. To any who are interested we shall be pleased to mail a circular, describing and giving price at which we will furnish the outfit.

Special Notices by A. I. Root.

TO THE GOOD FRIENDS WHO WOULD LIKE MY ADVICE ABOUT FLORIDA OR OTHER MATTERS.

Will you please excuse me if I ask you (as I did a year ago) to send me an *addressed* postal card when you write me a letter? I don't want stamps. I have stuck them on letters all my life, and I don't want to "address" any thing to anybody any more if I can help it. If I can just answer your questions without bothering to see whether it is from Jones, Brown, or Smith, it doesn't wear very much on the "worn-out spots" of my nerves, and, of course, you can't expect a long story on a postal. Notwithstanding the above, I am still your

"Long-time friend," A. I. R.

IT PAYS TO USE

DADANT'S FOUNDATION

BEESWAX WANTED

DADANT & SONS
HAMILTON, ILLINOIS

Big Apples are Selling at 10 Cents Each . . . .



There is money in fruit-growing right where you are. Apples are worth twice as much as oranges. If you can not raise apples, there are are other fruits equally profitable.

Start an orchard. Those who planted orchards as advised by Green's Fruit Grower are getting their reward in big profits. You can pay for the orchard by growing small fruit in it.

Green's Fruit Grower

will tell you how and where to plant, how to prune and spray, and how to make your trees productive.

It is the oldest and most popular fruit grower's magazine. January is our 30th ANNIVERSARY NUMBER. We will start your subscription with that number.

Special offer to readers of GLEANINGS IN BEE CULTURE. We will mail new subscribers Green's Fruit Grower one year on trial for 25 cents.

GREEN'S FRUIT GROWER CO.

Box G, Rochester, N. Y.

Enlist as Local Agent

for the Fast-Working, Fast-Selling

Oliver Typewriter!

The battle lines of the Oliver Typewriter forces are forming for another campaign of conquest. The triumphs of 1910—the most brilliant ever achieved by a great sales organization—have served to inspire to more mighty deeds in the coming year.

The roll-call of the Oliver Sales Organization shows over 15,000 men **under arms**—the most magnificent body of trained salesmen in the world.

This Sales Force, great as it is, cannot cope with the tremendous increase in business which the popularity of the Oliver Typewriter has created.

Resident Agents Wanted in every Town and Village

This advertisement is a call for reinforcements—to enable the Oliver Sales Force to extend its skirmish lines to all sections of the country.

The central idea of our selling system is to have—**everywhere**—a vigilant agent of the Oliver Typewriter constantly **on the ground**. Whether that agent devotes part or all of his time to the sale of the Oliver Typewriter is left to his own discretion.

Teachers, tradesmen, doctors, ministers, lawyers, stenographers, telegraph operators, printers, mechanics—men and women in a multitude of different occupations—can succeed as local agents for the Oliver Typewriter. If you have the will to take up this work, **we will point out the way.**

The **OLIVER** Typewriter

The Standard Visible Writer

The Oliver Typewriter has been breaking records since the day it was placed on the market. **Efficiency** records, **speed** records, **endurance** records—it has won them in quick succession. It sets the swiftest pace in sales by giving unparalleled **service.**

With **several hundred less parts** than other standard typewriters, its **simplicity, strength, ease of operation, versatility and convenience** are correspondingly **increased.**

'17-Cents-a-Day" Plan a Wonderful Aid to Agents

This machine, with all of its advantages, all of its time and labor-saving devices, the Local Agent can buy—**and sell**—for Seventeen-Cents-a-Day.

The Oliver Typewriter No. 5—the newest model—the $100 machine—equipped with a brilliant array of new devices and conveniences, actually offered for **pennies!**

This irresistable offer enables the Local Agent to succeed **right from the word "go!"**



Write for Inspiring Book, "The Rise of the Local Agent"

Read the life stories of men who rose from the Local Agency ranks to positions of great importance in the Oliver Organization—How one Local Agent is to-day the Typewriter King of Mexico. (Mexican Government reports show that more Oliver Typewriters are imported than all other typewriters combined).

These inspiring stories will open your eyes to the **big opportunities still open** for ambitious men to carry the Oliver flag, fight for new records and reap the rewards of success.

Send a personal letter today while the **Call for Volunteers** is ringing in your ears.

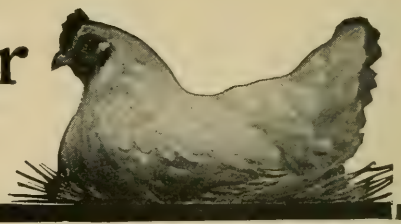
Address Agency Department (67)

The OLIVER TYPEWRITER CO., 116 Prospect St., Cleveland, O.

"Keep chickens,"

says the **FARM JOURNAL,**

and live better at less cost.



THOUSANDS of families, in city and country, have found this the easy way to IMPROVE their standard of living, and at the same time LOWER THE COST. With chickens you always have delicious food, for the family or for "company." Their eggs supply you with ready money or ready food. They are pets that *pay their board.* By keeping chickens, boys and girls can earn money, and also get an excellent training. Sometimes the back-yard plant grows into a large business, like those of CORNING, CURTISS, and FOSTER, who make many thousands of dollars a year.

Raising chickens pays if you know how, whether you keep a dozen hens, or run a large poultry-farm; but **you need the best guides.** Many get from their chickens less than HALF as much as they might get with the guidance of any of these **three splendid modern poultry-books,** which tell the experience and methods of the most successful modern poultry-raisers.

These methods have all been *tested* by actual experience and proved successful. The FARM JOURNAL stands back of them, for it has investigated them and KNOWS. They can be used with six hens or six thousand. Of the Corning Egg-Book alone, **OVER 100,000 COPIES** were sold in one year. Many are using these methods with splendid success and profit.

The Corning Egg-Book is the great guide-book for back-yard chicken-raisers. It tells how two city men in poor health, with no experience, starting with thirty hens, built up in four years an egg business which in one year, with 1953 hens, made an average profit of **$6.41 a year per hen.** These men learned how to make hens **lay the most eggs in winter,** when they get 60 and 70 cents a dozen. This book tells how they found the best breed, why they raise only white-shelled, sterile eggs, how they keep hens **LAYING ALL WINTER,** when they hatch chicks to do their best laying in January, how to mix the feed that produces most eggs, and how their whole system works to that one end—eggs, EGGS, EGGS. It gives photographs and complete working plans of their buildings, which you can build in SECTIONS, large or small as needed.

Curtiss Poultry Book tells how Roy Curtiss, a farmer's boy, starting with a few neglected hens, has built up at NIAGARA FARM one of the **best-paying poultry plants in the world.** Roy agreed that if his father would furnish feed he (Roy) would supply eggs and chickens for the farm table, and all left over were to belong to him. In two years Roy was using so much feed that his father had to cry quits, but the boy kept right on. His brother joined him, and the business grew and grew. But they had no guidance, and had to learn by their own mistakes. Such a guide as the **Curtiss Poultry Book** would have saved them thousands of dollars. This capital book was written right at Niagara Farm by the veteran poultryman, **Michael K. Boyer.** He says he never saw a general poultry plant so well managed. Every day shipments go off, every day money comes in. Their percentage of fertile eggs, of live strong chickens hatched, of day-old chicks shipped without loss, is really wonderful. This book gives all their methods and feed formulas, tested and improved by years of experience. Many pictures. Whether you raise chickens, ducks, or eggs, have a dozen fowls or thousands, you will find in this book help that you can get in no other way.

"Poultry Secrets" is a remarkable collection of successful "wrinkles" in poultry-raising, secured and edited by MICHAEL K. BOYER (known to poultrymen as "Uncle Mike"). Many of these were treasured secrets of famous poultrymen, guarded with jealous care because of their great value. We paid hundreds of dollars for them. This is the ELEVENTH EDITION, and thousands are using these methods with great profit.

W. R. Curtiss tells his successful method of hatching **50 per cent** more pullets than cockerels; the Philo System is described and explained; the "15-cents-a-bushel" and "8-cents-a-bushel" green feed secrets; secrets of the Angell, Palmer, and Hogan Systems; Boyer's method of absolutely insuring fertility of eggs for hatching; Townsend's System for preventing death of chicks in the shell; Felch's famous mating chart, suppressed for many years; feeding and fattening secrets; and MANY OTHER PRICELESS SECRETS, are here disclosed for the first time.

ANY ONE of these books and Farm Journal balance of 1911 and all of 1912,	ANY TWO of the books and the Farm Journal for three years,	ALL THREE of the books, and Farm Journal for two years,
50 cents	**$1.00**	**$1.00**

Be sure to say plainly **WHICH BOOK** *or books you want.*

Farm Journal is the standard paper for everyone who grows or wants to grow fruit, vegetables, poultry, or stock of any kind. It is 33 years old, and has over **750,000 subscribers,** in all parts of the country. "Judge Biggle" and "Peter Tumbledown" are characters better known to many than Hamlet or Micawber. It has a fine poultry department, more valuable than most poultry papers. It is a favorite paper with housekeepers. Clean, clever, cheerful, amusing, intensely practical. Cut to fit everybody, young or old, village, suburbs, or rural routes. Unlike any other paper and always has been.

On any one-dollar offer, if your order is mailed within TEN DAYS of the date of this paper, we will send you also the famous Poor Richard Almanac for 1911, full of wit and wisdom for the rural home. Address your letter just like this: —

FARM JOURNAL, 117 Clifton St., Philadelphia.

Massachusetts
MAR 10 1911
Agricultural
College

Gleanings in Bee Culture

VOL. XXXIX MARCH 1, 1911 NO. 5

Editorial

Stray Straws

Notes from Canada

Bee-keeping Among The Rockies

Conversations with Doolittle

Bee-keeping in Florida	E. G. BALDWIN
European Foul Brood	F. B. CAVANAGH
Simmins' Method of Shifting the Flying Bees	SAMUEL SIMMINS
Extracting during the Honey-flow	G. C. GREINER
Winter Nest vs. Solid Combs of Honey	C. P. DADANT
Winter Nest vs. Solid Combs of Honey	J. E. HAND
How I Sell My Honey at a Good Price	J. A. M'GOWAN
Bee-keeping for Beginners, Illustrated	E. D. TOWNSEND
Bees Essential in an Orchard	C. E. LAYMAN
Beautifying the Apiary	W. A. PRYAL
Bee-keeping in the Highlands of Mexico	O. B. METCALFE
An Adjustable Foundation-cutter	JAY SMITH
Bee-keeping as a Hobby	F. DUNDAS TODD
A National Honey-Advertising Compaign	F. B. CAVANAGH
Instinct Always the Same	J. E. HAND

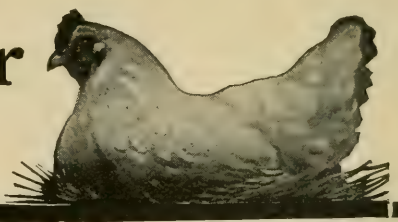
Heads of Grain

Poultry Department

"Keep chickens,"

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and live better at less cost.



THOUSANDS of families, in city and country, have found this the easy way to IMPROVE their standard of living, and at the same time LOWER THE COST. With chickens you always have delicious food, for the family or for "company." Their eggs supply you with ready money or ready food. They are pets that *pay their board.* By keeping chickens, boys and girls can earn money, and also get an excellent training. Sometimes the back-yard plant grows into a large business, like those of CORNING, CURTISS, and FOSTER, who make many thousands of dollars a year.

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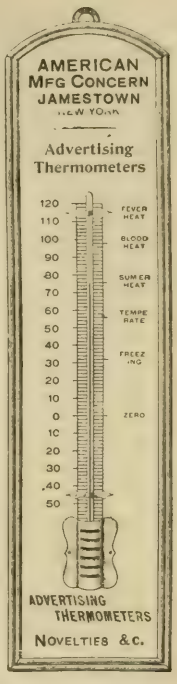
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FARM JOURNAL, 117 Clifton St., Philadelphia.

DO YOU WANT ONE?



A thermometer mounted on white enameled back, 21 inches long, 5 inches wide, and ⅞ inch thick; a handsome and durable article for the home; well enameled to stand exposure for outdoor use.

What more useful article could be found for your home, your honey-house, or bee-cellar?

If You Want One

Write one of our three new carload Distributing Houses. They send them as introductory offers with first orders for a certain quantity of **"falcon"** Bee Goods free. No matter how small your needs, write them—there are many articles. Ask for a list and a copy of our "RED" bee-supply catalog.

Ross Brothers Co., 90 Front Street, Worcester, Mass.
The Freight Center of the New England States

C. C. Clemons Bee Supply Co., 130 Grand Avenue., KANSAS CITY, MO.
The Freight Center of the West

W. T. Falconer Manufacturing Co., 117 No. Jefferson St., Chicago, Ill.
The ONLY Bee-Supply House in the Business Section of Chicago — the Freight Center of the Middle States.

"falcon" BEE-SUPPLIES

We manufacture hives, sections, foundation, and a complete line of supplies. The workmanship of our goods makes satisfied customers. Try "FALCON" goods this season.

Order from Your Nearest Dealer

Ross Bros. Co., 90 Front St., Worcester, Mass.
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The Fred W. Muth Co., 51 Walnut St., Cincinnati, Ohio.
Deroy Taylor, Lyons, Wayne Co., N. Y.
Cull & Williams Co., 180 Washington St., Providence, R. I.
Hudson Shaver & Son, Perch River, Jefferson Co., N. Y.
C. C. Clemons Bee Supply Co., 130 Grand Ave., Kansas City, Mo.
A. M. Applegate, Reynoldsville, Penn.
J. R. Rambo, Collingdale (near Phila.), Pa.
Bridat & Mont'ros, Havana, Cuba.
E. Lyons & Son, Kingston, Jamaica.
Edmonson Bros., 10 Dame Street, Dublin, Ireland.

"falcon" GOODS are sold in Mexico, Germany, Turkey, South and Central Africa, Australia, New Zealand, and everywhere.

W. T. Falconer Mfg. Company

Factory
FALCONER, N. Y.

Branch
117 No. Jefferson St., Chicago, Ills.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

COLUMBUS.—We quote fancy white comb, 17; No. 1, 15; No. 2, 14; receipts light.
Columbus, Feb. 20. THE EVANS & TURNER CO.

BOSTON.—We quote fancy and No. 1 white comb honey, 15 to 16; fancy white extracted, 11 to 12. Beeswax, 30. BLAKE-LEE CO.
4 Chatham Row, Boston Mass., Feb. 20.

ZANESVILLE.—While there is some demand for honey, the market is not active at this time—no offerings. Comb honey goes to the retail grocery trade at 18 cents for the best grades. Extracted brings 10½ in 60-lb. cans. No off grades handled here. For beeswax, producers are offered 28 cts. in cash or 30 in exchange for bee supplies.
Zanesville, O., Feb. 22. E. W. PEIRCE.

KANSAS CITY.—The demand for both comb and extracted honey is not as good as it should be at this time of the year. We quote No. 1 white comb, 24-section cases, $3.35 to $3.50; No. 2 ditto, $3.25; No. 1 amber, $3.25; No. 2 ditto, $2.75 to $3.00; white extracted, per lb., 8½ to 9; amber ditto, 7 to 7½. Beeswax, 28 to 30.
C. C. CLEMONS PRODUCE CO.
Kansas City, Mo., Feb. 20.

CINCINNATI.—Comb honey is in fair demand, and is selling at $3.75 per case for No. 1 white. Amber extracted in barrels is selling at 7 cts.; in cans, 7½ to 8; white extracted in 60-lb. cans, 9 to 10; California light amber, 8½. All grades of extracted honey are in fair demand. Beeswax is in fair demand at $32.00 per 100 lbs. These are our selling prices, not what we are paying.
Cincinnati, Feb. 20. C. H. W. WEBER & CO.

CHICAGO.—There has been very little doing in honey during the past two or more weeks. Especially is this true of comb honey. The supply of extracted on the market is very small, and indications are that it will be more nearly exhausted before the coming of the season of 1911 for another crop than it has been at any previous time within our recollection. There is very little fancy comb honey on sale, and it usually brings 17 to 18 cents, with the lower grades from 1 to 3 cts. less. Amber and mixed grades are difficult to sell, at uncertain prices. Extracted clover and basswood bring 9 to 10; other white grades, 8 to 9; ambers, 7 to 8, with dark and off flavors at from 6 to 7. Beeswax is now steady, and in good demand at 32 if of good color, and free from sediment.
Chicago, Ill., Feb. 23. R. A. BURNETT & CO.

Honey Markets continued on page 5.

Now for 1911 Bee-Supplies

We have already received several carloads of that "finest of all Beeware"—Falconer make—anticipating the heavy rush of orders sure to come this Spring. Prepare yourself NOW, Brother, for we are going to have a heavy honey yield this season, and those who order early are the ones who will profit most. Send for our catalog to-day, and see our "MUTH SPECIAL" Dovetailed Hive, and also our "IDEAL METAL" Cover—both DANDIES. We sell you cheaper than the rest; we have the Best. Let us figure on your wants—we will surprise you.

THE FRED W. MUTH CO.

51 Walnut Street "The Busy Bee Men" **Cincinnati, Ohio**

Get This Extra Discount

NO BEE-KEEPER can afford to ignore our early-order appeal. Past experience must have shown you that it does not pay to wait until the honey-flow is on to place orders for bee-supplies. The prudent bee-keeper does not delay. Not only does he anticipate his requirements for the coming season, but he seeks to save the 2 PER CENT DISCOUNT ON MARCH ORDERS we now offer. If you get your goods early you will avoid the rush of the busy season later on, and you can really buy to better advantage now than at any other time during the year.

You may order your goods now and have them come along later, or we will ship at once and you will have time to get them ready for the harvest next spring at your leisure. We are always glad to make suggestions and quote prices on any list submitted. If you have never bought supplies from us, try us this season and see if you do not agree with us that we furnish the best bee-supplies made, and give you the best possible service. It means a good deal to YOU to get the best of goods and service for YOUR money. We give you both. Try us.

Remember Cincinnati!

There are good reasons why it is to your advantage to order your supplies from us. LOCATION, which means prompt service and low freight and express rates; OUR STOCK, the largest in this vicinity; OUR EXPERIENCE—these are a few you should carefully consider. You will indeed do well if you REMEMBER WEBER, CINCINNATI.

Be Sure You Have Our New Catalog!

This is the complete book of bee-keepers' supplies. In it you will find conveniently arranged and clearly described every thing from A to Z in the way of appliances for successful bee-keeping. Many new supplies are listed this year, and changes in former goods have been made so it is essential that you should order from our newest catalog. Of course, you are entitled to a copy. If you have dealt with us in past seasons one has been mailed to you without suggestion or request from you, but this may have gone astray. Do not lose time in telling us if you are without our money-saving price list—we want you to have a copy every year.

Poultry Supplies

A special catalog of these goods, which we will gladly furnish free upon request.

C. H. W. Weber & Co., Cincinnati, O.

2146 Central Avenue

Gleanings in Bee Culture

E. R. ROOT, Editor — A. I. ROOT, Editor Home Dept. — H. H. ROOT, Ass't Editor — J. T. CALVERT, Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, "Stenog," Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, Mrs. H. G. Acklin.

$1.00 per year. When paid in advance: 2 years, $1.50; 3 years, $2.00; 5 years, $3.00.

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CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. We give notice just before expiration, and further notice if the first is not heeded, before discontinuing. Subscribers are urged to renew promptly in order to avoid interruption in receipt of GLEANINGS; or, if unable to make payment at once, to advise us when they can do so, which will be considered as an order to continue. Any one wishing his subscription discontinued should so advise us upon receipt of expiration notice and he will not be annoyed by further notices.

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We Make Cuts For "Gleanings in Bee Culture"

The Work of Bee-keepers Everywhere is Solicited.
Half-tone Engravings Made from Photographs or the Object.
Line Cuts or Etchings Made from Your Drawings or Our Own.
Complete Facilities for Writing, Illustrating and Printing anything from a Letter Head to Catalogue.
Write Your Requirements.

THE GRAY PRINTING CO., FOSTORIA, OHIO

Extracted Honey Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

Honey Markets continued from page 2.

CINCINNATI.—The demand for the best grades of extracted honey for table use is good. We are getting from 10 to 11 for strictly fancy water-white table in a small way, in 60-lb. cans two in a crate. Amber honey in barrels brings from 6 to 8, according to quality and quantity purchased. Comb honey is not moving as rapidly as one would imagine. It seems the demand has shot its bolt. For beeswax we are paying 31 cts. for strictly choice bright yellow wax and 33 in trade. Darker wax brings from 1 to 3 cts. less than the above quotation.

Cincinnati, Feb. 24. THE FRED W. MUTH CO.

CHICAGO.—Comb-honey situation is unchanged, and trade in this commodity is still very dull and unsatisfactory. However, extracted honey is very firm and in good demand. We quote fancy white-clover comb honey, put up in 24-section flat cases, glass fronts, 16 to 17; No. 1 white, 15 to 16; No. 2 white and light amber, 14 to 15; other inferior grades at correspondingly lower prices. White extracted is selling readily at 9 to 10; light amber, 7½ to 8½ cts. Bright pure beeswax is firm at 30 to 32.

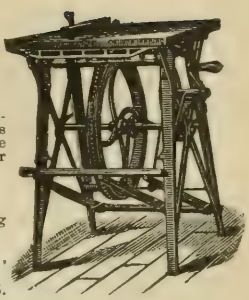
Chicago, Feb. 22. S. T. FISH & CO.

ST. LOUIS.—Extracted honey of all varieties is becoming very scarce in this market, and about the only grade offered is California light amber. The quotations on extracted honey are more or less nominal. We quote fancy white comb honey at 16 to 16½; No. 1, 15½ to 16; choice amber, 14 to 15; dark, 10 to 11. Broken and leaking honey sells at less. Extracted, white clover, in five-gallon cans, brings 9½ to 10; California light amber, 8½ to 9; Southern light amber, in five-gallon cans, 8 to 8½; in barrels and half-barrels, 7 to 7½. Beeswax, prime, 29; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Feb. 20.

BARNES' Hand and Foot Power MACHINERY



This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

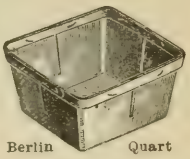
Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JNO. BARNES CO., 545 Ruby St., ROCKFORD, . ILLINOIS.

The Berlin Quart

A WHITE PACKAGE which insures highest prices for your fruit.



Berlin Quart

Write for our 1911 catalog showing our complete line, and secure your baskets and crates at winter discounts.

The Berlin Fruit-Box Company, Berlin Heights, O.

FLORIDA LANDS

vary in character. It is safest to look the ground over before investing. Plenty of good land, also much that is not suitable for farming. Diversified farming pays best. We have lands that produce three crops a year. Let us help you to locate right. . . . . For further information address

LOUIS LARSON.....Northwestern Agent

Florida East Coast Railway

130 Adams St., Chicago, Ill.

Queens . . . Queens

200 to 300 per month. Untested, 75 cts.; tested, $1.00; select tested, $2.00; breeders, $3.00. Nuclei, full colonies, bees by the pound. Have letter from the State certifying my bees are free from foul brood.

Frank M. Keith, 83½ Florence St, Worcester, Mass.

FOR 20 YEARS

we have been furnishing bees and supplies for the production of honey to successful eastern bee-keepers. Can we not furnish you this season? Catalog free. Discount on early orders.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK

Apiaries, Glen Cove, L. I.

NEW YORK.—The demand for comb honey is quiet, even for fancy and No. 1 white stock, while off grades and buckwheat are in very light demand. We quote No. 1 and fancy white at 14 to 15; off grades, 11 to 12; buckwheat and mixed, 9 to 10. There is a fair demand for extracted, mostly for fancy goods, and the same is finding ready sale at about 9 cts. Buckwheat is slow, selling at 6½ to 7. Beeswax is steady at 29 to 30.

New York, Feb. 20. HILDRETH & SEGELKEN.

INDIANAPOLIS.—There is a good and steady demand here for best grades of white-clover comb and extracted honey. Jobbing houses are well supplied, but practically none is now being offered by producers, and it is evident that there will be a shortage before the new crop can arrive. Fancy white comb is being offered at 18 cts.; No. 1, white, 17; extracted, 11, with some slight reductions on quantity lots. It is presumed that producers are being paid about 2 cents less than above quotations. Producers of beeswax are being paid 28 cents cash or 30 in trade.

Indianapolis, Feb. 16. WALTER S. POUDER.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873 CIRCULATION 35,000 72 Pages Semi-monthly

A. L. BOYDEN, Advertising Manager

ADVERTISING RATES

Twenty-five cents per agate line, flat. Fourteen lines to inch.
SPACE RATES. To be used in one issue: Fourth-page; $12.50; half-page, $25; page, $50.
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Preferred position, inside cover, 50 per cent additional.
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No medical or objectionable advertising accepted.
Column width, 2⅝ inches.
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MIGRATORY BEE-KEEPING

The shipping of bees north, from the South, to take advantage of the successive honey-flows, has for years been the dream of bee-keepers; but it was reserved for Mr. H. C. Ahlers, of Wisconsin, to be the first to make of this scheme a real practical success. The one great obstacle has been transportation; but improved methods of preparation and care, and through fast freights, enabled Mr. Ahlers to score a success that netted him $4000 last year. He secured a harvest in Louisiana; shipped a car of bees to Wisconsin in time to reap a harvest from clover; moved to the Mississippi River bottoms for a fall flow from Spanish needle; then shipped the bees south for winter. This winter (Jan. 17) he shipped a car of bees from Wisconsin to Louisiana, where they are now storing a crop of honey from willow. All these bees will be brought north in time for clover, basswood, and raspberry.

In the March BEE-KEEPERS' REVIEW Mr. Ahlers tells in detail the story of his success, and, to a bee-keeper, it is as interesting as a novel. Pictures and all, it occupies six pages.

There is also another three-page article of much interest by the great German bee-keeper, C. J. H. Gravenhorst, in which he tells *why* one colony stores so much more honey than another of equal strength. He also tells what steps to take to make all equally profitable.

Send ten cents for the March issue, and with it will be sent three other late but different issues, and the ten cents may apply on any subscription sent in later. Some very attractive clubbing offers will also be sent.

W. Z. HUTCHINSON, Flint, Mich.

Hilton Strain of Bees and Root's Goods to the Front again



A View of Mr. Chase's Apiary.

Friend Hilton:—I started this spring with 16 colonies; bought 30 three-frame nuclei of you; have increased to 85 strong colonies with ample stores for winter without feeding. Have taken 4000 lbs. fine extracted honey and a little comb (and no drawn combs to begin with) all from full sheets of foundation. My best colony gave 329 lbs.; a three-frame nucleus, received from you May 28, gave me 210 lbs. extracted honey. But for the drouth and fires I should have had much more.

Very truly yours, G. C. CHASE, Robbins, Wis.

I am now booking orders for next season's delivery of Nuclei and Queens, and next season's supplies, and making a very liberal discount. . . . .

Write for 50-page price list, and send list of goods wanted for special discounts. All Root's Goods. Beeswax wanted, cash or trade.

Geo. E. Hilton, Fremont, Michigan

A Safe 4% Investment

BY OPENING an account with this old established savings bank you will avoid the care and anxiety of guarding your own money, and will experience that happy feeling which comes to those who know that their possessions are safe. A savings account with this bank is a safe investment and yields four per cent compound interest.

This bank is under the supervision of the State, and its strict laws.

Its officers and directors are successful men.

Write to-day for booklet explaining our convenient banking-by-mail system.

Resources, $900,000

Under ordinary circumstances all or any part of your deposits may be withdrawn at will.

The Savings Deposit Bank Company. . . Medina, Ohio

A. T. SPITZER, PRES.. E. R. ROOT, Vice-pres.
E. B. SPITZER, Cashier

ROOT'S GOODS

For WESTERN PENNNSYLVANIA

Liberal early-order discounts. Gleanings and choice queens GIVEN AWAY. Write at once for circular. . . Time is limited.

GEO. H. REA, - Reynoldsville, Penn.
Successor to Rea Bee & Honey Co.

BEE-KEEPERS

We appear here to tell you that our New Catalog on Bee Supplies is yours for asking. . It is free. . Get one.

August Lotz & Co., Boyd, Wisconsin

LEWIS BEE-WARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY CO. (Not Inc.)
Successors to YORK HONEY & BEE-SUPPLY COMPANY

148 W. Superior St., Chicago, Ill.
Send for catalog. ENOUGH SAID.

Now is the Time to Plan

for Next Season

Secure your Bee-supplies
in Advance of the
Busy Season

The A. I. Root Company
Syracuse, N. Y.



Established 1885

We carry an
up-to-date
line of

Bee-keepers' Supplies

At this season of the year we give the usual customary early-order discounts. If you are figuring your wants now to buy early and get the benefit of lowest prices, don't fail to consult us. We have

THE ROOT COMPANY'S Make of SUPPLIES

Nothing to fear as to quality. Beeswax taken in exchange for supplies.

John Nebel & Son Supply Co. High Hill, Montg. Co., Mo.

BEE SUPPLIES

We carry a full and complete line of Root's Celebrated Bee-keepers' Supplies. By buying in carload lots we are enabled to sell at factory prices f. o. b. Dallas. . . . . .

We also carry the largest and best assorted stock of the celebrated Texseed Brand Garden and Field Seeds in the South; Incubators and Brooders, and poultry supplies of all kinds.

Send for illustrated catalog. .

Texas Seed & Floral Co.
Dallas, Texas

When you have honey or beeswax for sale write us.

Annual Catalog Review

Continued from Feb. 15

The purpose of our brief review of each of the following publications is that readers of GLEANINGS IN BEE CULTURE may have before them a condensed list which will give an idea of the contents of catalogs issued by manufacturers of articles and goods in which they may be interested. Needless to say, we encourage all such to send direct to the person or firm whose name is given for a catalog or booklet, which may be studied in leisure moments.

It is also our suggestion that, whenever a purchase is contemplated, two or three catalogs pertaining to the one subject be asked for.

In writing, it is, of course, advisable that you mention GLEANINGS IN BEE CULTURE; and if you will do this you will find every person or concern whose name appears below quite ready to give your request the prompt attention it will deserve.

To the best of our knowledge and belief, each of the following booklets and catalogs is put out by a reputable house such as we would advise our readers to deal with:

SEEDS, PLANTS, NURSERY STOCK.

Crawford's Catalog of Strawberry Plants, Small Fruits, and Gladiolus Bulbs. M. Crawford Co., Cuyahoga Falls, Ohio. A small booklet descriptive of the plants, seeds, and bulbs this company offers for sale. Contains interesting instructions on planting strawberries.

Isbell's Seed Annual—a well-printed catalog of 106 pages, with cover in colors. Illustrated throughout, and describes in detail the many excellent offerings of this well-known seedhouse. Published by S. M. Isbell & Co., Jackson, Mich.

O. S. Jones Seed Co., Sioux Falls, S. Dak. 1911 catalog of Northern Grown Seeds. Seventy-four pages. Well illustrated, with cover in colors.

Annual Catalog and Price List of Small-fruit Plants—a 16-page booklet describing numerous varieties of berries and garden truck, issued by F. W. Dixon, Holton, Kansas.

Burpee's 35th Anniversary Supplement—a 60-page catalog beautifully illustrated; issued by W. Atlee Burpee & Co., Philadelphia, to supplement their catalog described in our Feb. 1st issue.

Park's Floral Guide for 1911—the annual publication of Geo. W. Park, LaPark, Pa. It pictures and describes a very large number of seeds and plants for sale by this well-known house.

Continued on page 26.

Bee-keepers who Have

THOROUGHBRED

CHICKENS

and want to sell eggs and stock at good prices should use space under the POULTRY heading in the

Classified Pages

In proportion to the cost it is doubtful if any other medium offers as good an opportunity for profitable returns on such offerings as

Gleanings in Bee Culture

Read this from one of our satisfied advertisers:

"I will say that what little advertising we did in GLEANINGS has brought us about all the business we can attend to this season."

—and others say the same.

Read the POULTRY advertisements yourself. Read Mr. A. I. Root's talks on CHICKENS—advertise in GLEANINGS, and GET results.

Mr. Bee Keeper

Would You Like to Produce MORE Beeswax?

Do you realize that from 20 to 40 per cent of YOUR wax is thrown away if you render your old combs by the ordinary means?

We have a folder that tells of MR. WAGAR'S EXPERIENCE with a Hatch press. It also tells of our SPECIAL OFFER on a "more beeswax" proposition.

You can take advantage of this offer, no matter where you are located.

A postal, with your name and address, brings this folder to you at once.

Send now.

M. H. HUNT & SON

Opposite Lake Shore Depot

Lansing, Michigan



"If goods are wanted quick, send to Pouder."

DEAR SIR: INDIANAPOLIS, March 1, 1911.

Indications just now are very favorable for a good season, but we are, of course, at the mercy of weather conditions. A good season means an excessive demand for the line of supplies which I handle, and I mention this, urging my friends to place their orders before goods are really needed, that none may be disappointed. I have just been looking over my files to observe how the same men continue with me year after year until their names become familiar, and I think it would be very unusual for any patron to quit here and place his order elsewhere, although I get many letters relating to disappointments in securing their wants from other sources. I really want my competitors to have a share of the business, for there is plenty of room for all; but if you have been disappointed just try placing a trial order here. Recently I was talking to you about getting so many nice encouraging letters from my patrons, and if I only had more space I would like to show you some of them, but here is just one example:

FRIEND POUDER:—It may be of some interest to you to know how I came to be a customer of yours. In 1905 I had sent elsewhere for supplies which were delayed; and, needing supplies badly, and, seeing your ad., I sent to you for an order, and your goods came at once, as they always have since, and seeing they were the Root goods I knew they were the best. I speak well of your business when the opportunity offers, and it gives me pleasure to do so. Wishing you success, JESSE S. DAVIS, Equality, Ill.

A postal will bring my new catalog in next mail.
859 Massachusetts Ave. WALTER S. POUDER.

Golden QUEENS

21 Years a Breeder

J. B. CASE, PORT ORANGE, FLORIDA

EARLY QUEENS and LATE QUEENS

Bred from pure Five-band and Golden Italians. All queens are raised in strong colonies and mated in four-frame nuclei. All orders filled promptly.

Untested, $1.00; six, $4.50; twelve, $8.00
Tested, . 1.50; " 7.50; " 13.50

Breeders, $3.00. Three-frame nuclei, $3.00, with price of queen wanted added. . Discounts for quantity.

A. B. Marchant, . . Sumatra, Fla.

WE GUARANTEE SAFE DELIVERY

If goods are lost, stolen, or damaged in transit, we'll make it good on receipt of proper notice.

WE GUARANTEE SATISFACTION

on your purchase, or money refunded. We keep on hand carloads of the

BEST BEE-SUPPLIES AT BARGAIN PRICES

ORDERS FILLED PROMPTLY

Eggs of Barred and White Plymouth Rocks and White Plymouth, $1.00 per 15.

Cronolite roofing of highest grade, best quality, at astonishingly low price.

Our new catalog, with special offers, free for the asking. **H. S. DUBY, ST. ANNE, ILLS.**

Ref., First Nat. Bank, St. Anne, Ill., or bee journals.

Nature Education and Recreation

For Boys and Girls:
NATURE AND SCIENCE (of St. Nicholas Magazine), . Per year, $3.00

For Men and Women:
THE GUIDE TO NATURE (monthly, illustrated) . . Per year, 1.00
$4.00
BOTH, ONE YEAR, $3.00; sample of either, 10c.

For Teachers:
"How Nature Study Should be Taught," (203 pgs.) . Postpaid, $1 00

For Everybody:
"The Spirit of Nature Study," (222 pgs., illustrated) . postpaid, $1.00
"Walking; a Fine Art," (164 pgs., illustrated) . . . Postpaid, $1.50
"Three Kingdoms," the handbook of the AA . . . Postpaid, .75

For Plants:
Sachs Nutrient Tablets, a box, post., 10c.

For You (to aid and be aided):
The Agassiz Association (Popular Nature Society).

For Correspondents:
(To write for further information.)

Edward F. Bigelow

Arcadia : : Sound Beach, Connecticut

Why Not REAR Your Own QUEENS

Doolittle's "Scientific Queen-Rearing" and the American Bee Journal for 1911---Both for only $1.00

Every Bee-keeper Should Have Both Book and Bee Paper



DOOLITTLE'S "Scientific Queen-Rearing" book contains 126 pages, and is bound in leatherette with round corners. It tells in the clearest way possible just how the famous queen-breeder, Mr. G. M. Doolittle, rears the best of queen-bees in perfect accord with Nature's way. It is for both amateur and veteran in bee-keeping. As all know, Mr. Doolittle has spent some 40 years in rearing queens and producing honey. He has no superior as a queen-breeder. You can learn to rear fine queens by following his directions. Read up now *before* the bee season is here.

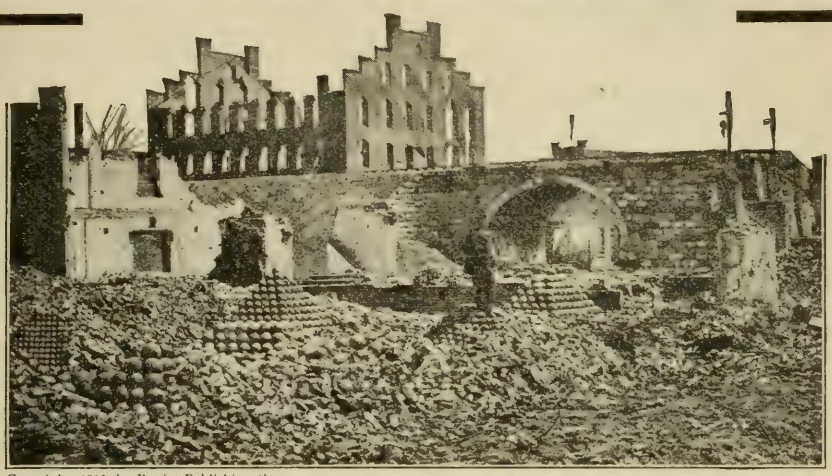
You will not regret having this book, which also gives his management of the bees for the production of honey.

The book, and the American Bee Journal for 1911, for only $1.00, is certainly a *big bargain* for you. Send the $1.00 now, and we will begin your subscription with January 1, 1911, and mail you the book. . . . Sample copy of the Bee Journal free. Address



George W. York & Co., · 117 No. Jefferson St., Chicago, Ill.

The One Everlasting Witness of the Great War



Richmond in Ruins45 years ago.

Copyright, 1910, by Patriot Publishing Company.

In the last half century the men who fought in the Civil War have grown old and many of them have died. The torn-up battlefields are covered with cotton and wheat. The guns have rusted, the fortifications have rotted away, the ruined cities have come back to more vigorous life; even the bitter feelings that caused brother to fight brother have faded away.

But there is one witness that will never grow old—that is as clear today as it was fifty years ago. And thereby hangs the most amazing story of our history.

$150,000 Worth of Photographs to You for the Value of One

THE name of Mathew Brady should be blazoned high in our history, for Brady was the famous photographer who followed the armies and navies through the mighty conflict which tried this nation fifty years ago. Four years of hardship brought him 3,500 photographs. One set of these the U. S. Government bought for $27,840. This set was buried in the War Department. General Benj. F. Butler and General Garfield said it was worth $150,000. The other set was lost for nearly fifty years, until recently it was found again, and now it has been put in such form by the REVIEW OF REVIEWS that it is within the reach of every American home.

This is the one witness of the war that will never die. It will be true for all time, for a camera cannot lie; it will tell you the story of the war you never heard before, for under the protection of the Secret Service, Brady and his camera penetrated the most unexpected places—prison and battlefield, fortress and camp, hospital and warship—even to the grim scene of execution which was the end of the great tragedy.

Send the Coupon at once for 18 of these Pictures Free.

Review of Reviews Company

13 Astor Place **New York, N. Y.**

18 Photographic Reproductions Free

Send only 10 cents for Cost of Mailing

The whole story is too long to tell here. We have put it all in a handsomely illustrated book which we will send you free if you send the coupon at once. At the same time we will send you 18 reproductions of these unique photographs which you can frame and keep. They are valuable in themselves and will give you some idea of the wonderful interest of the complete collection.

G B.C. 3-11

Review of Reviews Company
13 Astor Place
New York, N. Y.

Send me, free of charge, the 18 reproductions of your newly discovered Brady Civil War photographs, ready for framing and contained in a handsome portfolio. Also send me the story of these photographs and tell me how I can get the whole collection for the value of one photograph. I enclose 10 cents to cover the cost of mailing.

Name .....

Address .....

BEE-KEEPERS
SAVE MONEY NOW

Here is your opportunity to make a nice saving on all supplies. We are making a

Special Cash-discount Offer

that means money in your pocket, if you will send in your order now. You know from past dealings with us, and from our reputation as a firm, that we deal only in

The Right Kind of Supplies

We are fitted to serve you best in every way. Our location, stock, and low prices are all to your advantage.

We have every thing you can need in successful bee culture, and give the smallest order the same prompt attention as a large one. All orders invariably shipped the same day received.

OUR BIG BOOK SENT FREE. Tells all about keeping bees, and how to make them profitable. Sure to contain information and suggestions of real value to you.

Send to-day for catalog of money-savers and full information concerning Special Cash-discount Offer. The Bee-book will be sent you, too.

Blanke & Hauk Supply Co.
1051 Lucas Ave., St. Louis, Mo.

"Griggs Saves Freight"

TOLEDO

Is the Largest Railroad Center in the U. S.

Do you realize this?

You can get goods quicker and cheaper than from any other point.

Direct lines to your station.

Send in your order now, and let us show you.

The largest stock on hand, and all new goods.

Our catalog is FREE.

2 per cent Discount. Try US.

S. J. Griggs & Co.
25 No. Erie St., Toledo, Ohio
Successors to Griggs Bro's. Co.

"Griggs, the King Bee"
Wholesale and Retail

The Cute American

Knows a good thing when he sees it. How do I know? Look right here; he tells you so, and at the same time gives you a hint.

I can not give you more convincing proof if I tried ever so; but if you want to know just how I select my breeding stock you can please refer to GLEANINGS for May, 1909. THAT opened the way for "Queenland" Queens among American friends.

QUEENLAND—16-page, 4to circular, gratis and postfree.



Select Tested Queens
All 1911, $3.00

S. SIMMINS
Heathfield, Sussex, England

I get so many recommendations from U. S. friends who have already used my queens that this ad. may not continue for long. Send for the largest queen-list ever published; free anywhere.

Proof from America

"After Winter.—Your W. S. queen has proven to be such a wonderful success that we have c ncluded to use none other than your queens."—Cray & Hattersley, St. Louis, Mo., U. S. A., May 2, 1910.

America Again Speaks to the Point

"Your W. S. of last season beats any thing I have ever seen in all my 25 years' experience. Nothing can equal your plan of queen-rearing, in my estimation."—Apiarist, American Apicultural Farming Co., June 6, 1910.
[It is our Pedigree Selection that does it.]

U. S. A. Not a Bee Dead

"The W. S. pedigree queen, which you mailed me, arrive1 in splendid condition—not a dead bee in the cage. She is a beauty, both in size and color To say she surpassed my expectations would be putting it feebly."—R. B. Mullen, Owensboro, Ky.

A Profitable Visit

In ordering queens for 1911, an American client says: "I have visited Mr. ——, of Blackstone, Mass., twice the past summer, and he speaks very highly of your queens."—H. Sowden, Providence, R. I.

CONKEY'S POULTRY REMEDIES

IN this issue of GLEANINGS IN BEE CULTURE Mr. A. I. Root tells of his experience in using one of the preparations compounded by the Conkey Company. Our latest inventory shows a small stock of many of the excellent articles in the Conkey line in stock in our New York, Chicago, Philadelphia, and home offices. Since we no longer handle poultry-supplies it is our desire to close out these remedies while they are fresh and good, and we offer liberal discounts from regular prices as follows: **All Prices f. o. b. Medina or Nearest Office.**

Cholera Cure

50c package Cholera Cure . . 30c

Gape Cure

50c package Gape Cure . . 30c

Healing Salve

50c package Healing Salve . . 30c

Head-Lice Ointment

1-oz. package Head-Lice Ointment 6c
3-oz. " " " 15c

Laying Tonic

25c package Laying Tonic . . 15c

Lice Liquid

$1.00 can Lice Liquid . . . 60c
60c can " " 40c
35c can " " . . . 25c

Lice Powder

$1.00 package Lice Powder . . 60c
50c " " " . . 30c
25c " " " . . 15c
15c " " " . . 6c

Roup Cure

$1.00 package Roup Cure . . 60c
50c " " " . . 30c

Taroline

1-gal. can Taroline . . . $1.00
½-gal. " " 60c
1-qt. " " 40c
1-pt. " " 25c

* Taroline is a soluble disinfectant, deodorant, and germ-destroyer. It mixes with water—1 gallon making 100 gallons of disinfectant.

You will need these remedies this spring and summer. . Order now at a saving. . Have them shipped with other supplies whenever possible, and avoid express or mailing charges.

The A. I. Root Co.

Medina, Ohio

New York City, 20 Vesey St. — Chicago, Ill., 213-231 Institute Pl.

GOLD MEDALS
St. Louis Exposition, 1904
Jamestown Centennial, 1907



Danzenbaker Smoker

Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT GRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

The **ONE-PIECE** cap **CAN NOT clog.** It is the **COOLEST, CLEANEST, STRONGEST. BEST,** and **LARGEST NET CAPACITY** of all smokers, selling at one dollar ($1.00). We **GUARANTEE SATISFACTION** or **return** the price; only three complaints in **six years.**

Send your address and five other bee-keepers', for **FREE CIRCULARS** and fifty-page catalog of B-supplies, and we will send you one smoker for even dollar. We **WANT YOUR HELP** in selling Bee-ware at factory prices.

Smoker by mail, $1.25; with Gleanings a year by mail, $1.50 for medium; $1.75 for large size, during January.

F. DANZENBAKER, - NORFOLK, VA.

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25 YEARS' PRACTICE

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Patent Practice in Patent Office and Courts. — **Patent Counsel of The A. I. Root Co**

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Toepperwein & Mayfield

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Our new plant is two-story, 40 by 250 feet, filled with a nice clean stock of The A. I. Root Company's make of bee-keepers' supplies. Our comb-foundation factory is twice the size it was last year. We give satisfaction, otherwise we should not grow. Our list of customers is growing daily; but we seek more trade from outside States. Promptness is what gets us the trade. We will give special inducements to associations or parties having large quantities of beeswax to be worked into comb foundation. We absolutely guarantee satisfaction. We manufacture comb foundation by the "Weed New Process," the best known. We retain the natural odor of the hive by carefully working the wax. Send us your name for a sample and our catalog. When in San Antonio make our office your office, and meet the bee-keepers as they come in. We have a nice cozy room especially prepared for our visitors to pass the time pleasantly. Remember our location is corner Nolan and Cherry Streets, fronting Subway.

2% Early-order cash discount. Do not delay if you want to save on regular catalog prices. . .

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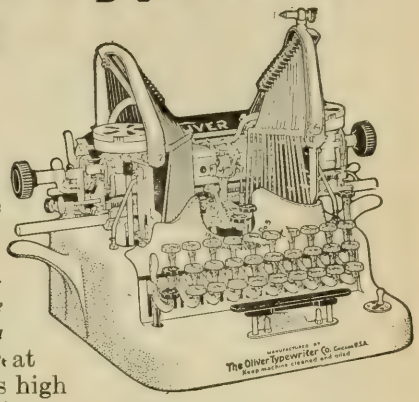
San Antonio, Texas

Take Your Oliver Typewriter -Pay Seventeen Cents a Day!

Send Coupon or Letter for Details

A message of vital moment to the vast audience reached by this magazine.

We are selling the Oliver Typewriter—the Standard Visible Writer—the New Model No. 5—the regular $100 machine — for Seventeen Cents a Day! Whether you sit in the councils of great corporations or are perched on a bookkeeper's high stool—*whatever your part in the world's activities*—this offer of the Oliver Typewriter means something worth while to *you.*



Mightiest Machine in World's Workshop

The terrific pace of modern business demands mechanical aids of the highest degree of efficiency. Foremost among all the inventions that speed the day's work—that take the tension from *men* and transfer it to *machines*—is the *Oliver Typewriter.*

The Oliver Typewriter is the mightiest machine in the World's Workshop. It weaves the million threads of the world's daily transactions into the very fabric of business. It works with the smooth precision of an automatic machine. It adapts itself to the diversified needs of ten thousand business conditions.

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The Oliver is illuminated by scores of brilliant innovations not found on other typewriters. Its remarkable time-saving devices and conveniences include the Vertical and Horizontal Line Ruler, the Disappearing Indicator, the Tabulator, the Back Spacer, the Adjustable Paper Feed, the Double Release, the Automatic Spacer, the Locomotive Base.

Time and again, when our existing models met every demand of the public, we have brought out important *improvements* at great expense, without adding a cent to the price.

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The Oliver Typewriter has an efficiency of 100 per cent, every day in the week and from one year's end to another.

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The Standard Visible Writer

The basic idea upon which its towering supremacy rests is its wonderful Double Type-Bar. What the Selden patent is to the automobile, this principle is to the typewriter, *only we do not license its use on any other writing machine.*

The Doublh Type-Bar gives the Oliver Typewriter its positive DOWNWARD STROKE, the secret of *perfect printing, light touch, easy operation, and perfect alignment.*

Yours for Pennies! Send the Coupon

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A small cash payment brings you the magnificent new model Oliver No. 5. Then you save Seventeen Cents a Day and pay *monthly* until the machine is *yours.*

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Send coupon or letter for the handsome Catalog and full details of the popular Penny Plan. (66)

The Oliver Typewriter Co.

Sales Department

116 Prospect St. CLEVELAND, OHIO

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No.	Stock and combs minutely exam'ned regarding absolute health. No foul brood or disease of bees in Alps.	March April May	May	June	July Aug'st	Aug'st Sept. Oct.
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2	NUCLEUS, with select tested queen; weight of bees, one pound, net	6.00	6 00	5.00	4.50	4.50
3	NUCLEUS, with select tested queen; weight of bees, two pounds, net	....	7.00	7.00	6.50	6.50
4	NUCLEUS, with select tested queen, 7 half frames of German Standard size	....	8.00	7.00	7.00	7.00
5	MOBIL HIVE, with select tested queen, 10 half frames of German Standard size, transferred winter stock with brood and honey	9.00	9.00	....	....	....
6	CARNIOLAN ORIGINAL HIVE, very strong select tested queen, brood, honey; will produce 2 to 3 swarms; the combs can then be cut out and transferred to mobil hives	9.00	9.00	9 00	....	8.00
7	MOBIL HIVE, full colony, can be opened from three sides; select tested queen, brood, honey, 17 German Standard-Vienna or Badensische half frames	10.00	10.00	....	....	9.00
8	QUEEN, select untested	....		2 00	2 00	

German Standard half-size width, 8¼ inches; height, 7¼ inches. Badensische Union half-size width, 9½ inches; height, 8½ inches. Vienna Union half-size width, 9½ inches; height, 8¼ inches. Other sizes ordered charged 10 cents apiece if not larger than these.

Safe arrival of queens, nuclei, and hives guaranteed. International postal money order with every order. Give correct and plain address. Mailed, postage free, queens and nuclei under Nos. 1, 2, 3, 8; postage or freight paid by receiver for shipments under 4, 5, 6, 7. Eventual dead queens or dead stock replaced if returned in 24 hours after arrival in postpaid package. Orders, to be effected at other times than the months above stated, will be filled, provided weather and other conditions make it possible. Write for the booklet, "The Carniolan Alpine Bees." References respecting financial and commercial responsibility of the undersigned Association can be had at every Imperial and Royal Austro-Hungarian Consulate in the U. S. of America. Orders amounting to $50, ten per cent discount; $50 to $75, fifteen per cent discount; over $75, twenty per cent.

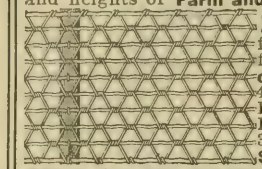
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They won't get broken, musty, soiled or soggy like ordinary soda crackers because their crisp, clean freshness is protected by the moisture-proof and dust-tight package.
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NATIONAL BISCUIT COMPANY

13 1/4 CENTS A ROD
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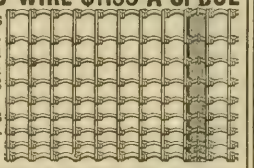
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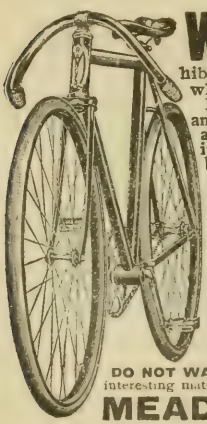
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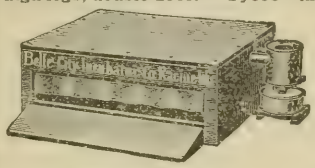
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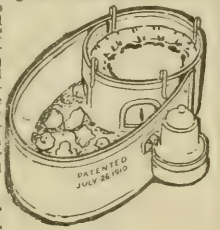
No machines at any price are better—75,000 in use. **Satisfaction Guaranteed.** Write for book, "Hatching Facts" today, or send the price now and save waiting.

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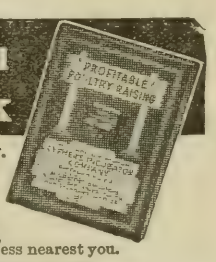


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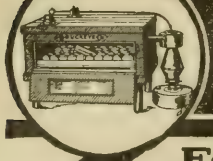


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ROOT CONVERTIBLE BROODER

Is used indoors with the sash, and outdoors with the galvanized covered doors.

Have You Lost Any Young Chicks

Because of leg weakness?

Because of sour crop and bowel trouble?

Because the chicks pile up and smother each other?

There must have been unnatural conditions that caused your losses, and it is to your interest to look into your brooding equipment.

You will Agree with Us that

It's warm dry floors that cause leg weakness; the chicks' feet dry up. With the mother hen the chicks would be running on cool, moist earth, and their feet would be cold, but strong and stocky.

You will also agree that the chicks breathing warm air, as they do under the old-fashioned hovers, is what causes sour crops and bowel trouble.

These unnatural conditions do not exist in the Root Brooders, as there the chicks have a cool floor to run on, and there is no hover; the air is not confined; it's free and continually changing.

Our Catalog gives an accurate and thorough description of the Root Brooders, and will be sent to you upon request.

The Root Incubator Co.
Dept. G, Cleveland, Ohio



LIFE PRODUCERS
SUCCESSFUL INCUBATORS
LIFE PRESERVERS
SUCCESSFUL BROODERS

The only machines that rival the mother hen. Sold on a **Direct-to-You Factory Price.** Get our **Big FREE** Incubator Book and save 40%. Send postal now. Booklet, "Proper Care and Feeding of small Chicks, Ducks and Turkeys" sent for 10c.

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Poultry the Best Paying Branch of Farming



The 1911 catalog by Robert H. Essex, poultry and incubator expert, will start you right. Improved incubators and brooders. Read "Why Some Succeed Where others Fail."

ROBERT ESSEX INCUBATOR CO.
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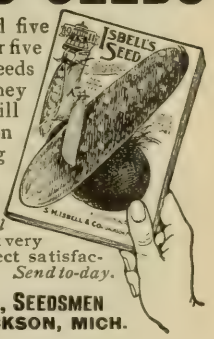
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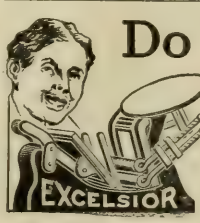
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is the reason why for many years past I have done such an enormous seed business. 79,430 customers in Pennsylvania alone, with almost half a million the world over. My New Seed Book for 1911 is a wonder; contains everything in seeds, bulbs and plants worth growing. Weighs 12 ounces; 600 illustrations 4 colored plates, 176 pages. Any gardener sending his name on a postal card can have it for the asking. Address

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This is the **Greatest Berry** the world has ever known, discovered in the Himalaya Mountains. Its growth and productiveness is simply marvelous. It is perfectly hardy everywhere and grows from 30 to 50 feet in a season and can be trained on arbors or trellises of any kind.

The **Engraving** shows one **Plant** from photo July 1, 1910, which is trained to a large trellis loaded with fruit, and continued bearing until October.

The Fruit is black, almost coreless and the large luscious **Berries** borne in enormous clusters will literally melt in your mouth. It is unsurpassed for eating fresh, cooked, canned or preserved in any form and is the Greatest of all Berries for all Climates.

Everybody can and will grow this **Great Berry** for it is the easiest **Fruit** in the world to grow, is splendid for city people or any one with limited space, for it can be trained up from the ground like a tree producing Berries from 3 to 4 months, growing larger and producing more **Fruit** each year.

We guarantee this the **Greatest** of all new **Fruits** and can produce facts no one can get away from.

Beware of imitations. Giant Himalaya is a family by itself and highly valued wherever grown. The English Himalaya or Plants raised from seeds cannot be relied upon for fruit or hardiness. **Our plants are from tested parent stock. Complete satisfaction guaranteed**

Instructions for cultivation with a booklet of receipts for using in many ways free with all orders.

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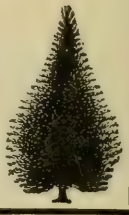
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We celebrate our 25th Anniversary in the Tree and Seed business this year by offering our customers Anniversary Collections. Send your name and address to-day for list of Collections and 25th Anniversary Garden Book, 136 pages; also Free packet "Incomparable Lettuce."

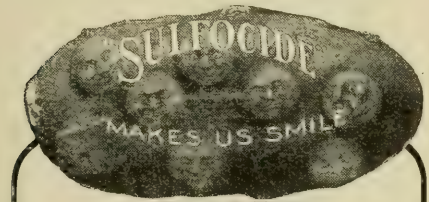
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We want you to try our Prize Seeds this year and have selected **50 best varieties** and put up **10,000** seeds especially to grow Prize Vegetables and Flowers. They will produce more than $25. worth of Vegetables and 10 bushels of Flowers.

800	Seeds	Cabbage	3	Best	Varieties	3 pkts.
2,600	"	Lettuce	4	"	"	4 "
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1,000	"	Radish	4	"	"	4 "
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In all **10,000** Seeds, and our new Seed Book with a **10c** Credit Check good for 10c selection, postpaid, 10c.

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The largest grower of pure Alfalfa Clover, Timothy, Red, Alsike and Mammoth Clovers.

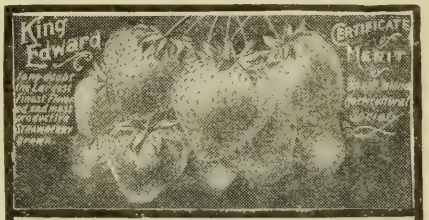
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and 40 other good varieties of Strawberries —the kinds for big profits.

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Black, Red, Yellow and Purple varieties.

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All hardy, tested, nursery grown stock. We ship to all parts of the world. Large as well as small trees supplied, $4.50 and up per thousand. Our prices are lowest of all. Quality the highest.

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Evergreen Specialists



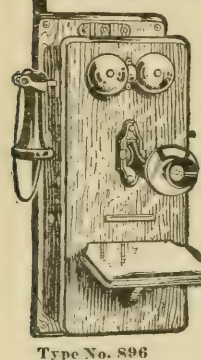


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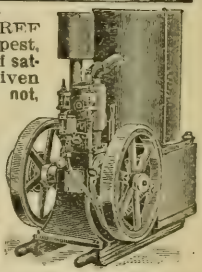
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Aster, Q. of Market, Mxd.	Pinks, New Japan, Mxd.
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Learn what real "Carriage comfort" means. Ride thirty whole days in the Cozy Cab without paying us a cent. Find out for yourself what you have missed in the past by getting genuine comfort and pleasure while driving on the stormiest of days.

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Try the Cozy Cab in all kinds of weather, over all kinds of roads. for a month free—then if you don't think it the finest buggy on wheels—ship it back—we'll pay the freight both ways.

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Fouts & Hunter Carriage Mfg. Co.

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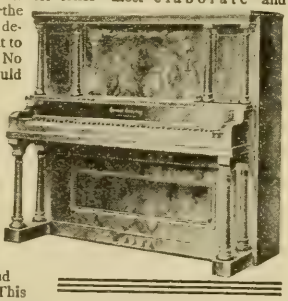
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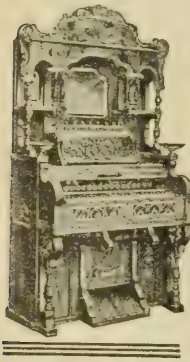
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STRAWBERRY PLANTS

Guaranteed as good as grow, at $1.00 per 1000 and up. . . Catalog free.

ALLEN BROS., PAW PAW, MICHIGAN

Annual Catalog Review

Continued from page 9.

Annual Price List of Call's Nurseries—S. W. Call, Perry, O. This describes the usual varieties of nursery stocks, small fruits, shrubs, etc.; 22 pages with cover.

Catalog of the Fruitful Plant Farms, John Lightfoot, proprietor, Rt. 2, Chattanooga, Tenn.; 16 pages and cover, devoted principally to strawberry-plants in which this seedsman specializes.

Johnson's Garden and Farm Manual—a very attractive book of 96 pages, with beautiful cover, which affords a complete guide to seeds for farm and garden, and lists poultry supplies and garden tools and implements as well. Johnson Seed Co., 217 Market St., Philadelphia, Pa.

Gilbertson's Book—devoted almost exclusively to the Alton red raspberry, grown by A. O. Gilbertson, Mason City, Iowa. This is one of the most attractive catalogs we have seen, and it is written in a style which is quite an improvement over that offered by the ordinary seedsman in getting up his annual price price list. The publisher of this book has attracted considerable attention of late by his success as a grower of special crops.

"Kevitt's System of Strawberry Culture" is the name given to the 1911 catalog of T. C. Kevitt. Athenia, N. J. This grower specializes on strawberries, and makes some wonderful claims for his stock. Substantial evidence of results is not lacking, and the booklet is well worth reading.

A. T. Cook, Hyde Park, N. Y., has published his annual catalog of seeds, vines, etc., grown, as he says, by a practical gardener of 25 years' experience—a farmer's son who knows what to catalog and what to leave out.

Hill's Catalog and Planting Guide—the annual publication of The D. Hill Nursery Co., Inc., Dundee, Ill. This nursery claims the distinction of being the largest grower of evergreen specialties in America; and their 1911 catalog has been most carefully prepared from actual photographs. It is in many ways one of the most attractive nursery books that has been received this year. It has 48 pages, with cover in many colors.

POULTRY SUPPLIES.

Poultry for Profit—contains an annual catalog of Ideal incubators and brooders, with poultry supplies, foods, remedies, etc., and description and prices of standard-bred poultry offered by Millhook Poultry Farm, issued by The J. W. Miller Co., Freeport, Ill. Useful and interesting to all interested in chickens. It contains special information on incubation and brooding, and interesting descriptions of the characteristics of practically all varieties of standard bred poultry.

Annual Catalog of Old Trusty Incubators and Brooders. "The Johnson Book," one of the most completely illustrated catalogs we have ever seen. Compiled without regard to expense, Finely printed. Written in the free and easy style of its author (M. M. Johnson), this is truly a book well worth having. Whoever reads Johnson's story of how he engaged in the manufacture of incubators, and the experiences he has undergone up to this time, can not but have the highest regard for a man who has overcome each obstacle by sheer force of will.

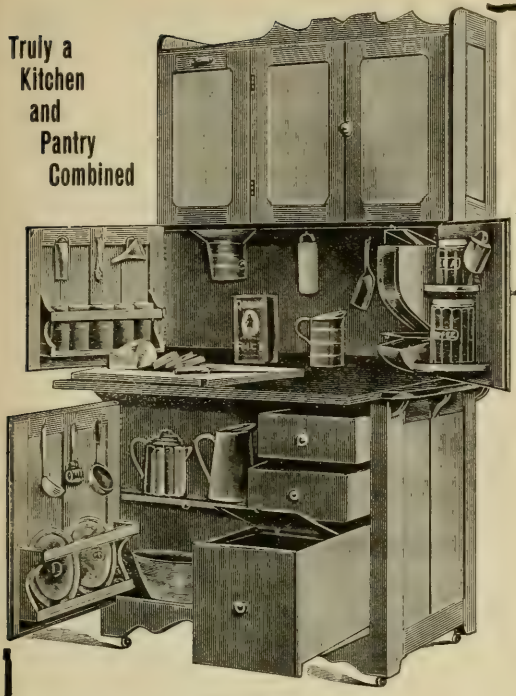
SPECIAL CATALOGS.

The Pheasant Industry—a book by H. W. Myers, importer and breeder of pheasants, Tacoma, Wash. This is a very interesting story of these beautiful and profitable birds, with many illustrations, and prices on matings, eggs, etc. It includes a list of names of all known game birds and their habitation.

CANADIAN BEE-KEEPERS

E. Grainger & Co., Deer Park, Toronto, announce to Canadian bee-keepers that they have a reasonably full line of Root bee-supplies on hand for shipment from Toronto. Large shipments will be made direct from the factory, and in many cases a considerable saving may be effected by placing orders with us. Address E. GRAINGER & CO.,
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No. 400
The Bon Ton of all Kitchen Cabinets

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This kitchen-cabinet means to you what the most valuable machine on the farm means to your husband.

It means a revelation in kitchen convenience—a time and labor saving you can not compute. No more tiresome drudgery, running here and there for this article or that—to the cellar, to the pantry, rummaging through drawers, bins, and jars—in this cabinet there is a place for every thing, and every thing is always in its place. System is easy because no other plan can be practiced with this cabinet.

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PRICES BELOW ALL OTHERS

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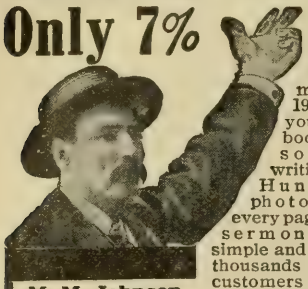
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The A. D. Hosterman Co., Springfield, Ohio
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Mine are true to name. Write for Free booklet which tells all about the 150 acres I am growing for telephone poles.
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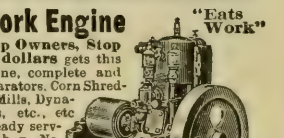
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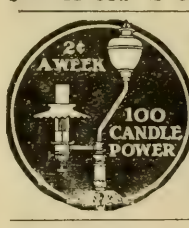
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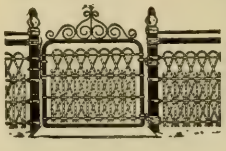


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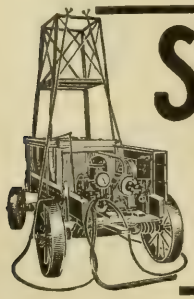
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Has 3½ Horse-Power, 4-Cycle Engine and Hopper Jacket for Cooling
It supplies 10 nozzles at a pressure of 200 lbs with safety valve blowing off, and this service can easily be increased without overtaxing the engine.

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Just mix with water and moisten the seed or spray on soil or young plants. The bacteria will increase rapidly, by the millions, in the soil, and draw nitrogen from the unlimited supply in the air, feeding it to the growing crop and storing it in the soil for future crops. For use on Alfalfa, Clover, Peas, Beans, and all legumes.

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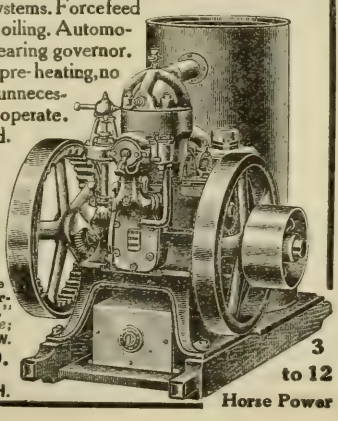
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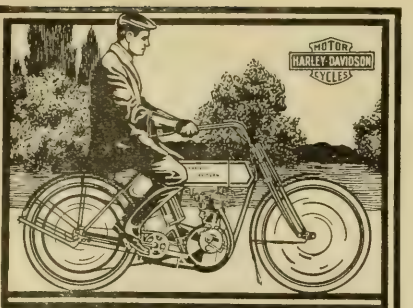
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and disinfecting with the new
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gives twice the results with same labor and fluid. Also for spraying trees, vines, vegetables, etc. **Agents Wanted.** Booklet free. Address
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Get double the present results from your time and labor. Use Planet Jr farm and garden implements, and secure bigger and better crops with less work.

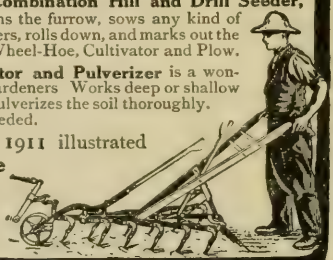
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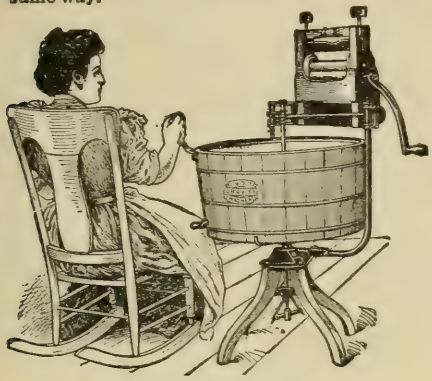


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Who Saves You

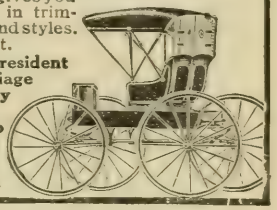
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FOR SALE.—New crop of alfalfa seed; 4 lbs. by mail, prepaid, $1.10; 25 lbs. by freight or express, at 17 cts.; 50 lbs. at 16 cts.; 100 lbs., $15.00.
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FOR SALE.—I am overstocked, and will sell 75 lbs. Dadant's extra-thin foundation; 5000 Root's No. 1 sections, 4¼ x 4¼ x 1⅞. Goods have never been opened. Will make price right. Address
CHAS. S. HURLBUT, Timnath, Col.

One Cyphers Co. incubator, 250-egg; one Charles A. Cyphers model incubator, 250-egg; cost $32.00 each, both in good order, to exchange for colonies of bees with queens, or sell for cash. What am I offered? DAVID BURTON, Mohegan, N. Y.

Wants and Exchanges

WANTED.—For cash a second-hand extractor. State condition; must be cheap.
F. J. ARMSTRONG, Nevada, O.

WANTED.—To sell for cash, or trade for U. S. or Canada land, the best bee-outfit in Iowa.
D. E. LHOMMEDIEU, Colo, Story Co., Iowa.

Will exchange one Novice honey-extractor and 6 ten-frame hives with combs in Hoffman frames, for honey. C. B. THWING,
445 North Fifth St., Philadelphia, Pa.

WANTED.—Fine qualities of white and light-amber extracted honey. Send samples with lowest prices f. o. b. New York. Also state how packed, and quantity you have. Are always in the market for beeswax. HILDRETH & SEGELKEN, New York.

Real Estate

FOR SALE.—Forty acres of land, 37 acres cleared, new house, new windmill and tanks, 6 acres of peach orchard. Price $2300.
D. COOLEY, Kendall, Mich.

FOR SALE.—Five-acre citrus grove, 166 colonies of bees, complete outfit, honey-house; honey 85 to 90 cents per gallon, N. Y.; large living-house; well; horse; harness; $50 carpenter outfit. $2000 cash.
F. MCCANN, La Gloria, Cuba.

Bees and Queens

FOR SALE.—Golden-all-over queens, and bee-keepers' supplies. T. L. MCMURRAY, Silverton, W. Va.

Tested queens, like those we use, $1.00.
L. E. KERR, Germania, Ark.

Big bargain—100 colonies of bees for $200. Write
T. M. COLLINS, Bardwell, Carlisle Co., Ky.

Extra early golden queens, $1.00. No disease. Cheaper in lots. MORGAN & MARSHALL, Hamburg, La.

WANTED.—Bees. I pay cash.
F. A ALLEN, Philipsburg East, Que., Canada.

WANTED.—Bees within 50 miles of New York; also comb honey. J. M. BROOKFIELD, Rahway, N. J.

WANTED.—Bees in Maryland, Virginia, or Carolina. I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—Bees by the pound from the South in April. J. ALPAUGH, Galt, Ontario, Can.

Bees and queens of quality. Supplies. Catalog.
STRINGHAM, 105 Park Place, New York City.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Bradley's Store, Va.

FOR SALE.—Thirty hives of bees; and for rent, a good house; good location. P. TENSEN,
Rt. 1, Ontario, Ore.

WANTED.—150 colonies of bees, in good location, with or without real estate.
Box 39141, GLEANINGS, Medina, O.

FOR SALE.—200 colonies of pure Italian bees in 8 and 10 fr. Dov. hives at $6.00 per colony; in lots of 10, $5.00 per colony. F. A. GRAY, Redwood Falls, Minn.

WANTED.—50 or 75 colonies of bees in ten-frame L. hives. State price, also whether Italians, hybrids, or blacks. J. R. SIMMONS, Harvey, Cook Co., Ill.

FOR SALE.—If our bees winter as usual, I will sell 100 or 200 colonies in 8-frame hives, April or May.
E. F. ATWATER, Meridian, Ida.

Golden queens, untested, $1.00; select untested, $1.50; breeders, $5.00 to $10; also Root's bee-supplies. Write for catalog. ROB'T INGHRAM, Sycamore, Pa.

Missouri-bred Italian queens; none better; prices right; write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

Golden and red-clover Italian queens; superior stock. Write for prices. WM. A. SHUFF,
Aldan, Delaware Co., Pa.

FOR SALE.—Golden untested queens, April 1, 75 cts. each; also three-band if wanted. Safe arrival and perfect satisfaction.
R. O. COX, Rt. 4, Greenville, Ala.

FOR SALE.—Sixty colonies of bees in good condition; 8 and 10 frame hives; 175 empties; 100 have good combs in brood-chamber.
W. F. STUART, Garden City, Kan.

Queens of the celebrated Highland Farm strain of hardy northern-bred three-band Italians: line bred for honey-gathering qualities. Send for circular.
J. E. HAND, Birmingham, O.

QUEENS.—Five-banded Golden Italian queens. Tested queens, each, 85 cts.; half-dozen lots or more, 75 cts.; untested queens, 50 cts. each. Tested queens April 15; untested, April 1. No disease. None better. L. S. GILMORE, Bluff Springs, Fla.

FOR SALE.—Apiary of 24 colonies of bees; hives and combs from wired foundation for 15 colonies more; 300 extracting-combs; honey-extractor; wax-press; foot-power saw; 500 Benton queen-cages; bee-escapes; honey-boards, feeders, etc.
E. W. HAAG, Rt. 2, Canton, O.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white, sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

Golden queens—very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei, and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Position Wanted

WANTED.—Apiary to work on shares, with privilege of buying; must be in good location, free from disease. Good reference.
R. S. BECKTELL, Grand Valley, Colo.

WANTED.—By an expert, who understands every branch of the business, bees on shares, or will buy them. Michigan preferred.
BOYD HOWARD, Union Center, N. Y.

WANTED.—A young man of good habits and one year's experience wishes a place in a large apiary. State wages and conditions in first letter.
F. E. OSBORNE, 8 East Elm St., Norwalk, O.

Help Wanted

WANTED.—At once, an experienced bee-man, single; comb-honey position permanent in connection with farm work. Give particulars and wages wanted in first letter. W. P. SMITH, Artesia, Miss.

WANTED.—Man, with some experience in producing comb honey, to work in an apiary and do light work on farm; steady work in a healthful locality; can pay $30.00 per month and board. Cigarette fiends and booze fighters barred.
H. A. DANIELSON, Avondale, Colo.

WANTED.—At once an exceptionally competent man to operate poultry and bee departments of a large farm. State age, experience, and salary wanted; whether married or single; present location; give reference. A first-class place for the right man. Box C, GLEANINGS, Medina, O.

WANTED.—An active intelligent young man, with a little experience with bees, to assist with our bees. Can give as good an opportunity to learn the bee-business as there is in this country. My last year's crop was over 79,000 lbs. Write immediately, with references; give age, experience, height, weight, health, wages; no liquor or tobacco.
E. F. ATWATER, Meridian, Ida.

Poultry

FOR SALE.—Duston White Wyandottes, $2.00; 15 eggs, $1; $5 per 100. ELMER GIMLIN, Taylorville, Ill.

Day-old chicks? Seven breeds hatched. Circular free. D. Y. TAYLOR, Lyons, N. Y.

Buttercups for utility and beauty; selected pens; unlike others. H. V. MEEKER, Earl St., Toledo, O.

R. C. Red eggs. Sterile eggs replaced free. Write.
A. H. GOFF, Farmdale, Ohio.

Eggs, circular free. Thousand Leghorns, Rocks, Orpingtons. M. A. BROWN, Rt. 3, Attleboro, Mass.

FOR SALE.—Buff Orpington eggs, $1.25 per 15; $6.00 per 100. J. M. MUNDELL, Hobart, Ind.

Barred Rocks, Bradley strain. Stock and eggs for sale. MRS. W. L. BENNETT, Crooksville, O.

White-Buff Orpingtons, Minorcas, Barred Rocks, R. C. Reds. Eggs, $2.00 per 15.
F. B. SCHLOTTER, Keokuk, Iowa.

FOR SALE.—Indian Runner duck, White Wyandotte eggs. Utility stock, $1.00 per setting.
J. F. MICHAEL, Winchester, Ind.

FOR SALE.—75 fine thoroughbred P. Rocks; roosters, $1.00 each; 1000 lbs. sweet-clover seed at 14 cts.
G. ROUTZAHN, Biglerville, Pa.

S. C. Rhode Island Reds, good layers, select stock, pure Tompkin strain; rich red throughout; $1.00 for 15 eggs. GEO. T. PURVES,
Sta. A, Rt. 36, Indianapolis, Ind.

R. C. I. Reds, Buff Wyandottes, S. C. White Leghorns—the kind that lay and pay; winners and bred from winners, Madison Square, Cleveland, Toledo, Jamestown, etc. Eggs for hatching. Mating and special sales list for the asking. Write to-day.
CONSOLIDATED POULTRY YARDS CO., Canton, O.

ANCONAS.—The *great* egg-layers; 3 fine cockerels, $1.50 each; also choice Buff Wyandottes.
W. K. LEWIS, Dep't 2, Dry Ridge, Ky.

S. C. B. Leghorns, bred from record layers. Eggs, $2.00 per 15; $3.50 per 30. E. M. SHIRK,
Edgwood, Wheeling, W. Va.

Cockerel, S. C. White Leghorn, $1,00 each and up; eggs, $5.00 per 100; also Pekin Ducks, Barred Rocks.
Premuim Poultry Farm, Box 40, La Harpe, Ill.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St, Joseph, Mo.

SICILIAN BUTTERCUPS.—Stock and eggs for sale from original imported blood and from my ribbon-winners at the Appalachian Exposition and other shows. Free circular. MRS. J. S. DUMARESQ,
Cato's Hall, Easton, Md.

R. I. Reds, B. Minorcas, and Brown and White Leghorns. Eggs, $1.50 and $1.00 per 15; B. Leghorns and Reds, $7.00 and $5.00 per 100, all single combs. Also registered Ayrshire calves.
C. A. CARPENTER, Ashville, N. Y.

Black Langshan cockerels, $2.00 to $5.00, according to quality. Every thing on my farm is of the best quality, and my aim is to please. Birds are big strong fellows, fine in color. A trial order will convince you. H. J. CORNISH, Box 9, Hebron, Ind.

Indian Runner ducks from imported stock, fawn and white; very easy to raise and easy to keep. They are beauties too — lay eggs all the year; lay heaviest in winter. Eggs, $1.50 per 13; $7.00 per 100. Let me start you to success.
C. O. YOST. Rt. 4, Winchester, Ind.

EGGS FOR HATCHING.—Partridge Plymouth Rock, direct from originator; $5.00 for 15. White Wyandottes, Regal strain, birds scoring 90 to 95. $3.00 for 15; $5.00 for 30. S. C. Reds, Crowther & Tompkins strain—winners wherever shown; $3.00 for 15.
W. J. LANPHEAR, Route 3, Medina, Ohio.

Buff Leghorn eggs of quality. Our birds speak for themselves. Your order will be filled from hens that lay at 5 months; big layers, good payers. Do not wait—order to-day. Only $3.00 per setting.
WM. BRITTON,
Prop. Hillside Poultry Farm, Huntington, Ind.

S. C. R. I. Reds, large and beautiful, rich in color, and rich egg-layers; the winning strain. Eggs from exhibition pens, $2.00 per 15; $10.00 per 100. Eggs from standard pens, $1.00 per 15; $5.00 per 100. I can please you, sure.
C. O. YOST, Rt. 4, Winchester, Ind.

Lowest prices; 350 varieties; pheasants; poultry; Phœnixfowl; parrots; all kinds of birds; animals; rabbits; eggs for hatching. Price catalog (300 illustrations) 25 cts.; complete work on raising pheasants, wild game; colored plates; 75 cts. Exchanges made. U. S. PHEASANTRY, Poughkeepsie, N. Y.

Order your copy of "American Standard of Perfection" through GLEANINGS. The new edition of this greatest of all poultry-books is now ready. Beautiful plates show feather-markings, etc., of every standard breed. Price $1.50, postpaid, in cloth; $2.25 in morocco binding.
BUYERS' BUREAU, GLEANINGS IN BEE CULTURE.

WHITE PLYMOUTH ROCKS.—Call my stock "Egg Strain of White Rocks" because of their unusual productivity. Original stock direct from Fishel. Have selected very best layers by trapnesting, and am now booking orders for delivery March 1st and after. All eggs from selected layers bred for eggs—especially winter eggs. Eggs, $2.50 per 15. Order promptly. JAY SMITH, Vincennes, Ind.

Miscellaneous

HOME CANNING OUTFITS.—For free catalog address RANEY CANNER CO., Texarkana, Ark.-Tex.

American Hen Magazine, Council Bluffs, Iowa. Subscribe now—25 cts. a year. Descriptive circular free.

FOR SALE.—A Brush automobile in first-class running order; will sell cheap if a quick sale. Address
L. WERNER, Edwardsville, Ill.

A $100 Dick graphophone with about 75 records, almost new. How many colonies will you give me?
FRANK M. KEITH,
83½ Florence St., Worcester, Mass.

FOR SALE.—250 good strawberry-plants, best standard varieties; enough for nice family patch; sent postpaid for $1.26; 500, expressage paid, $2.45. Send card for particulars. T. M. PALMER, Rodney, O.

FOR SALE.—One set (two volumes) of Cheshire's Bees and Bee-keeping—Vol. I., Scientific, 336 pages; Vol. II., Practical, 652 pages. These books are second-hand, both in fine condition. This work is out of print, and will be higher-priced and very rare in a few years. Price for the set, $10.00. Address
GLEANINGS IN BEE CULTURE.

Bee-keepers' Directory

Bees, queens, supplies; instruction free.
W. C. MORRIS, Nepperhan Heights, Yonkers, N. Y.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York City.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Italian queens from direct imported mothers, red-clover strain. After June 1, $1.00. Circular.
A. W. YATES, 3 Chapman St., Hartford, Ct.

Improved golden-yellow Italian queens for 1911. Beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in '08-'09 without a single loss. For prices get circular. QUIRIN-THE-QUEEN-BREEDER,
Bellevue, Ohio.

Convention Notices.

The Northern Michigan Bee-keepers' Association will hold its next session at Traverse City, March 15 and 16, with headquarters at Hotel Whiting. All desiring a program can have one by applying to Ira D. Bartlett, Sec., East Jordan, Mich.

The North Texas Bee-keepers' Association will hold its next meeting at Enloe, Delta Co., on the first Wednesday and Thursday in April. All bee-keepers everywhere are cordially invited to attend. No hotel bill to pay. We expect to have a great time. J. M. HAGOOD, Endoe, Pres.,
W. H. WHITE, Greenville, Sec.

Special Notices

By Our Business Manager

We are having quite a call for white extracted honey, either in barrels or cans. If any one has a supply on hand we suggest he write us. We have a good market for it. Please state the amount you have, how put up for shipment, and price you want for it delivered at your railroad station. It has been our experience that honey will sell for a better price just before the opening of the maple sugar and syrup season, which will begin soon. This is our reason for suggesting that any producer ship his honey now.

BUCKWHEAT SEED.

Some months ago it was reported in the columns of GLEANINGS that silverhull or gray buckwheat was better for honey than the Japanese. We can not say from personal observation. We are now prepared to supply either Japanese or silverhull at the following prices, bags included: Japanese buckwheat, 12 cts. per lb., postpaid; not prepaid, peck, 35 cts.; ½ bushel, 65 cts.; bushel, $1.20; two bushels for $2.25. Silverhull buckwheat, 13 cents per lb., postpaid; not prepaid, peck, 42 cts.; ½ bushel, 75 cts.; bushel, $1.40; $2.50 for two bushels. We furnish 50 pounds for a bushel.

SWEET-CLOVER SEED.

As we go to press, our stock of unhulled white-sweet-clover seed is about exhausted. We have located and ordered a further supply, but it costs us more, and we are marking up the price on this variety 2 cts. per lb. Revised price will be found in our advertisement in next column. If there are, among our readers, any who have sweet-clover seed to sell we should be pleased to hear from them with sample, stating quantity and the price asked per pound. If you name a price by the bushel, let us know how many pounds you furnish for a bushel.

BEESWAX.

From this date till further notice we will pay for average beeswax delivered here 29 cts. per lb. cash, or 31 in trade. For choice quality, 1 to 2 cents extra. Ship in strong bags, double, or in boxes or barrels securely nailed, being sure to put your name and address in or on the package so that we can identify it when it reaches us. Write us, sending bill of lading, and stating weight you ship, gross and net, so that we may know if any has been lost out on the way. Shippers are often careless in attending to these little details, and we take occasion again to call your attention to them.

SECOND-HAND FOUNDATION-MILLS.

We have on hand, and offer for sale, the following list of second-hand foundation-machines. If you desire further particulars in regard to any mill in the list we can mail samples of the work it will do.

No. 0114, 2½x6 thin-super mill in good condition. Price $11.00.

No. 0115, 2½x6 thin-super mill in good condition. Price $11.00.

No. 0117, 2x10 round-cell medium-brood mill in good condition. Price $14.00.

No. 2972, 2x10 round-cell medium-brood mill, practically new. Price $18.00.

No. 0121, 2¼x12-inch heavy hex. brood-mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price $8.00.

No. 0127, 2½ x 10 hexagonal medium-brood mill in good condition. Price $15.00.

No. 0129, 2 x 10 round-cell medium-brood mill, old-style frame, in good condition. Price $14.00.

No. 0132, 2 x 10 round-cell Pelham mill. This is nearly new, but it does not make a natural-shaped cell. Price $9.00.

No. 0133, 2 x 10 round-cell medium-brood Dunham mill in poor condition. Price $8.00.

No. 0135, 2 x 10 round-cell medium-brood mill in old-style frame, fair condition. Price $12.00.

No. 0136, 2 x 10 round-cell medium-brood mill, old style, poor condition. Price $10.00.

Sweet-clover Seed

Sweet clover is one of the chief sources of honey in Utah, Idaho, and other regions of the West, as well as in many localities in the South and other sections of the country. In recent years farmers are also learning of its great value in enriching the soil by the introduction of nitrogen. We recently printed a booklet of about 50 pages entitled "The Truth about Sweet Clover." This contains the experience of a great many who have grown it to a greater or less extent. We shall be pleased to mail this booklet to those interested, free, on request. We have a good stock of choice fresh seed which we offer at the following prices. As to the comparative value of the different varieties, we will say that the white, or *Melilotus alba*, is most common, and therefore the best known. The yellow is desirable because it begins blooming usually from two to four weeks earlier than the white. As to the two varieties of yellow, one of the experiment stations has said there was a distinction without a difference. From the testimony available, the annual, or *Melilotus Indica*, blooms first; and in California, where our seed was procured, it is reported as growing from two to six feet high, depending on the character of soil, moisture, and other conditions.

In lots of—	1 lb.	10 lbs.	25 lbs.	100 lbs.
Hulled Yellow Annual (*Melilotus Indica*), per lb	17c	15c	14c	13c
Hulled Yellow Biennial (*Melilotus Officinalis*),	20c	18c	17c	16c
Hulled White	25c	22c	21c	20c
Unhulled White (*Melilotus alba*) per lb	16c	14c	13c	12c

The prices are all subject to market changes.

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Plans, rates, and features: European, $1.50 per day upward; with bath, $2.50 upward.

American, $3.00 per day upward; with bath, $4.00 upward.

Club breakfast, 20 to 75 cts. Table d'Hote, breakfast, $1.00; Luncheon, 50c; Dinner, $1.00.

A Model Hotel Conducted for Your Comfort

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Start an orchard. Those who planted orchards as advised by Green's Fruit Grower are getting their reward in big profits. You can pay for the orchard by growing small fruit in it.

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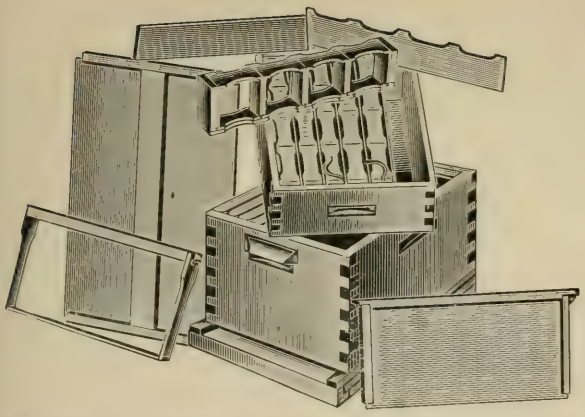
will tell you how and where to plant, how to prune and spray, and how to make your trees productive.

It is the oldest and most popular fruit grower's magazine. January is our 30th ANNIVERSARY NUMBER. We will start your subscription with that number.

Special offer to readers of GLEANINGS IN BEE CULTURE. We will mail new subscribers Green's Fruit Grower one year on trial for 25 cents.

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$9.75

Buys Complete Bee-keepers' Outfit

At the above price we furnish this complete outfit and everything needed to start in this profitable business with five colonies of bees.

With this outfit we send you 5 complete 1½-story 8-frame Dovetailed hives, equipped with "Improved" covers, supers, section-holders, section-follower board, spring, hive-body, Hoffman self-spacing frames, and reversible bottoms, 1 Bingham smoker, 120 honey-sections, 1 swarm-catcher, 1 lb. foundation comb, 1 heavy bee-veil.

We are headquarters for Bee Supplies, and sell direct to the consumer at regular wholesale prices. No matter how small or great your requirements, we guarantee you a saving of 30 to 50 per cent.

Our Bee Supplies represent the very best quality of materials and the highest grade of workmanship. No matter whether you are an established bee-keeper or a beginner, you will be interested in our line and our great money-saving bargains. Complete outfit, as shown and described above, $9.75.

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Economical and easy to put on, no previous experience necessary; absolutely guaranteed, brand new, clean stock—bright as a dollar. 1½-inch corrugated, unpainted steel sheets, light weight, 22 in. wide, 6 and 8 ft. long, 100 sq. ft..... **$1.85**

Painted, same as above..**$1.95**

1½-inch corrugated, galvanized, rust-proof steel sheets, light wt., 22 to 24 in. wide, 2 to 7 ft. long, 100 sq. ft..... **$3.25**

We pay the freight at these prices to all points east of Colorado in the U. S. Samples mailed free. Write for prices to other points, and for our Roofing Catalog.

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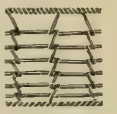
We have millions of feet of *brand new* Lumber and thousands of items of millwork, doors, windows, interior finish, mantels, colonades, etc., at our Chicago plant, where you can see it before purchasing. We are prepared to furnish all material for any building from the ground up at a saving of 30 to 50 per cent.

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This book shows many designs of houses, barns, bungalows, etc. These designs represent comfort, harmony, economy, and general utility. The material we furnish is all brand new, high grade, bright, clean stock. Every article positively guaranteed, and prices the lowest. This Plan Book is sent you free for the asking.

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This is a continuous woven Galvanized Wire Fence; 12-gauge galvanized wire is used throughout, the upper and lower cable consisting of two 12-gauge wires twisted together. Stays are spaced either 6 or 12 inches apart, and are continuous, being woven into the upper and lower cables from one stay to another. No loose ends, and the wires do not break. This is the most reliable construction possible. *Special price on Hog Fencing 25 in. high; 7 line wires; 12-in. Stays, 19½c per rod.* Other heights for Cattle, Horse and field Fencing at prices ranging from 19 to 36c. Send for our Special Wire and Fence List. We guarantee a saving of 30 to 50 per cent.

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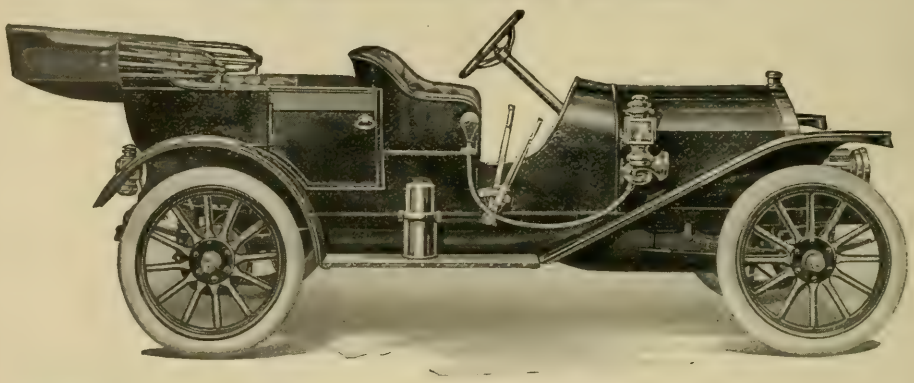
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"ALPENA FLYER"—Fore Door, 5 Passenger Touring. $1600.
"ALPENA FLYER"—Roadster. $1450.

THE REASONS WHY

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(3) A wonderful, silent, powerful and efficient motor, built in the **Unit Power Plant** type. Everything is enclosed including valves, flywheel, transmission, clutch—in fact, every possible working part is enclosed in an air-tight, oil-tight and dirt-proof aluminum housing, yet so easily accessible that any trouble can be immediately reached by simply unscrewing one of the casing plates. The motor is troubleless, noiseless, speedy, powerful and always ready for the hardest work under any kind of conditions.
(4) We do not job out the fine work on our cars. We trim, paint and completely varnish every car in our plant. The result is a refined, elegant and faultless product that hasn't a peer in the automobile world.
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THE ABOVE SIX REASONS AND A THOUSAND MORE BESIDES DON'T BEGIN TO DESCRIBE THE "ALPENA FLYER" AS THE GREATEST VALUE FOR THE MONEY IN THE AUTOMOBILE WORLD.

Specifications

MOTOR—Four Cylinder, cast in pairs, 4x4 1-2. Unit Power Plant, three-point suspension.
HORSE POWER—33.6, brake test.
CLUTCH—Multible disc—in oil.
COOLING—Water, centrifugal pump.
IGNITION—Splitdorf magneto, Dual system.
CARBURETOR—Schebler.
LUBRICATION—Combination, force feed and gravity.
TRANSMISSION—Sliding gear, three speeds forward and reverse.
WHEEL BASE—112 inches.
WHEELS—34 inches.
TREAD—Standard.
TIRES—34x3 1-2.
GAS TANK—16 gallons.
DRIVE SHAFT—Straight line. One universal joint.
FRAME—Cold pressed steel, channel section, no offset.
BRAKES—Internal and External on brake drums.
FRONT AXLE—I-beam section, drop forging.
REAR AXLE—Full floating and full ball bearing.
WEIGHT—2250 lbs.
SPRINGS—Front, semi-elliptic. Rear, three-quar. platform.
STEERING WHEEL—17-inch Gemmer.
CONTROL—Spark and Throttle Levers and Foot Accelerator.
COLOR—Dark royal blue.
EQUIPMENT—Two gas headlights, two side oil lamps, tail lamp, magneto, generator, horn, full set of tools, pump and tire repair outfit.

ALPENA MOTOR CAR CO.

115 Elm Street, Alpena, Michigan

THE SIMPLEST CAR ON EARTH
CATALOG ON REQUEST

Gleanings in Bee Culture

VOL. XXXIX MARCH 15, 1911 NO. 6

Editorial
Stray Straws
Bee-keeping in the Southwest
Siftings
Bee-keeping in Southern California
Conversations with Doolittle

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Ten-frame Hive Standard in New Zealand — I. HOPKINS
The Temperature of Bee-cellars — F. L. POLLOCK
Comments on Discussions at Recent Conventions — F. GREINER
Bee-keeping in the Highlands of Mexico — O. B. METCALFE
Bee-keeping in Florida — E. G. BALDWIN
Bee-keeping as a Hobby — F. DUNDAS TODD
Bee-keeping for Beginners, Illustrated — E. D. TOWNSEND
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Keeping Bees Free from European Foul-brood — D. E. ROBERTS
Further Particulars about the Long-idea Hive — GEO. SHIBER

Heads of Grain
Our Homes
Poultry Department

PROMPT SERVICE AT
PHILADELPHIA

THE Philadelphia branch of The A. I. Root Company was the first branch distributing-point inaugurated for the service of our bee-keeping friends. The demand for ROOT'S BEE-KEEPERS' SUPPLIES in Pennsylvania, New York, New Jersey, and throughout the East, made this point seem a most advantageous one for efficient service; and, characteristic of the ROOT way, we are here, ready to serve you promptly and satisfactorily. ∴ ∴ ∴ A few words on our facilities:

1911 Supplies and Stock

Abundant room at this branch enables us to keep on hand some twelve carloads of bee-supplies, and reship almost as much as a carload at a time. With this large supply we naturally can fill even the largest orders without loss of time. During the honey season we keep as high as sixty colonies of bees on our roof; thus our facilities in the way of live bees and queens are unexcelled. Every thing listed in the big ROOT LINE is here ready at your call.

SHIPPING FACILITIES

Better express and freight facilities are found from Philadelphia to points in Southern New York, Pennsylvania, New Jersey, Delaware, and Maryland, than can be had from any other point. Certain southern territories, too, are reached by most direct routes. We are located practically on the Delaware River, most conveniently in reach of all steamship lines and principal railroad depots. We maintain an organization which means SERVICE in every sense of the word.

PACKING

We do not charge for packing, boxing, or delivering to freight offices in Philadelphia. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B. Philadelphia. If no agent at your station, notify us and we will prepay, and bill charges after shipment. Often during the busy season much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what the charges will be.

Careful attention and prompt service is our aim. We try to ship mail and express orders the day they are received. Freight orders are filled in order of their receipt. No order is too small or large for our personal attention.

OUR LOCATION

We are located on the third and fourth floors at Nos. 8 and 10 Vine St., two doors from the Delaware River, and three squares from Market St. ferry. Large, light, well-fitted display-rooms, with complete line of supplies, booklets, etc., always on exhibition. Our manager and assistants will enjoy answering your questions. You and your friends will be heartily welcomed.

DEMONSTRATIONS

Twice each week in the summer season our experienced bee-keeper gives a practical demonstration in bee-keeping. At this time the habits of honey-bees and the different appliances which make for successful apiculture are explained—a feature which has been appreciated sufficiently to bring people from all sections of the territory contiguous to this branch.

OUR MANAGER at the Philadelphia branch is an experienced bee-keeper—one of the best-known apiarists in the East—who thoroughly understands the requirements of those engaged in the business for pleasure or profit. He has an extensive knowledge which will be of great benefit to those who are fitting up large apiaries on suburban estates and farms. You will find him always willing and ready to make his services of value to whoever seeks his assistance.

THE A. I. ROOT COMPANY

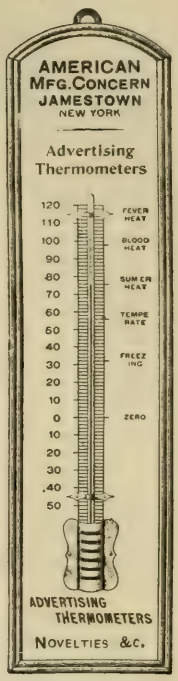
8-10 Vine Street, Philadelphia

WM. A. SELSER, Manager **Phone, Market 2433-A**

Did You WRITE

for one of these "FALCON" thermometers which we announced last month? This thermometer is mounted on white enameled back, 21 inches long, 5 inches wide, and ⅞ inch thick; a handsome and durable article for the home; well enameled to stand exposure for outdoor use.

It's just the thing you need for your home, your honey-house, or bee-cellar.



If You Did Not,

Write one of our three new carload Distributing Houses. They send them as introductory offers with first orders for a certain quantity of **"falcon"** Bee Goods free. No matter how small your needs, write them—there are many articles. Ask for a list and a copy of our "RED" bee-supply catalog.

Ross Brothers Co. . Worcester, Mass.
90 Front Street
The Freight Center of the New England States

C. C. Clemons Bee Supply Co., 130 Grand Avenue., KANSAS CITY, MO.
The Freight Center of the West

W. T. Falconer Manufacturing Co., 117 No. Jefferson St., Chicago, Ill.
The ONLY Bee-Supply House in the Business Section of Chicago — the Freight Center of the Middle States.

"Falcon" FOUNDATION

Why have we sold twice as much foundation this year as in the same period last year? The reason is simple, and explained by one word, "Quality." Quality in the wax we use, quality in our methods of manufacture, and quality in the way we get it ready for shipment. Try our foundation this year, and be satisfied.

Order from Your Nearest Dealer

Ross Bros. Co., 90 Front St., Worcester, Mass.
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The Fred W. Muth Co., 51 Walnut St., Cincinnati, Ohio.
Deroy Taylor, Lyons, Wayne Co., N. Y.
Cull & Williams Co., 180 Washington St., Providence, R. I.
Hudson Shaver & Son, Perch River, Jefferson Co., N. Y.
C. C. Clemons Bee Supply Co., 130 Grand Ave., Kansas City, Mo.
A. M. Applegate, Reynoldsville, Penn.
J. R. Rambo, Collingdale (near Phila.), Pa.
Bridat & Mont'ros, Havana, Cuba.
E. Lyons & Son, Kingston, Jamaica.
Edmonson Bros., 10 Dame Street, Dublin, Ireland.

"falcon" GOODS are sold in Mexico, Germany, Turkey, South and Central Africa, Australia, New Zealand, and everywhere.

W. T. Falconer Mfg. Company

Factory
FALCONER, N. Y.

Branch
117 No. Jefferson St., Chicago, Ills.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy and No. 1 white comb honey, 14 to 15; white extracted, 11 to 12. Beeswax, 30 cents.

BLAKE-LEE CO.
4 Chatham Row, Boston Mass., March 6.

ZANESVILLE.—While there is some demand for honey, the market is not active at this time. Best grades of comb go to the retail grocery trade at 18. Extracted is quoted at 10½ cts. in 60-lb. cans. Producers are offered for beeswax 28 cts. cash, or 30 in exchange for bee-supplies.

Zanesville, O., March 4. E. W. PEIRCE.

CHICAGO.—Comb honey continues to drag, while extracted is in good demand. The prices asked are unchanged from our quotations last given, yet the sales are becoming less in quantity, dealers buying just enough to tide them over. Beeswax is selling upon arrival at 32 if of good color and free from sediment.

Chicago, Ill., March 6. R. A. BURNETT & CO.

KANSAS CITY.—The demand for both comb and extracted honey is light, and the supply is light. We quote No. 1 white comb, 24-section cases, per case, $3.25 to $3.35; No. 2 ditto, $3.00; No. 1 amber ditto, $3.00 to $3.25; No. 2 amber, $2.50 to $2.75; white extracted, 8½ to 9; amber ditto, 7 to 7½. Beeswax, 28 to 30.

C. C. CLEMONS PRODUCE CO.
Kansas City, Mo., March 6.

CINCINNATI.—Comb honey is in fair demand, and the same is selling at $3.75 per case for No. 1 white. Amber extracted in barrels is selling at 7; in cans, 7½ to 8; white extracted in 60-lb. cans, 9 to 10; California light amber, 8½. All grades of extracted honey are in fair demand. Beeswax is in fair demand at $32.00 per 100 lbs. These are our selling prices, not what we are paying.

Cincinnati, Mar. 4. C. H. W. WEBER & CO.

INDIANAPOLIS.—There is a good and steady demand here for best grades of white-clover comb and extracted honey. Jobbing houses are well supplied, but practically none is now being offered by producers, and it is evident that there will be a shortage before the new crop can arrive. Fancy white comb is being offered at 18 cts.; No. 1, white, 17; extracted, 11, with some slight reductions on quantity lots. It is presumed that producers are being paid about 2 cents less than above quotations. Producers of beeswax are being paid 28 cents cash or 30 in trade.

Indianapolis, Mar. 2. WALTER S. POUDER.

Honey Markets continued on page 5.

Now for 1911 Bee-Supplies

We have already received several carloads of that "finest of all Beeware"—Falconer make—anticipating the heavy rush of orders sure to come this Spring. Prepare yourself NOW, Brother, for we are going to have a heavy honey yield this season, and those who order early are the ones who will profit most. Send for our catalog to-day, and see our "MUTH SPECIAL" Dovetailed Hive, and also our "IDEAL METAL" Cover—both DANDIES. We sell you cheaper than the rest; we have the Best. Let us figure on your wants—we will surprise you.

THE FRED W. MUTH CO.

51 Walnut Street "The Busy Bee Men" Cincinnati, Ohio

Cincinnati a Center!

In this fine location on the Ohio River, right on boundary between Ohio and Kentucky, close to the Indiana line, and on main highways to Western Pennsylvania and the great South, we command facilities no other supply-dealer in this section can offer you.

Prompt Shipments! Complete Stocks!

These are Weber Recommendations

Coupled with many years of experience, and our desire to give you the utmost satisfaction, advantages like these should not be overlooked.

Be sure You have Our New Catalog

This is the complete book of bee-keepers' supplies. In it you will find conveniently arranged and clearly described every thing from A to Z in the way of appliances for successful bee-keeping. Many new supplies are listed this year, and changes in former goods have been made so it is essential that you should order from our newest catalog. Of course, you are entitled to a copy. If you have dealt with us in past seasons one has been mailed to you without suggestion or request from you, but this may have gone astray. Do not lose time in telling us if you are without our money-saving price list—we want you to have a copy every year.

Poultry Supplies

A special catalog of these goods, which we will gladly furnish free upon request.

Special Inducements for Early Orders

C. H. W. Weber & Co., Cincinnati, O.

2146 Central Avenue

Gleanings in Bee Culture

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Department Editors:—Dr. C. C. Miller, J. E. Crane, "Stenog," Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, Mrs. H. G. Acklin.

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Extracted Honey Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

Honey Markets continued from page 2.

CINCINNATI.—There is no change since last quotation. Comb honey sells slowly at $3.75 to $4.00 per case; fancy extracted honey in 60-lb. cans, 9 to 11; amber in barrels, 5¾ to 7½. The above are our selling prices. We are paying 30 cts. in cash or 33 in trade for choice bright yellow beeswax; for darker grades, 1 to 2 cts. less.

THE FRED W. MUTH CO.

Cincinnati, Ohio, March 4.

ST. LOUIS.—Our market is practically bare of extracted honey. The demand, however, is not very great, but consignments will find ready sale on arrival as quoted. The stock of comb honey is somewhat in excess of the very limited demand at the present time. We quote fancy white comb honey at 16 to 16½; No. 1, 15 to 15½; choice amber, 14 to 15; dark, 10 to 11. Broken and leaking honey sells at less. Extracted, white clover, in five-gallon cans, is nominal at 9½ to 10; California light amber, 8½ to 9; Southern ditto in five-gallon cans, 8 to 8½; in barrels and half-barrels, 7 to 7½. Beeswax, prime, brings 29; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., March 7.

CHICAGO.—The comb-honey situation remains unchanged at this writing. Trade is very dull, and stocks in this city are more than ample to supply the demand. It looks now as if there would not be much more trading this season. However, extracted honey is in very good demand, and very scarce; and if any dealers or producers have any extracted honey to offer we should be pleased to have them communicate with us. We quote choice white comb honey, 24-section flat cases, glass fronts, 16 to 17; No. 1 white, 15 to 16; No. 2 white and light amber, 14 to 15; buckwheat and other inferior grades, 10 to 13; white extracted in 60-lb. cans, two cans to the case, 9 to 10; light to medium amber, 8 to 9. Bright pure beeswax is firm at 30 to 32.

Chicago, March 9. S. T. FISH & CO.

THE NATIONAL BEE-KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey

MEMBERSHIP DUES

One dollar a year.

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GEO. H. REA, - Reynoldsville, Penn.
Successor to Rea Bee & Honey Co.

CANADIAN BEE-KEEPERS

E. Grainger & Co., Deer Park, Toronto, announce to Canadian bee-keepers that they have a reasonably full line of Root bee-supplies on hand for shipment from Toronto. Large shipments will be made direct from the factory, and in many cases a considerable saving may be effected by placing orders with us.

See What Our Customers Say

North Toronto, March 1, 1911.

E. Grainger & Co., Toronto.

Dear Sirs:—The goods we received from you, manufactured by The A. I. Root Co., are most satisfactory. We find the frames fit beautifully; in fact, all the woodwork is so perfect and so clean and nice that we would not think of using any other make now. They are well worth the extra they cost.

A. W. O.

E. Grainger & Co., Toronto. Connaught, Mar. 7, 1911.

Dear Sirs:—Have received shipment of my order to-day. Every thing is in perfect order. Am very well pleased with the goods. D. R.

SEND ALL ORDERS TO

E. Grainger & Co., Deer Park, Toronto, Ont.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873 CIRCULATION 35,000 72 Pages Semi-monthly

A. L. BOYDEN, Advertising Manager

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Bills payable monthly.
No medical or objectionable advertising accepted.
Column width, 2⅝ inches.
Column length, 8 inches.
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BEES FOR SALE!

I have 100 colonies of bees here at Flint, and there are reasons why I prefer to begin the season with a smaller number.

They are mostly in ten-frame Langstroth hives, although a few are in eight-frame hives. The hives are all new, made of soft white pine, and painted with two coats of white paint. Nearly all of the combs are built from wired foundation. The bees are all pure Italians, and mostly of the Superior Stock, or Moore strain. Every thing is strictly first class—could not be better.

Prices for ten-frame colonies are as follows: Less than five colonies, $7.00 per colony; five colonies or more, but less than ten, $6.50 per colony; ten or more colonies, $6.00 each.

Eight-frame colonies, less than five, $6.00 each; five colonies or more, but less than ten, $5.50 each; ten or more colonies, $5.00 each.

The bees will be shipped by express in May, about fruit-blooming time, and safe arrival in perfect condition guaranteed.

Each purchaser will receive the Bee-keepers' Review free for one year.

W. Z. HUTCHINSON, Flint, Mich.

EARLY QUEENS and LATE QUEENS

Bred from pure 3 and 5 banded and Golden Italians. All queens are raised in strong colonies and mated in four-frame nuclei. All orders filled promptly.

Untested, $1.00; six, $4.50; twelve, $8.00
Tested, . 1.50; " 7.50; " 13.50

Breeders, $3.00. Three-frame nuclei, $3.00, with price of queen wanted added. . Discounts for quantity.

A. B. Marchant, . . Sumatra, Fla.

BEE-KEEPERS

We appear here to tell you that our New Catalog on Bee Supplies is yours for asking. . It is free. . Get one.

August Lotz & Co., Boyd, Wisconsin

PROTECTION HIVE

All arguments lead to a matter of protection. Dead-air spaces or packing, as you prefer.

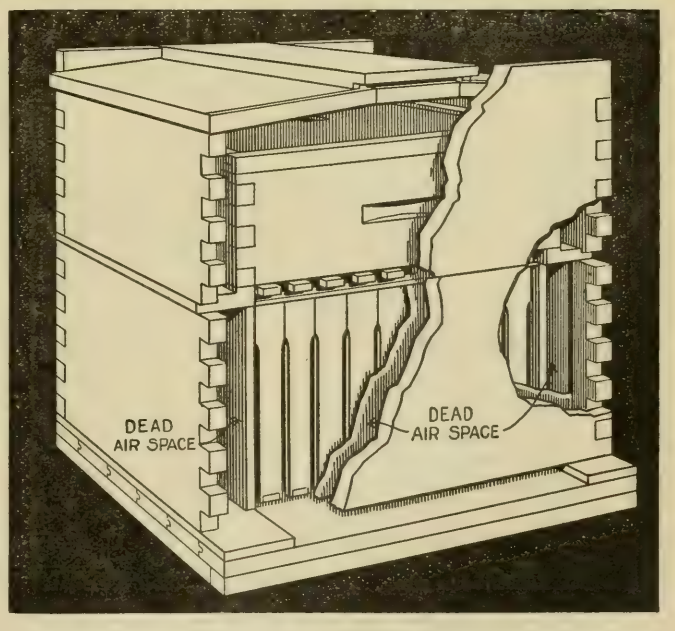
Hamilton, Mich., Feb. 17, 1911.

A. G. Woodman Co.,
Grand Rapids, Mich.
Gentlemen:

You will find enclosed $87.70 for bill of goods, as per order-sheet. Perhaps you will be interested in knowing that again this past fall we secured considerably more honey in Protection Hives than in single-wall hives in the same yard. The weather was cool, and the supers needed protection.

Respectfully yours,
ALBERT OETMAN.

Send for circular showing 12 large illustrations, and 40-page catalog of supplies.



A. G. WOODMAN COMPANY, GRAND RAPIDS, MICHIGAN

LEWIS BEE-WARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY CO. (Not Inc.)
Successors to YORK HONEY & BEE-SUPPLY COMPANY

148 W Superior St., Chicago, Ill.
Send for catalog. ENOUGH SAID.

Now is the Time to Plan for Next Season

Secure your Bee-supplies
in Advance of the
Busy Season

The A. I. Root Company
Syracuse, N. Y.



Established 1885

We carry an up-to-date line of

Bee-keepers' Supplies

At this season of the year we give the usual customary early-order discounts. If you are figuring your wants now to buy early and get the benefit of lowest prices, don't fail to consult us. We have

THE ROOT COMPANY'S Make of SUPPLIES

Nothing to fear as to quality. Beeswax taken in exchange for supplies.

John Nebel & Son Supply Co. High Hill, Montg. Co., Mo.

BEE SUPPLIES

We carry a full and complete line of Root's Celebrated Bee-keepers' Supplies. By buying in carload lots we are enabled to sell at factory prices f. o. b. Dallas. . . . . .

We also carry the largest and best assorted stock of the celebrated Texseed Brand Garden and Field Seeds in the South; Incubators and Brooders, and poultry supplies of all kinds.

Send for illustrated catalog. .

Texas Seed & Floral Co.
Dallas, Texas

When you have honey or beeswax for sale write us.

COMB-HONEY OUTFIT No. 5

It is a matter of some difficulty for the average beginner to decide exactly what he requires as an outfit for the first start in bee-keeping. To relieve the beginner of all perplexity we list certain outfits which we think will meet his needs. The one we give below is what may be fairly considered the best. Each item has been very carefully selected, and we doubt the wisdom of leaving any article out; but the purchaser may do so without altering the prices on the other items.

1 A B C and X Y Z of Bee Culture (536 p.),	$1.50
1 copy "Facts about Bees"	.10
1 year's subscription to "Gleanings," .	1.00
1 Root Smoker	.65
1 pair cotton bee-gloves (small, med., or large)	.50
1 silk-front bee-veil	.60
1 full col. Italian bees in Danzenbaker hive (Complete with 32 section honey-boxes)	12.00
1 untested Italian queen	1.50
2 Danz. hives complete for comb honey . (Nailed and painted, ready for the bees)	6.80
1 Porter bee-escape and board . . . . (For taking honey from the bees)	.35

Special Offer Delivered at any express office north Ohio River and east Mississippi River **$25.00**

For delivery to points outside of the above free limit, we will make terms on application.

The colony of bees is as near perfect as we can make them. The combs are beautifully straight and well filled with brood. The breeding of the queen is of the very best, so that one has the nucleus of a fine stock of bees. In many cases a return of $10.00 in honey has been secured the first year from just such an outfit as this, and in addition one or two swarms may be secured, which practically doubles the value of the investment. Order at once.

The A. I. Root Co., Medina, Ohio

Bee-keepers who Have

THOROUGHBRED CHICKENS

and want to sell eggs and stock at good prices should use space under the POULTRY heading in the

Classified Pages

In proportion to the cost it is doubtful if any other medium offers as good an opportunity for profitable returns on such offerings as

Gleanings in Bee Culture

Read this from one of our satisfied advertisers:

> "I will say that what little advertising we did in GLEANINGS has brought us about all the business we can attend to this season,"

—and others say the same.

Read the POULTRY advertisements yourself. Read Mr. A. I. Root's talks on CHICKENS—advertise in GLEANINGS, and GET results.

Mr. Bee Keeper

Would You Like to Produce MORE Beeswax?

Do you realize that from 20 to 40 per cent of YOUR wax is thrown away if you render your old combs by the ordinary means?

We have a folder that tells of MR. WAGAR'S EXPERIENCE with a Hatch press. It also tells of our SPECIAL OFFER on a "more beeswax" proposition.

You can take advantage of this offer, no matter where you are located.

A postal, with your name and address, brings this folder to you at once.

Send now.

M. H. HUNT & SON

Opposite Lake Shore Depot

Lansing, Michigan



"If goods are wanted quick, send to Pouder."

DEAR SIR: INDIANAPOLIS, March 15, 1911.

The most interesting question to be considered just now is Bee-Supplies, especially if you have not yet ordered, for the time is near at hand when the matter must have your attention. If you are a large consumer of supplies, and if you are not now getting your goods here, I believe I can make it interesting for you if you will submit a list of goods wanted and allow me to quote an estimate. If you are a beginner I wish you would feel at ease about writing me, for getting beginners started right is one of my hobbies. I wish you could see the dray-loads that I am shipping daily—nice clean goods, direct from the factory. No old goods to be worked off here, because of my system of rotating—that is, when we put away a carload of goods we do not cover up our present stock, and by that means our goods are always nice and fresh from the factory. . . . Here is a foot-note that came with an order to-day:

Walter S. Pouder. Lynn, Indiana.

Dear Sir:—I turn all the orders I can to you from this place. A neighbor sent elsewhere for his goods last year, and they came in very bad shape. I told him he had better place his order with the Root people at Indianapolis and he would get good goods, and they would come in good shape. FRANK OZBUN.

Illustrated descriptive catalog free.
859 Massachusetts Ave. WALTER S. POUDER.

WE GUARANTEE SAFE DELIVERY

If goods are lost, stolen, or damaged in transit, we'll make it good on receipt of proper notice.

WE GUARANTEE SATISFACTION

on your purchase, or money refunded. We keep on hand carloads of the

BEST BEE-SUPPLIES AT BARGAIN PRICES

ORDERS FILLED PROMPTLY

Eggs of Barred and White Plymouth Rocks and White Wyandotte, $1.00 per 15.

Cronolite roofing of highest grade, best quality, at astonishingly low price.

Our new catalog, with special offers, free for the asking. **H. S. DUBY, ST. ANNE, ILLS.**

Ref., First Nat. Bank, St. Anne, Ill., or bee journals.

Golden and Three-band

Italian Bees and Queens

from Extra Selected Mothers

PRICES	1	6	12
Untested	$ 1 00	$ 5 00	$ 9 00
Selected untested	1 25	6 50	12 00
Tested	1 50	8 00	15 00
Selected tested	2 00	11 00	21 00
Eight-frame colony	6 00	33 00	61 00
Three-frame nuclei	3 75	21 25	40 00
Two-frame nuclei	3 00	17 00	32 00

Safe arrival. I am now booking orders for early delivery. Twenty-two years' experience. Send your order to

E. A. SIMMONS, Greenville, Ala.

Nature Education and Recreation

For Boys and Girls:
NATURE AND SCIENCE (of St. Nicholas Magazine), . Per year, $3.00

For Men and Women:
THE GUIDE TO NATURE (monthly, illustrated) . . Per year, 1.00
$4.00
BOTH, ONE YEAR, $3.00; sample of either, 10c.

For Teachers:
"How Nature Study Should be Taught," (203 pgs.) . Postpaid, $1.00

For Everybody:
"The Spirit of Nature Study," (222 pgs., illustrated) . postpaid, $1.00
"Walking; a Fine Art," (164 pgs., illustrated) . . . Postpaid, $1.50
"Three Kingdoms," the handbook of the AA . . . Postpaid, .75

For Plants:
Sachs Nutrient Tablets, a box, post., 10c.

For You (to aid and be aided):
The Agassiz Association (Popular Nature Society).

For Correspondents:
(To write for further information.)

Edward F. Bigelow

Arcadia : : Sound Beach, Connecticut

Why Not REAR Your Own QUEENS

Doolittle's "Scientific Queen-Rearing" and the American Bee Journal for 1911---Both for only $1.00

Every Bee-keeper Should Have Both Book and Bee Paper



DOOLITTLE'S "Scientific Queen-Rearing" book contains 126 pages, and is bound in leatherette with round corners. It tells in the clearest way possible just how the famous queen-breeder, Mr. G. M. Doolittle, rears the best of queen-bees in perfect accord with Nature's way. It is for both amateur and veteran in bee-keeping. As all know, Mr. Doolittle has spent some 40 years in rearing queens and producing honey. He has no superior as a queen-breeder. You can learn to rear fine queens by following his directions. Read up now *before* the bee season is here.

You will not regret having this book, which also gives his management of the bees for the production of honey.

The book, and the American Bee Journal for 1911, for only $1.00, is certainly a *big bargain* for you. Send the $1.00 now, and we will begin your subscription with January 1, 1911, and mail you the book. . . Sample copy of the Bee Journal free. Address



George W. York & Co., - 117 No. Jefferson St., Chicago, Ill.

BEE-KEEPERS
SAVE MONEY NOW

Here is your opportunity to make a nice saving on all supplies. We are making a

Special Cash-discount Offer

that means money in your pocket, if you will send in your order now. You know from past dealings with us, and from our reputation as a firm, that we deal only in

The Right Kind of Supplies

We are fitted to serve you best in every way. Our location, stock, and low prices are all to your advantage.

We have every thing you can need in successful bee culture, and give the smallest order the same prompt attention as a large one. All orders invariably shipped the same day received.

OUR BIG BOOK SENT FREE. Tells all about keeping bees, and how to make them profitable. Sure to contain information and suggestions of real value to you.

Send to-day for catalog of money-savers and full information concerning Special Cash-discount Offer. The Bee-book will be sent you, too.

Blanke & Hauk Supply Co.
1051 Lucas Ave., St. Louis, Mo.

A PHYSICIAN
. . AND A . .
CULINARY EXPERT
TESTIFY

Williamsport, O., Nov. 14, 1910.

Mr. E. W. Peirce:—Goods received, and, as usual, even better than expected. . . Accept thanks and best wishes for the house of E. W. Peirce now, henceforth, and forevermore.

G. C. HAYS, M. D.

Indianapolis, Jan. 24, 1911.

Mr. E. W. Peirce:—We secured a jar of your Baking Powder, and find it superior to any other we have ever used. Your method of packing in glass jars instead of tin cans is a long step in the right direction.

911 Ashland Ave. SARAH E. REYNOLDS.

When experts agree it must be so. Write now for the PEIRCE catalog of Bee-Supplies, Baking Powder, and other things that will interest you.

E. W. PEIRCE, ZANESVILLE, OHIO

Boston is the Shipping Center of **New England**

Bee-keepers should bear this in mind when ordering their supplies. . . . A full line of supplies always in stock. . . . . Send for catalog.

H. H. JEPSON
182 Friend St. . . Boston, Mass.

Hilton Strain of Bees and Root's Goods to the Front again



A View of Mr. Chase's Apiary.

Friend Hilton:—I started this spring with 16 colonies; bought 30 three-frame nuclei of you; have increased to 85 strong colonies with ample stores for winter without feeding. Have taken 4000 lbs fine extracted honey and a little comb (and no drawn combs to begin with) all from full sheets of foundation. My best colony gave 329 lbs.; a three-frame nucleus, received from you May 28, gave me 210 lbs. extracted honey But for the drouth and fires I should have had much more.

Very truly yours, G. C. CHASE, Robbins, Wis.

I am now booking orders for next season's delivery of Nuclei and Queens, and next season's supplies, and making a very liberal discount. . . . .

Write for 50-page price list, and send list of goods wanted for special discounts. All Root's Goods. Beeswax wanted, cash or trade.

Geo. E. Hilton, Fremont, Michigan

A REQUEST for our free booklet carries with it no obligation to open an account. All we ask is the opportunity of explaining clearly why your savings should earn **4%** —the rate paid by the savings banks of Ohio for the past 65 years —and why your money will be absolutely safe if sent by mail to this institution, with assets of nearly

ONE MILLION

and under the supervision of the strict laws of the State of Ohio.

The Savings Deposit Bank
Medina, Ohio

Cut and mail this coupon TO-DAY

Send me your free booklet.

NAME

ADDRESS

STATE

GOLDEN ITALIAN QUEENS

Bred from straight five-band and select Golden mothers, mated to select Golden drones, 3½ miles from three-band yard. These queens are large, vigorous, and prolific; the bees gentle and hustlers. Purity of mating, safe arrival, satisfaction guaranteed. No bee-disease of any kind.

Untested	April 15 to July 1,	One,	$1.00;	six,	$ 5.00;	twelve,	$ 9.00
Selected Untested	" " "	"	1.25;	"	6.50;	"	12.00
Tested	March 1 " "	"	1.75;	"	9.00;	"	17.00
Select Tested	" " "	"	2.50;	"	13.50;	"	25.00

BREEDERS—Straight five-band, $10.00; Select Golden, $4.00 and up.

NOTE—For three-band queens at above prices, write J. M. Davis, Spring Hill, Tenn.

BEN G. DAVIS, SPRING HILL, TENNESSEE

F. J. Wardell

Queen-Breeder Specialist

Uhrichsville, Ohio, U. S. A.

"The Best is None too Good"

Italian Queens Only

My Credentials

AFTER a quarter of a century's experience, many of which as manager of The A. I. Root Company's bee-breeding yards, I ought to have acquired a very fair knowledge of the work of a bee-breeder, and what the public requires of him. It seems to me that nobody will therefore dispute my claim to be an expert at the business. Also I have managed to get together an apiary of the very best bees obtainable. I do not mean, by this, highly colored bees, but bees which combine gentleness and industry. The practical man is looking for bees which give practical results—and this is the trade I am prepared to cater to. My bees are not homely-looking—on the contrary, they are handsome; but every thing has not been sacrificed for color. Permit me to say, my bees are the best obtainable.

My Business

IS TO satisfy customers, but it is never my intention to cater to a cheap trade. My poor queens are killed as soon as found. Many would sell such queens rather than kill them, but I do not propose to compete with any in that line.

If, however, you are on the lookout for something good in the way of an extra fine queen for breeding-purposes let me have your order, and I will guarantee satisfaction. This is the line I have always followed and always intend to. For reference you may apply to The A. I. Root Company. They ought to know me; and thousands of their customers would be glad to add their testimony in my favor as a queen-breeder tried and true of many years' standing.

Price List of Italian Queens

Untested Queen	April and May,	$ 1.50			
Selected Untested Queen	"	"	1.75		
Tested Queen	"	"	3.00		
Select Tested Queen	"	"	4 00	June,	$ 3.50
Breeding Queens	"	"	7.50	"	6.00
Select Breeding Queens	"	"	10.00	"	9.00
Extra Select B'd'g-queens, 1 yr. old	"	"	15.00	"	12.00

No untested queens sent before May 15; but to secure your queens early in the season it is necessary to order now. Absolutely all orders filled in rotation.

F. J. Wardell, . . . Uhrichsville, Ohio

QUEENS . . . QUEENS

that represent the highest breeds of Italian bees. Each a favorite, with a written guarantee of satisfaction. $2.00 for 1; $10.00 for 6; best breeders, $5.00.

HUBER W. LAWS, - - WACO, TEXAS

ITALIAN QUEENS, Nuclei, Bees by Pound. Ten-page descriptive list free. Send for it—you have my address, and I have not yours—before placing your order. Leaflets, "How to Introduce Queens," 15c; also "Increase," 15c; both for 25c. **E. E. MOTT, Glenwood, Mich.**

"Griggs Saves Freight"

TOLEDO

Is the Largest Railroad Center in the U. S.

Do you realize this?

You can get goods quicker and cheaper than from any other point.

Direct lines to your station.

Send in your order now, and let us show you.

The largest stock on hand, and all new goods.

Our catalog is FREE.

2 per cent Discount. Try US.

S. J. Griggs & Co.

25 No. Erie St., Toledo, Ohio

Successors to Griggs Bro's. Co.

"Griggs, the King Bee"

Wholesale and Retail

PATENTS 25 YEARS' PRACTICE

CHAS. J. WILLIAMSON, Rooms 304 to 307, Savings Bank Bldg., 7th and E. Sts., WASHINGTON, D. C.

Patent Practice in Patent Office and Courts. **Patent Counsel of The A. I. Root Co**

Alsike CLOVER SEED

Small and large red, and alfalfa seed for sale. Catalog apiary supplies free.

F. A. SNELL, Milledgeville, Carroll County, Illinois

GOLD MEDALS
St. Louis Exposition, 1904
Jamestown Centennial, 1907



Danzenbaker Smoker

Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT GRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

The **ONE-PIECE** cap **CAN NOT clog.** It is the **COOLEST, CLEANEST, STRONGEST, BEST,** and **LARGEST NET CAPACITY** of all smokers, selling at one dollar ($1.00). We **GUARANTEE SATISFACTION** or **return** the price; only three complaints in **six years.**

Dan-z. 3½x7½-inch Prize Smoker, $1.00; by mail $1.25
With "Gleanings," $1.00 per year, and Prize Smoker, by mail 1.75
Dan-z. 3½x6-inch Victor Smoker, 80c; by mail 1.00
With "Gleanings," one year, 1200 pp., by mail 1.50

We send propolis shields with Danzenbaker Hives and Supers, and sell anything in the Bee-line at factory prices, also select three-banded Italian queens and bees.

Please send address of yourself and B-friends for FREE catalogs and prices on Bee-supplies, Bees, Queens, Hives, Sections, and Smokers. Address

F. Danzenbaker, 68-70 Woodside Lane, Norfolk, Va.

BEE-SUPPLIES

Western Agents
Falconer's Goods
Write for Catalog

C. C. CLEMONS BEE SUPPLY CO.
130 Grand Ave., Kansas City, Mo.

We Make Cuts For "Gleanings in Bee Culture"

The Work of Bee-keepers Everywhere is Solicited.
Half-tone Engravings Made from Photographs or the Object.
Line Cuts or Etchings Made from Your Drawings or Our Own.
Complete Facilities for Writing, Illustrating and Printing anything from a Letter Head to Catalogue.
Write Your Requirements.

THE GRAY PRINTING CO., FOSTORIA, OHIO

Texas Headquarters

Root's Supplies for Bee-keepers



Factory and Warehouse of Toepperwein & Mayfield Company, Established 1891

Brief History of this Enterprising Establishment.

In the year 1891, while yet a boy, Mr. Udo Toepperwein, now president of the Toepperwein & Mayfield Co. saw a great future in the bee industry; and, through a natural inclination he decided to take up the bee and bee-supply business as a life study. In his youthful way he would assist his father at their old homestead at Leon Springs, Texas, in caring for and cultivating bees. They would often work with the bees until late at night. To receive a shipment of hives and comb foundation from The A. I. Root Co. seemed like a holiday to them, and it would not be long after, when they could be found nailing and painting their hives. Many times they would sit in the apiary on a bee-hive at night and listen to the hum of the busy bees and try to hear a queen piping, while they inhaled the lovely odor permeating the apiary during a spring evening when the bees are at work kneading wax and building comb. Inspired by his achievements in bee culture, young Udo soon decided to embark in the business on his own account, and for several years traveled a great deal in a buggy over the country, selling bee-hives and supplies, and making bee-keepers out of farmers. Appreciating his work, The A. I. Root Co. shipped him a bicycle on which he traveled hundreds of miles, carrying a couple of blankets, a 22-caliber rifle, fishing tackle, canteen, and some necessary edibles, including a small repair outfit and some catalogs. These were packed in an oilcloth bag that his mother had made for him, strapped in front of the bicycle on the fork. Many a night he was found sound asleep on some river-bank, using his bicycle for a a pillow, while his fishing-lines could be seen dangling in the river waters, thus affording him the enjoyment of a broiled-fish breakfast, and bliss in the thought of being the happiest boy in Texas. Almost daily he would appease his appetite with wholesome rabbits, birds, or squirrels which he had bagged himself with his rifle as he traveled along the road. In this manner he worked up a large trade, enabling him to order goods to Leon Springs in carload lots and reship them to his customers.

A few years later Mr. Toepperwein found it necessary to secure better shipping facilities, and so decided to move to San Antonio, locating at 438 West Houston St., with warehouse accommodations on North Laredo St. Here his business kept on increasing to such proportions that he found it necessary, in 1903, to construct a building of his own. Finding a suitable location on the S. A. & A. P. Ry. he erected a building 40 by 250 ft. in dimensions, together with a Weed new-process comb-foundation factory, realizing the need of such a factory to enable him to supply better his customers more promptly with good fresh-made combfoundation. Thus with improved facilities the volume of his trade increased so rapidly that he found it necessary to take into the business a trustworthy partner, one upon whom he could depend during his absence. Acting upon this necessity, Mr. Toepperwein, appreciating integrity and faithfulness of his employee, Mr. W. M. Mayfield, tendered him a partnership in the business, which he cheerfully and most gratefully accepted, and accordingly the business was conducted under the firm name of Toepperwein & Mayfield. In the year 1909 the enterprise was incorporated under the name of Toepperwein & Mayfield Co., Mr. Toepperwein becoming the president and general manager, and Mr. Mayfield the secretary and treasurer. Again in 1909, the old location became inadequate to handle the growing trade; and being unable to secure more room here, the company acquired a tract of land at the corner of Nolan and Cherry Sts., along the S. P. Ry. tracks, where they erected an entirely new plant, including a two-story building 40 by 250 ft., and installed a complete outfit of new machinery in the comb-foundation factory, increasing its capacity to 500 pounds per day. In addition to these improvements they also built large and commodious sample rooms where visitors are always welcome and may interest themselves in writing letters or reading the bee journals and books of the world.

Of course, Messrs. Toepperwein & Mayfield are not unmindful of the fact that their business success is not entirely due to their own efforts, but are profoundly grateful for the valued assistance given them by their numerous patrons in the past; and, with assurances of honest dealings, hope to merit a continuance of favors in the future.

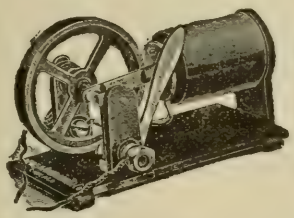
Strangers and visitors in the city, as well as those interested in the bee industry, are cordially invited to call at this mammoth instuitution, where they will always receive a hearty welcome, and be made to feel at home by a host of hustling, courteous, and accommodating bee experts.

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Electric Engine

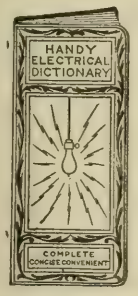
A perfect little engine, three times size of cut. with speed control and reversing lever. Runs 1,000 revolutions a minute on one dry battery. Safe; easy to operate. Interesting; amusing; instructive. A marvel of mechanical and scientific ingenuity.



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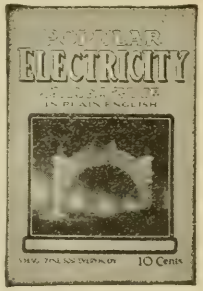
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T. B. Terry's New Health Book

"HOW TO KEEP WELL AND LIVE LONG"

Author's Introductory

What I Know About the Matter

MY mother had eleven children. Only three lived to mature age. Of course I am one of them. But you can see my start in life was not a strong one. I was a sickly child like the rest. In college I broke down from too much confinement and study, stayed out a year, tried it again, but had to give up. Doctor told me I must get outdoors to work. Did so, and soon got better. We moved on to our farm where we now reside, 38 years ago. Then I got along fairly well by hiring help to do all the heaviest work, as soon as we could make enough to pay them. I learned to do the studying, the directing, laid out the work, kept every thing in order and moving, and did myself mostly easy jobs, like riding on a spring seat. Thus in due time we succeeded quite well, and the out-of-door employment gave me moderately good health. But after a few years we began to make so much on our little farm that public attention was attracted, and I was urged to write for leading agricultural papers. And about this time farmers' institutes began in Ohio and several other States, and I was asked to help at them. I didn't want to do this work as it would take me from home, and, of course, my farming would suffer as a result. But the demand was strong, and soon I found myself away from home all winter long, speaking two or three times a day, breathing bad air in the halls, living irregularly, often traveling nights, and putting in every spare hour writing articles for the papers. Then on top of this was the constant worry over trying to keep the farm in as good order and producing as well as when I could give my full time to it. I did so want to keep my practice up to my preaching. At home I worked when the weather was fine, and rushed in to write when it rained, as well as at night. This wasn't so much to make money as that all this business had come to me, and I did not like to give any of it up. One hardly needs to tell that the result, some ten years ago, was—

A Complete Breakdown

I had so much ambition and push that I kept driving on after nature had given several danger signals. In fact, I did not consider them at all—hadn't time. The end came when I was in New York. The doctor said I was in a critical condition. But I surprised him by getting up long before he expected, from sheer will power, and then started for home by easy stages; kept up until I got there, then I was sick indeed. Would gain some at times, then be worse again, until life became a burden that I was really anxious to lay down. Our good old doctor seemed powerless to help me much. I remember writing two articles in those dark days when I was flat on my back, so hard was it for me to give up. My pen had almost to run itself. I hardly knew what I was writing. At last I urged our doctor to tell me frankly if I could ever again be as well as I had been before. He replied that he didn't think I could; that my kidneys were worn out, liver was in bad condition, I had serious prostatic and bladder troubles, rheumatism, piles, etc. He said that he could patch me up a little from time to time perhaps, but there was no chance for a cure; that one should bear these things philosophically, as they came to all and there was no help for it. Now, do you know he could not have said anything that would have done me more real good? Up to that time I had faith in a first-class



T. B. TERRY
In his sixty-seventh year

physician. I thought he could cure one when he was sick. His words knocked out all of this feeling, and I paid him up, really in pretty good spirits. Why? Well, it thoroughly aroused what little will-power I had left. I said to myself, "I don't know what I will do, but I know that I will not die. I am going to get well in some way."

Where there is a Will there is a Way

I began to study this matter of health and proper living for all I was worth. Of course, I was years slowly working my way up, making mistakes, but gradually gaining. It was with much pleasure that I met our doctor one day years after, on the street. I was stepping off like a boy, just as I felt. The doctor looked so completely beaten that I really felt sorry for him. And he said: "Terry, I don't see how in the world I could have been so mistaken in your case." He was not mistaken. If I had gone on living in the old common way it would have turned out just as he said. Probably 99 men out of 100 would have died just as he laid out for them to do. I was obstinate. I have never recognized any such word as "fail." To-day my kidneys are as good as any man could ask for. Every organ is in ideal order. I have the strong, vigorous, quick pulse of a young man. Have not had a trace of piles, rheumatism, or constipation for several years. In fact, I am sound and well in every way. Breathing, eating, sleeping, working—all are genuine pleasures. I really do not think I ever enjoyed as perfect health before in all my life as I have during the past five years. And, wonder of wonders—

I am Still Gaining

Right living is naturally slow in bringing results; but they are certain, and the best of health will come in due time. Do you wonder that I am enthusiastic? Haven't I earned the right to be? Now, you will find no idle theories or fads in the following pages. I shall tell you what I have done and know. I am going to lead you gradually to improve your ways of living and gain splendid health. Then, barring accident, there is no reason why you may not live long, 20 or 30 years longer than people generally do, and enjoy life fully all the time. Few indeed know what fine health really is. We have slowly drifted away from simple, proper, natural ways of living. As a result we have diseases and ills almost without number, and our lives are much shortened. The truth along these lines has not been realized by many. It has been practically hidden by much that was wrong. But now let us get down to business.

If you are ailing, as most people are, you can cure yourselves same as I have myself, and as thousands of others have done. You can become so well as not to know what it is to have an ache or pain or bad feeling. I will tell you just how to do it. If you are well now, or when you get well, you can keep so by continuing the same simple, natural, healthful way of living. I have long been urged to write a book of this kind, but have held off until years of personal success and study give me the right to speak quite positively. It is my aim to make these pages entirely reliable, a sage guide for busy people who haven't the time to work for years sifting truth from a mass of error. This book is most earnestly dedicated to all the people of America.

T. B. TERRY.

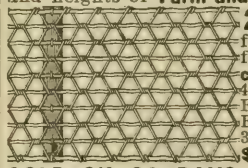
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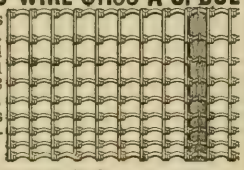
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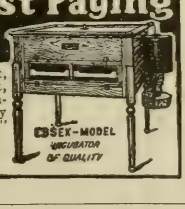


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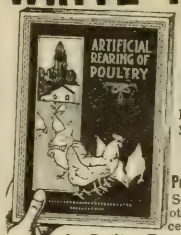
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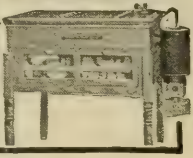


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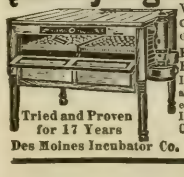
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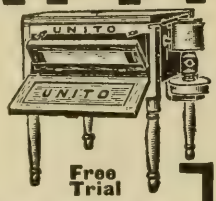
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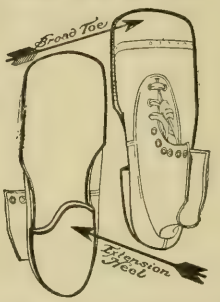
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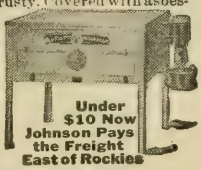


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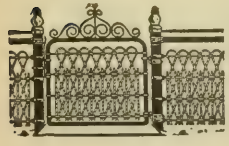
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Gives 500 candle power. Casts no shadow. Costs 2 cents per week. Makes and burns its own gas. Over 200 styles. Every lamp warranted. No dirt. No odor. No grease. Agents wanted. Write for catalog, now.

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Do Your Own Printing

Cards, circulars, book, newspaper. Press, $5 Larger, $18; Rotary, $60. Save money. Big profit printing for others. All easy; rules sent. Write factory for press catalog, TYPE, cards, paper.

THE PRESS CO., Meriden, Conn.

FERTILE·VIRGINIA·FARMS

$15 PER ACRE and up; easy payments. Productive soil, mild climate, fine water, good roads, close markets, unsurpassed school and social advantages. Write for beautiful illustrated Quarterly, other attractive literature and cheap excursion rates. F. H. LaBaume, Ag'l Agt., Norfolk & Western Railway, Box 2079, Roanoke, Va.

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NO IRRIGATION HERE YEARLY RAINFALL 45 INCHES!!



Get The Dealers' Profit



WHEN you buy a piano or organ from a dealer you must pay his profit. You must pay the wholesaler's profits; you must pay salesmen's salaries store rents, and other expenses These accumulative profits often double the price of the instrument and you **have** to pay them. But the Cornish plan does away with all these middlemen's profits—you buy direct from the factory—you pay half the dealer's price—you receive 100 cents value and satisfaction for every dollar you put in a

Cornish Piano Or Organ

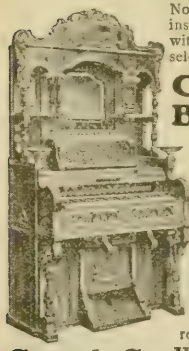
These instruments have for over half a century been regarded as standard—no better instruments are made than Cornish instruments. No matter how much you pay you cannot get an instrument with a purer, richer tone, or one with more perfect action, or one that is made to better withstand the test of time. Cornish pianos and organs have been made by the same family for fifty years—three generations of master craftsmen and are sold direct from the factory to the home at the lowest price possible for a first-class standard instrument.

A Year's Trial Free



So confident are we that any Cornish piano or organ will delight you in every particular that we are willing to place any instrument you may select right in your own home for a whole year's trial and test, **absolutely free.** If the instrument does not please you in every respect the trial will not cost you one penny Besides we give you

Two Years' Time To Pay If Necessary



No money required in advance. We insist upon your being fully satisfied with the Cornish instrument you select before we ask you to pay for it.

Get Our Big Book Free

Our big, handsome art portfolio catalogue pictures Cornish pianos and organs, tells how they are made and explains why we are able to give you double value for your money. You should have this book before you invest a cent in a piano or organ. It costs us nearly a dollar to place it in your hands, but we send it free. We will also send you a book of 5000 names and addresses of recent satisfied Cornish purchasers.

Cornish Co. Washington, New Jersey
Established Over Half A Century

Buyer's Bureau

To many readers of GLEANINGS it will be interesting to know the extent of the service this department is willing to undertake to serve efficiently all who choose to ask our assistance. Many steps are often taken in the process of securing for some correspondent certain information or materials.

Just the other day, for illustration, came a letter inquiring about a book on tile drainage; the name of some firm making drain tile; a tile-making machine, and, lastly, a ditch-digging machine. Were it not for the complete equipment of the Buyer's Bureau it would have been a rather difficult task to satisfy our inquirer with full and instructive information on these several subjects; but no delay in answering these questions occurred. We recommended the book "Tile Drainage," told where it could be procured, and the price; we gave the addresses of two tile manufacturers, and immediately wrote to them saying that our friend wanted tile information and prices on their products, and the other inquiries on the tile and ditching machines received similar treatment.

So you will see that the Buyer's Bureau is no incompetent servant. Dozens of inquiries as extensive as that we have cited, covering a large number of subjects, could be as conveniently cared for; and the service of this Bureau is free—absolutely without charge—to readers of this journal. Avail yourselves of it!



This season we are most fortunate in the number and wide variety of advertisements which are appearing under the heading of Poultry, in our classified columns. Wise breeders have concluded that, since Mr. A. I. Root is writing so interestingly on his chicken experiments, many bee-keepers will want to try his ideas and their own, and for this reason will want thoroughbred stock to begin with. This theory is working out most satisfactorily. We know of many sales of eggs and breeding stock that are being made; and the indications are that, within the next month or so, the demand will grow. We try to provide our readers with the names and addresses of many reliable poultrymen from whom eggs or stock may be purchased with the assurance of square dealing; and the recognition of these advertisers when making purchases will be sincerely appreciated.



Bee-keepers who have had unpleasant experiences in past years in waiting for queens ordered just in advance of the opening of the honey-flow, will prudently remember that it is only fair that the first comers should be first served. Several leading queen-breeders are bidding for your 1911 orders in their advertisements in this issue of GLEANINGS, and they all do this for *your* benefit. Do not delay in ordering queens, and you will not be disappointed in receiving them. No breeder who receives your order and money rests at ease until he has sent your queens on their way: but you can greatly facilitate his service by helping him in estimating just what the season's demands will be. *Order queens now!*



Not a few requests that we have received in the past few weeks reveal evidence of lost opportunities on the part of manufacturers who have products which bee-keepers require. One friend wrote, for illustration, "I should like the address of the ——— foot-power saw company. I used to see their advertisements in GLEANINGS. Have they gone out of business?" This proves that no manufacturer, or bee-keeper either, for that matter, can coast along through the years on a reputation he established a decade ago. This, right now, is the day when he must distribute his goods; then *this* is the time when he should blazon forth their merits in no timid way.



MAULE'S SEEDS

ONCE GROWN ALWAYS GROWN

is the reason why for many years past I have done such an enormous seed business, 79,430 customers in Pennsylvania alone, with almost half a million the world over. My New Seed Book for 1911 is a wonder; contains everything in seeds, bulbs and plants worth growing. Weighs 12 ounces; 600 illustrations, 4 colored plates, 176 pages. Any gardener sending his name on a postal card can have it for the asking. Address

WM. HENRY MAULE
1707-09-11 Filbert St., Philadelphia, Pa.

Send 5 cents (stamps) and mention this paper and I will enclose in the catalogue a packet of seed of the above choice pansy.



SEEDS

If you love Flowers write me a letter **(not postal)** for **Park's Floral Guide,** teeming with floral notes, pronouncing the big flower names, giving a germination table, showing nearly 1000 flower pictures. It's different. It insures success. Be sure to see it. **Best seeds at lowest prices.** 42d yr.

5 Fine Gloxinias, 5 colors, 25c
7 Double Begonias, 7 " 25c
5 Fringed Begonias, 5 " 25c
25 Fine Mixed Gladiolus, 25c

10 Pkts. Choice Flower Seeds, 10 cts.

Aster, Q. of Market, Mxd. | Pinks, New Japan, Mxd.
Larkspur, Stock-flowd, " | Poppy, New Shirley "
Pansy, Giant Fragrant " | Portulaca, Large-flwd, "
Petunia, New Bedding, " | Sweet Peas " "
Phlox Drummondi, new ' | Mixed Seeds, 1000 kinds.

10 Pkts. Choice Vegetables, 10 cts.

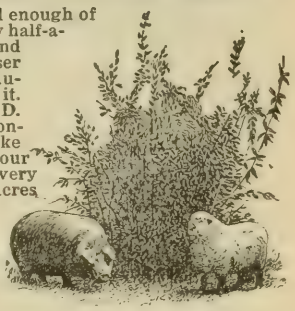
Beet, Imp. Early Turnip. | Onion, Danvers Yellow.
Cabbage, Early Solid Cone | Parsnip, Large Guernsey.
Cabbage, Late Flat Dutch | Radish, Special Mixture
Cucumber, White Spine. | Tomato, New Matchless.
Lettuce, Malta Drumhead | Turnip, Purple-top Globe

Send 10c for either lot, or 20c for both. Or, send 60c for club of three (60 pkts,) and I'll add four 2-oz. pkts. (worth 40c) Best Sweet Corn, Beans, Peas and Squash, also, trial subscription to **Park's Floral Magazine,** which cheers and brightens more than **600,000 homes every month.** Six lots (124 pkts.), $1.00. Club with friends.

GEO. W. PARK, B21, La Park, Pa.

Three rousing big crops of

SALZER'S Alfalfa



We have sold enough of this seed to sow half-a-million acres and every purchaser has been enthusiastic about it. Ex-Gov. W. D. Hoard of Wisconsin writes "I like the quality of your Alfalfa Clover very much. On 30 acres I raised over $2500 worth of Alfalfa Hay. There is no better money crop that I know of."

You sow Salzer's Northern Grown Alfalfa and get three rousing big crops, in May, July and August, besides having the best of pastures. It will do this on any farm in America where Timothy will grow. Get full particulars. Write for our 1911 catalog. It's free.

10 PACKETS OF FARM SEEDS 10¢

Here's our great trial collection at one cent a package, composed of *Speltz*, the cereal and hay wonder, *Silver King Barley*, a world beater with 173 bu. per acre, *Bonanza Oat*—swon four farms in 1910—biggest sworn to yield 259 Bushels per acre! *Billion Dollar Grass*, the ten ton grass wonder, *Salzer's* luxuriant *Alfalfa*, and *five* other packets, all *ten* for 10c in stamps. Write for this collection today and we'll also send you a free copy of our great 1911 catalogue.

JOHN A. SALZER SEED CO.
173 South 8th St., La Crosse, Wis.

10,000 SEEDS 10c.

We want you to try our **Prize** Seeds this year and have selected **50** best varieties and put up **10,000** seeds especially to grow Prize Vegetables and Flowers. They will produce more than $25. worth of Vegetables and 10 bushels of Flowers.

800 Seeds	Cabbage	3 Best Varieties		3 pkts.	
2,600 "	Lettuce	4 "	"	4 "	
800 "	Onion	2 "	"	2 "	
1,000 "	Radish	4 "	"	4 "	
300 "	Tomato	3 "	"	3 "	
2,000 "	Turnip	4 "	"	4 "	
2,500 "	Flowers	30 Grand Flowering Varieties			

In all **10,000** Seeds, and our new Seed Book with a **10c** Credit Check good for 10c selection, postpaid, 10c.
FAIRVIEW SEED FARMS, Box 122, Syracuse, N. Y.

TREES

800,000 Peaches, 5 to 7 ft., 9c: 4 to 5 ft., 8c; 3 to 4 ft., 6c; 2 to 3 ft., 4c; 2 to 3 ft. light, 3c. 200,000 Apples, 50,000 Pears, 100,000 Cherry, 50,000 Plum, 300,000 Carolina Poplar, and millions of Grape and Small Fruits. Secure varieties now; pay in spring. Catalog Free to everybody.
Sheerin's Wholesale Nurseries, Dansville, N. Y.

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West Coast Where Fortunes Are Made

GROWING

ORANGES, GRAPEFRUIT, VEGETABLES

¶ Offers biggest returns for the smallest investment. Yields $500 to $1500 per acre net. Two and three crops per year—highest prices secured in the best markets of the East and North—low freight rates and quick transportation via the S. A. L. Ry.

LAND IS CHEAP NOW

but prices are advancing—thousands of new settlers are taking advantage of the exceptional opportunities. Ideal, healthy climate, year round—plenty of high-class labor—abundant supply of pure water.

MAKE YOUR PLANS TO-DAY

to own a small farm in this "Garden Spot." Perfect independence is assured.

¶ Instructive booklet describing this wonderful country in detail mailed free on request. Address:

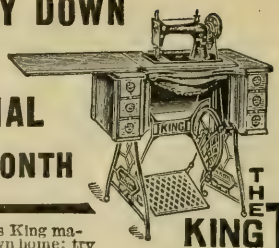
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NORFOLK, VA.
DEPT. J



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30 DAYS FREE TRIAL

$2.00 A MONTH



THE KING

Take this King machine into your own home; try it 30 days free; nothing down; if you do not wish to keep it, return it, and we will pay the freight charges both ways. If satisfied, pay us only **$2.00 A MONTH** which is less than other high-grade machines rent for. Discount for cash. This machine has the newest drop head automatic lift; quartered oak cabinet; is ball bearing, and was given the highest award gold medal at the Alaska-Yukon Exposition for being the "World's Best Vibrating-Shuttle Lock-Stitch Sewing Machine." It was formerly sold through agents and dealers for $65.00. We have hundreds of testimonials from customers who paid the retailer's price. You may buy it direct from the factory for less than half the prices charged by agents and **SAVE $30 TO $40.** We have cut off our dealers and are the only sewing-machine manufacturers in the world who sell high-grade sewing machines direct from factory to family, saving our customers the profits and expenses of the wholesalers, retailers, jobbers, and agents. **OUR 20-YEAR GUARANTEE** means that if your machine (or attachments) prove defective in material or workmanship any time within twenty years we will replace it, or return your money. Among the operations it performs are Adjustable Hemming, Hemming and Sewing on Lace, the French Seam, Frilling, Tucking, Binding, the French Fold, Braiding, Darning, Quilting, Ruffling, Plaiting, Ruffling between Two Bands, Edge Stitching, and Piping and Shirring. We guarantee that this marvelous variety and perfection of work cannot be duplicated by any other family sewing machine attachments in the world. Write to-day for handsomely illustrated 64-page catalog.

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FRUIT AND ORNAMENTAL TREES



Evergreens, Shrubs, Hardy Roses, Etc. 1,200 acres. 50 in Hardy Roses, none better grown. 44 greenhouses of **Palms, Ferns, Ficus, Everblooming Roses, Geraniums,** and other things too numerous to mention. Mail size postpaid, safe arrival and satisfaction guaranteed. Immense stock of **SUPERB CANNAS,** the queen of bedding plants. Acres of **Pæonias** and other **Perennials.** 50 choice collections cheap in **Seeds, Plants, Roses, etc.** For Fruit and Ornamental Trees ask for Catalog No. 1, 112 pages; for Seeds, Everblooming Roses, Cannas, Geraniums, Greenhouse and Bedding Plants in general, Catalog No. 2, 168 pages. Both **FREE. Direct deal will insure you the best at first cost. Try it.** 57 years. (17)

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TREES AND SEEDS THAT GROW

All kinds Farm, Garden and Flower Seed to select from. Best quality fruit trees, large bearers, grafted stock, not seedlings. Apple 4c, Peach 6c, Plum 15c, Cherry 12c, Concord Grapes $2.50 per 100. Forest tree seedlings $1.25 per 1000, up. We pay freight on $10 orders nursery stock

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CARL SONDEREGGER, PROP.

We celebrate our 25th Anniversary in the Tree and Seed business this year by offering our customers Anniversary Collections. Send your name and address today for list of Collections and 25th Anniversary Garden Book, 136 pages; also Free packet "Incomparable Lettuce."

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10 Strong, Hardy, Two-year-old **Grapevines** **$1.00** **Postpaid.**

Best varieties—red, white, black. Just the kind for planting around the house, along fences, or in the garden. We also offer **5 three-year-old vines for $1.** Will bear year after planting. Our valuable book, how to plant and prune, free with every order. Grapes are easily grown. Mention this paper and we'll add free one new, large, red currant. **T. S. HUBBARD CO. Grapevine Specialists.**
355 Central Ave., Fredonia, N. Y. Established 44 years.

450,000 TREES

200 varieties. Also **Grapes, Small Fruits, etc. Best** rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Catalog free. **LEWIS ROESCH & SON, Box A, Fredonia, N. Y.**

CATALPA SPECIOSA TREES Mine are true to name. Free booklet tells all about the 150 acres I am growing for telephone poles. **H. C. ROGERS, Box 113, Mechanicsburg, O.**

Don't Buy Nitrates
Fertilize With
FARMOGERM

High Bred Nitrogen-Gathering Bacteria

Why buy expensive nitrate fertilizers when you can save most of the money and all of the time and work of spreading, and get much better results? Put the bacteria in your soil that will draw nitrogen from the air and convert it into all the nitrates the crop can use and store still more in the soil for future crops of any kind. Farmogerm contains the right bacteria in the right condition. That's why it will produce a bumper crop of any legume.



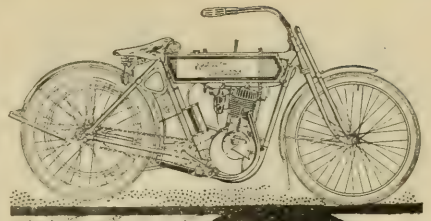
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Write for FREE BOOKLET which gives full particulars. When you order a bottle, mention crop you wish to try it on. Get our letters from users and our reports from high authorities. All in this book.

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For a Cent

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MOTORCYCLE

in comfort and safety in 20 or 30 minutes. That is a big saving of time and what is more it costs less than ½ cent per mile to operate a Harley-Davidson.

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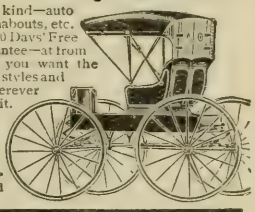


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Send a postal—get the Book—and through it visit with Phelps the biggest factory of its kind in the world. Let him show you in his photographs how a good buggy should be made—what it should be made of. Phelps knows. They're all

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—over 125 styles—every kind—auto seat Buggies, Surreys, Runabouts, etc. —all sold direct to user on 30 Days' Free Road Test—2 Years' Guarantee—at from $25 to $75 saving. Don't you want the Book? It will post you on styles and what you ought to pay wherever you buy. A postal gets it.



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with *late letters* from Cyphers owners all over the country proving biggest hatches right along. Own a *real* incubator—*not* an *imitation*. Before you buy *any*, get the *facts*. They're all in our Big Free Book. Address



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Everybody likes fine strawberries, and to prove that our new GIANT variety is the largest and strongest grower, as well as the heaviest fruiter, we offer to send you TWO PLANTS (worth 30 cents) absolutely FREE. We have picked 12 quarts of fine berries from a test bed grown from but two GIANT plants set the year before. You can do as well, and at the same time raise young plants for a new bed. If you care to send 10 cents for mailing expense, we will add 6 BABY EVERGREENS 2 years old, and send all to you at proper planting time in the spring. It will pay you to get acquainted with our "HARDY BLIZZARD BELT" Trees and Plants. Write to-day and we will reserve the plants for you and send you our catalog by next mail. Address



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We Have Over Fifty Million Evergreens
All hardy, tested, nursery grown stock. We ship to all parts of the world. Large as well as small trees supplied, $4.50 and up per thousand. Our prices are lowest of all. Quality the highest.

Hill's Trees Grow
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You can have a beautiful windbreak, hedge, shelterbelt or screen with the hardiest of evergreens at a very low cost. Our beautiful catalog, illustrated in colors, is a mine of information on evergreens, shade, ornamental and fruit trees, shrubs, roses and vines. Don't buy until you get free catalog and sheet describing 50 wonderful bargain lots. Send for them **today.**

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PRICES BELOW ALL OTHERS

I give a lot of new sorts for trial with every order I fill. A Grand Big Catalog **FREE** Illustrated with over 700 engravings of vegetables and flowers. Send yours and your neighbors' addresses.

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Seeds, Plants, Roses,

Bulbs, Vines, Shrubs, etc. Hundreds of car lots of **FRUIT and ORNAMENTAL TREES.** 1,200 acres, 50 in hardy **Roses,** none better grown. 44 greenhouses of **Palms, Ferns, Ficus, Geraniums** and other things too numerous to mention. **Seeds, Plants, Bulbs, Roses, Small Trees,** etc., by mail, postpaid. Safe arrival and satisfaction guaranteed. Immense stock of **SUPERB CANNAS,** the queen of bedding plants. Acres of **Pæonias** and other **Perennials.** 50 choice collections cheap in Seeds, Plants, Roses, etc. Elegant 168-page Catalog **FREE.** Send for it today and see what values we give for your money. Direct deal will insure you the best at first cost. 57 years. (12)

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You can't sow thistles and reap figs. If you plant Ferry's Seeds you grow exactly what you expect and in a profusion and perfection never excelled.

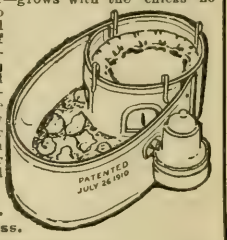
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Try the Lullaby Brooder AT OUR RISK.

Then if you don't say it is the best ever—your money back. Plenty of fresh air—grows with the chicks—no artificial heat—no lamp to smoke or poison the air and kill them off. Only $1.50 of your dealer. If he cannot supply you, order from us **giving his name** and we will send you our 1911 Poultry Almanac. Tells all about the Lullaby Brooder and how our **DRY MASH** makes your hens **"lay or Bust."** Worth $1.00. Free if you write for it today. Also egg record blanks supplied free.



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Bee Culture and Fruit Growing make a happy combination. Every reader of Gleanings ought by all means read the Southern Fruit Grower. Devoted to fruit growing, small fruits, nut growing, gardening, poultry, household, etc., etc. 32 to 40 pages monthly. In order to get every reader of Gleanings to read the Southern Fruit Grower, we have decided to send it for six months for 15 cents. This is absolutely restricted to new subscribers. Send in 15 cents to-day. Address **THE SOUTHERN FRUIT GROWER, Dept. B C., Chattanooga, Tenn.**



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Hardy and Decorative! Nursery stock to meet every requirement of the Southern planter and householder. All kinds of Fruit and Economic trees and plants adapted to the South and the Tropics.

Bamboos and Grass, Palms, Ferns, Water Lilies, Shade Trees, Shrubs, Vines, Bulbs and hosts of odd plants from all over the world; in fact, the greatest collection in the South, gathered together in the past 28 years.

If you have any special needs to meet in laying out your grounds, send us details and we will cheerfully furnish information.

Our naturally grown Palms and Decorative Plants for indoor decoration can not be equalled for beautiful, thrifty growth.

Our handsome illustrated catalog of 17 Depts. tells all about them, and when to transplant, etc. Write now and we will send a copy FREE! Packing a specialty; we send by Mail, Express, or Freight SAFELY to most distant points.

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In the heart of wholesale, retail, and theatrical district.

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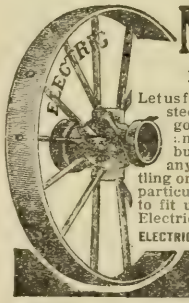
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Over half million of these combinations sold.
Send only 10c for trial test order—20 Big Packets:
Beet, Perfected Red Turnip, earliest, best.
Cabbage, Winter Header, sure header, fine.
Carrot, Perfected Half Long, best table sort.
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Cucumber, Family Favorite, favorite sort.
Lettuce, Bell's Prize Head, early, tender.
Musk Melon, Luscious Gem, best grown.
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Onion, Prizetaker, weight 3 lbs., 1000 bu. per acre.
Parsnip, White Sugar, long, smooth, sweet.
Radish, White Icicle, long, crisp, tender, best.
Tomato, Earliest in World, large, smooth, fine.
Turnip, Sweetest German, fair, sweet, large.
Flower Seeds, 500 sorts mixed, large packet.
Big Tom Pumpkin. Makes finest pies.
Bell's Giant Thick Leaf Spinach. None better.
Cress or Peppergrass. Needed on every table.
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Sweet Peas, ½ oz. California Giants Mixed
Big FREE Catalog sent with each order, also FREE Coupon for 10c—good with 25c order. Write to-day. Not connected with any other seed company.

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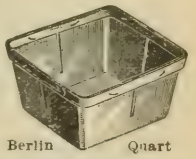
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S. C. Rhode Island Reds. I shall have a limited number of settings from my $25.00 pen of S. C. R. I. Reds at $3.00 for 13 eggs. This stock is line bred to lay from the famous Wyckoff and Tompkins strains. Special care taken in shipping eggs.
L. W. BOYDEN, 682 West Liberty St., Medina, Ohio.

Indian Runner ducks from imported stock, fawn and white; very easy to raise and easy to keep. They are beauties too—lay eggs all the year; lay heaviest in winter. Eggs, $1.50 per 13; $7.00 per 100. Let me start you to success.
C. O. YOST. Rt. 4, Winchester, Ind.

EGGS FOR HATCHING.—Partridge Plymouth Rock, direct from originator; $5.00 for 15. White Wyandottes, Regal strain, birds scoring 90 to 95, $3.00 for 15; $5.00 for 30. S. C. Reds, Crowther & Tompkins strain—winners wherever shown; $3.00 for 15.
W. J. LANPHEAR, Route 3, Medina, Ohio.

R. C. R. I. Reds, Buff Wyandottes, S. C. White Leghorns—the kind that lay and pay; winners and bred from winners. Madison Square, Cleveland, Toledo, Jamestown, etc. Eggs for hatching. Mating and special sales list for the asking. Write to-day.
CONSOLIDATED POULTRY YARDS CO., Canton, O.

Buttercup eggs—the A. I. Root favorites. Ten settings only, this season. Purest strain from original imported stock. Eggs, $3.50 for 15; 33⅓ per cent fertility guaranteed. First shipment April 1. Will fill in order of receipt. Reference, A. I. Root Co.
SECRETARY POULTRY ASSOCIATION, Medina, O.

Buff Leghorn eggs of quality. Our birds speak for themselves. Your order will be filled from hens that lay at 5 months; big layers, good payers. Do not wait—order to-day. Only $3.00 per setting.
WM. BRITTON,
Prop. Hillside Poultry Farm, Huntington, Ind.

S. C. R. I. Reds, large and beautiful, rich in color, and rich egg-layers; the winning strain. Eggs from exhibition pens, $2.00 per 15; $10.00 per 100. Eggs from standard pens, $1.00 per 15; $5.00 per 100. I can please you, sure.
C. O. YOST, Rt. 4, Winchester, Ind.

Order your copy of "American Standard of Perfection" through GLEANINGS. The new edition of this greatest of all poultry-books is now ready. Beautiful plates show feather-markings, etc., of every standard breed. Price $1.50, postpaid, in cloth; $2.25 in morocco binding.
BUYERS' BUREAU, GLEANINGS IN BEE CULTURE.

WHITE PLYMOUTH ROCKS.—Call my stock "Egg Strain of White Rocks" because of their unusual productivity. Original stock direct from Fishel. Have selected very best layers by trapnesting, and am now booking orders for delivery March 1st and after. All eggs from selected layers bred for eggs—especially winter eggs. Eggs, $2.50 per 15. Order promptly. JAY SMITH, Vincennes, Ind.

BABY CHICKS.—We can supply from high-grade stock-baby chicks of the following: White Leghorns; Brown Leghorns; White Plymouth Rocks; Barred Plymouth Rocks; Buff Orpingtons. It is necessary to place orders, as we shall have a limited number. Any of the above at 10 cts. each; safe arrival guaranteed.
AMBROSE & KNIGHT, Urbana, O.
Hardware, stoves, seeds, bee-supplies.

Miscellaneous

Gladiolus bulbs for flowers, $1.60 per 100, express paid. B. C. AUTEN, Carthage, Mo.

FOR SALE.—Olds runabout cheap, or exchange for bee-hives. F. B. CAVANAGH, Hebron, Ind.

Norway poplars for wood-lot planting. Send now for list. B. C. AUTEN, Carthage, Mo.

HOME CANNING OUTFITS.—For free catalog address RANEY CANNER CO., Texarkana, Ark.-Tex.

American Hen Magazine, Council Bluffs, Iowa. Subscribe now—25 cts. a year. Descriptive circular free.

A $100 Disk graphophone with about 75 records, almost new. How many colonies will you give me?
FRANK M. KEITH,
83½ Florence St., Worcester, Mass.

FOR SALE.—One set (two volumes) of Cheshire's Bees and Bee-keeping—Vol. I., Scientific, 336 pages; Vol. II., Practical, 652 pages. These books are second-hand, both in fine condition. This work is out of print, and will be higher-priced and very rare in a few years. Price for the set, $10.00. Address
GLEANINGS IN BEE CULTURE.

BOOKS THAT SHOULD BE IN EVERY HOME, ON SEX, SOCIAL PURITY, AND HEREDITY.

Safe, sane, sound, scientific, scriptural, inexpensive, and adapted in size to busy people.
Perfect Manhood (men); cloth, 50 cts.; paper, 25.
Twentieth-century Boy (boys under 15); cloth, 40 cents.
Heredity (parents); cloth, 40 cents.
Guide to Sex Instruction (parents); cloth, 75 cts.
How to Tell the Story of Life (parents); paper, 15 cents.
The Girl and Her Mother (young women); paper, 25 cents.
Sour Grapes (four lectures on heredity); paper, 25 cents.
Agents wanted. Circular free. Order from
PROF. T. W. SHANNON, Fredericktown, Mo.

Bee-keepers' Directory

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York City.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Italian queens from direct imported mothers, red-clover strain. After June 1, $1.00. Circular.
A. W. YATES, 3 Chapman St., Hartford, Ct.

Improved golden-yellow Italian queens for 1911. Beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

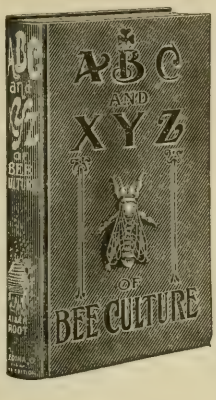
Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in '08-'09 without a single loss. For prices get circular. QUIRIN-THE-QUEEN-BREEDER,
Bellevue, Ohio.

Convention Notices.

The North Texas Bee-keepers' Association will hold its next meeting at Enloe, Delta Co., on the first Wednesday and Thursday in April. All bee-keepers everywhere are cordially invited to attend. No hotel bill to pay. We expect to have a great time. J. M. HAGOOD, Endoe, Pres.,
W. H. WHITE, Greenville, Sec.

Lesen Sie Deutsch?

THIS is an offer addressed to the German readers of GLEANINGS IN BEE CULTURE.



The publishers of this journal find at the close of the year a surplus stock of copies of—

The A B C der Bienenzucht.

This is a complete translation of the "A B C of Bee Culture," annotated corrected, and brought down to date by Mr. F. Greiner, who is a thorough German scholar, besides being a practical bee-keeper, familiar with American methods.

THIS BOOK was published to sell at $2.00 per copy in paper binding, and $2.50 in cloth. It is handsomely printed and illustrated, but the translation is a little too free. Understand! There are no incorrect statements—nothing that will be misunderstood—simply a little bit more of American German than we would use in a new edition.

SEVERAL hundred of the German edition of the A B C of Bee Culture have been sold, and not a single complaint or any evidence whatever of dissatisfaction has come to our notice. The book is a success in every way, only we have not properly advertised it; and the sale (in comparison to that of the English edition) is slow.

Here is How You May Profit

To close out the German A B C we are going to offer a paper-bound copy, with GLEANINGS for one year, for only $1.75. GLEANINGS alone costs $1.00, so you practically get the book by paying 50 cts. and postage—which will be at least 25 cts. The cloth-bound edition—a beautiful volume—may be had with GLEANINGS, while stock lasts, for only $2.00.

If your subscription is already paid, take this offer any way. You will get full-year extension, and the book will be sent at once.

English-speaking bee-keepers should call the attention of German friends to this special offer.

Send order and remittance to—

The A. I. Root Company
Medina, Ohio

PUBLICATIONS ON BEE CULTURE

Please use coupon below, checking the numbers of items wanted.

The pamphlets and booklets listed below are of more than ordinary interest:

1 **My First Season's Experience with the Honey-bee.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.

2 **The Bee-keeper and Fruit-grower.** A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.

3 **Bee-keeping for Sedentary Folk.** A 24-page leaflet reciting the actual experiences of an amateur bee-keeper, showing what equipment is best, points derived, etc. Free.

4 **Catalog of Bee-keepers' Supplies.** Our complete catalog will be mailed free to any address on request.

5 **Transferring Bees.** A 14-page booklet giving instructions and illustrating appliances. No need to keep your bees in old out-of-date hives when they can easily be transferred into new hives and earn profits for you. Price 10 cts.

6 **Bee-hunting.** Gives information necessary to enable one who is active and intelligent to engage in bee-hunting with success. It is well gotten up and worth the price, which is 25 cts.

7 **Spring Management of Bees.** A 14-page booklet detailing the experiences of some successful bee-keepers, and giving instructions on this ofttimes perplexing matter. Price 10 cts.

8 **Habits of the Honey-bee.** By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cts.

9 **How to Keep Bees.** A book of 228 pages detailing in a most interesting manner the experience of a beginner in such a way as to help other beginners. Price $1.00 postpaid.

10 **The A B C of Bee Culture.** A complete encyclopedia of bees, of 576 pages, fully illustrated, $1.50 postpaid; half leather, $2.

11 **Cleaning in Bee Culture.** A 64-page illustrated semi-monthly magazine, the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cts.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted and adding your signature, and remittance, if required.

Cut Coupon Here

The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose $..... to cover the cost.

1	2	3	4	5	6	7	8	9	10	11

Name .....

St. Address or R. F. D. .....

Town .....

G.B.C. 3-15 *State* .....

Michigan Bee-keepers Again Urged to Write Their Senators and Representatiyes.

A telegram from E. M. Hunt came in too late for notice in our editorial column regarding the foulbrood bill. This is expected to be reported out of committee about the 25th of March; and all who have not already done so should write their Senators and Representatives at once, urging them to vote for this proposed law. This is a matter that requires the help of all the bee-keepers in the State.

SHORT COURSE FOR APIARY INSTRUCTORS.

The following is the program for the short course for apiary instructors, May 1—6, 1911, at the Ontario Agricultural College, Guelph, Canada.

The following arrangement of subjects will be adhered to as closely as possible. No changes in advertised speakers or subjects will be made unless absolutely necessary.

Lectures will, as far as possible, be illustrated with lantern slides and the actual objects under discussion.

MONDAY, MAY 1.

9.00—10.00. The Business of Bee-keeping; Its Advantages and Difficulties— MORLEY PETTIT.
10.00—11.00. Bacteria of Disease— S. F. EDWARDS, M. S.
11.00—12.00. Brood Diseases of Bees; their Nature, Cause, and Method of Spread— E. F. PHILLIPS, Ph. D.
1.30— 6.00. Practical apiary work.

TUESDAY, MAY 2.

8.30— 9.00. Review of practical work.
9.00—10.00. "In Union is Strength"—How to Prevent Swarming— MORLEY PETTIT.
10.00—11.00. Brood Diseases of Bees; their Symptoms and Treatment— E. F. PHILLIPS, Ph. D.
11.00—12.00. Chemical Properties of Honey and Beeswax— R. HARCOURT, B. S. A.
1.30— 6.00. Practical apiary work.
7.30—Illustrated Lecture: "The Behavior of the Bee"— E. F. PHILLIPS, Ph. D.

Chairman—C. J. S. BETHUNE, M. A., D. C. L.

WEDNESDAY, MAY 1.

8.30— 9.00. Review of practical work.
9.00—10.00. The Production of Honey— MORLEY PETTIT.
10.00—11.00. Additional Factors in Disease Control; Educational— E. F. PHILLIPS, Ph. D.
11.00—12.00.—The Experimental Union, and what it can do for bee-keeping in Ontario— C. A. ZAVITZ, B. S. A.
1.30— 6.00. Practical apiary work.

FOUL-BROOD CONFERENCE.

THURSDAY, MAY 4.

8.00—12.00. Practical apiary work.
1.30— 2.30. Diseases of Bees and Their Treatment— E. F. PHILLIPS, Ph. D.
2.30— 3.30. The Disease Situation in Ontario— MORLEY PETTIT.
3.30— 4.30. Inspection Methods and Policies— E. F. PHILLIPS, Ph. D.
4.30— 5.30. General discussion.
7.30. Distribution of Bee Diseases in United States— E. F. PHILLIPS, Ph. D.

Chairman—P. W. HODGETTS.

FRIDAY, MAY 5.

8.30— 9.00. Review of practical work.
9.00—10.00. The Production of Beeswax— MORLEY PETTIT.
10.00—11.00. The Anatomy of the Honey-bee— E. F. PHILLIPS, Ph. D.
11.00—12.00. Co-operative Methods and How Bee-keepers can Use them— H. H. LEDREW, B. S. A.
1.30— 6.00. Practical apiary work.
7.30. Illustrated Lecture: "The Hawaiian Islands and their Bee-keeping Industry." E. F. PHILLIPS, Ph. D.

G. C. CREELMAN. B. S. A,. LL.D., in Chair.

SATURDAY, MAY 6.

Practical work in apiary.

Special Notices

BY OUR BUSINESS MANAGER

BASSWOOD-TREES.

We have in our nursery a number of basswood-trees from one to five feet high, which we offer, while they last, at 10 cts. each; 75 cts. for 10. They will run well up toward five feet, but are not very straight or shapely. These are the last we shall be able to furnish unless we make some new arrangement which we do not now anticipate.

MAPLE SYRUP AND SUGAR.

The season to date has not been very favorable for producing maple syrup or sugar; and, as a result, the supply is rather limited. What we have secured to date is very fine, and we quote as follows:

1 one-gallon can, $1.25 per gallon.
1 case of 6 one-gallon cans, $1.15 per gallon.
2 or more cases at $1.10 per gallon.
Sugar, 1 lb., 16 cts.; 10 to 25 lbs. at 15 cts.; 26 to 50 lbs. at 13 cts.; 51 to 100 lbs. at 12½ cts.; 101 to 500 lbs. at 12 cts.

BUCKWHEAT SEED.

Some months ago it was reported in the columns of GLEANINGS that silverhull or gray buckwheat was better for honey than the Japanese. We can not say from personal observation. We are now prepared to supply either Japanese or silverhull at the following prices, bags included: Japanese buckwheat, 12 cts. per lb., postpaid; not prepaid, peck, 35 cts.; ½ bushel, 65 cts.; bushel, $1.20; two bushels for $2.25. Silverhull buckwheat, 13 cents per lb., postpaid; not prepaid, peck, 42 cts.; ½ bushel, 75 cts.; bushel, $1.40; $2.50 for two bushels. We furnish 50 pounds for a bushel.

BEESWAX.

From this date till further notice we will pay for average beeswax delivered here 29 cts. per lb. cash, or 31 in trade. For choice quality, 1 to 2 cents extra. Ship in strong bags, double, or in boxes or barrels securely nailed, being sure to put your name and address in or on the package so that we can identify it when it reaches us. Write us, sending bill of lading, and stating weight you ship, gross and net, so that we may know if any has been lost out on the way. Shippers are often careless in attending to these little details, and we take occasion again to call your attention to them.

SWEET-CLOVER SEED.

It is remarkable, the keen interest which is being manifested in this clover, which, in years past, has been regarded as a noxious weed, and included under the ban of the law in some States. We are still able to furnish the different varieties as indicated in another column. Our supply of *Melilotus alba*, or white sweet clover, both hulled and unhulled, is rather limited. We have a good stock of both kinds of hulled yellow. With reference to the annual variety, of which we have a large stock, the man of whom we bought the seed wrote us last September as follows:

"As regards the habits of this clover in this part of the country, I will state that with us it is an annual, and could not be otherwise in our long dry summers. Along the river in damp sandy soil, where the roots go down to moisture, it remains alive and continues to bloom up to the present time, as I saw some in bloom only a day or two ago; but this will die also as soon as the rainy season sets in—about the latter part of October. In its growth it reaches a height of from 6 in. on strong alkali land to 6 ft. on sandy land. The plant from which I gathered the seed shipped you grew to an average height of 3 ft., and this land is slightly alkaline; but 3 ft. is as high as I should care to have it grow. I have seen it this season grow so thick and high that sheep could not go through it. Yes, it is an annual here. What its habits are in the East or Middle West I can not say.

"The Nebraska Experiment Station reports that *Melilotus Indica* and *Melilotus officinalis*, for all

practical and commercial purposes together with their comparative food value, is a 'distinction without a difference;' that is to say, almost identical in their habits, etc.

"There is one thing I wish to impress upon you. This seed you have received will all germinate and grow under any decent conditions; and I will guarantee that bees will gather honey from it, and stock of all kinds will eat and thrive on it *when they have a chance to do so.*"

	In lots of— 1 lb.	10 lbs.	25 lbs.	100 lbs.
Hulled Yellow Annual (*Melilotus Indica*), per lb	17c	15c	14c	13c
Hulled Yellow Biennial (*Melilotus Officinalis*),	20c	18c	17c	16c
Hulled White	25c	22c	21c	20c
Unhulled White (*Melilotus alba*) per lb	16c	14c	13c	12c

The prices are all subject to market changes.

A RARE OPPORTUNITY.

Here is a fine chance for a man who has or can raise $6000 in cash. This sum will buy a half-interest in a fine bee-ranch on the Appalachicola River, Florida, of which the following are the principal items:

150 acres of land, all under fence.

800 colonies of Italian bees.

1 dwelling of nine rooms, new.

1 dwelling of four rooms, and several out-buildings; a poultry-plant, not in use, with two new incubators and brooders; a horse, buggy, wagon, and farming implements.

150 orange-trees in bearing.

100 pecan-trees in bearing.

150 pear-trees in bearing, and a number of other fruit-trees. The bees are in two yards, 2½ miles apart, in the best section for tupelo honey. A good lot of supplies are on hand and in good condition. If sale can be made soon, the owner will divide this season's crop of honey, which should amount to between $1500 and $2000. Adjacent to the place is 3000 acres of land with a sawmill, and abundance of cypress and other gum woods which can be secured at a bargain; and with a good market for the lumber the sawmill would soon pay for the land.

Of course, no one would close a deal of this size without going and looking the proposition over. If you buy, the cost of your trip will be paid out of the price named above. Communicate with A. B. Marchant, Sumatra, Fla., if you mean business.

SECOND-HAND FOUNDATION-MILLS.

We have on hand, and offer for sale, the following list of second-hand foundation-machines. If you desire further particulars in regard to any mill in the list we can mail samples of the work it will do.

No. 0115, 2½x6 thin-super mill in good condition. Price $11.00.

No. 0117, 2x10 round-cell medium-brood mill in good condition. Price $14.00.

No. 2972, 2x10 round-cell medium-brood mill, practically new. Price $18.00.

No. 0121, 2¼x12-inch heavy hex. brood-mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price $8.00.

No. 0129, 2 x 10 round-cell medium-brood mill, old-style frame, in good condition. Price $14.00.

No. 0132, 2 x 10 round-cell Pelham mill. This is nearly new, but it does not make a natural-shaped cell. Price $9.00.

No. 0135, 2 x 10 round-cell medium-brood mill in old-style frame, fair condition. Price $12.00.

No. 0136, 2 x 10 round-cell medium-brood mill, old style, poor condition. Price $10.00.

Kind Words From Our Customers.

I received my box of bee-supplies about a week ago. I have them all nailed up and painted one coat, and I can't keep from admiring them, they are so clean-cut and neat, and the wood is clear dry pine—not a knot to be seen.

Lincoln Park, Man., Feb. 26. J. G. LITTLE.

The A. I. Root Co.:—I have six colonies of three-banded Italian bees. They are gentle, and good honey-gatherers—an improvement over the blacks and crosses I had before, and they are much nicer to handle. I run for comb honey only, and I can produce a very fancy grade with the Danzenbaker hive—the equal of any thing I see in our town, and a great deal finer than most of it. I retail it for 25 cts. per section.

Greensburg, Pa., Feb. 18. J. M. RAMALEY.

BEE CULTURE IN ALABAMA, ETC.

We clip the following from the *Selma Times:*

I am a lover of bees, and in full sympathy with that eminent naturalist, preacher of the gospel, and father of bee-keeping in Europe, Dr. John Dzierzon, where he says, "I wish I had a six-months' day to work with them in, and then a six-months' night to write about them;" also with our own Dr. Lorenzo Lorraine Langstroth, likewise naturalist, preacher of the gospel, and father of American bee-keeping—inventor of the movable-comb hive—where he says, "After preaching the gospel I prefer the study and management of bees to any other occupation on earth."

Talking somewhat enthusiastically recently to some friends about this delightful and profitable occupation it was suggested that in this day of getting together and of united efforts looking to the advancement of our beloved town and country along all industrial lines—commercial, agricultural, and otherwise—it might be of interest to some, at least, for me to call attention to what can be done in this much-neglected business here in this community. I shall not deal in theories, but will give a brief statement of the facts in my experience with the busy little bee during this season.

In September, 1909, I ordered from the manufacturers, The A. I. Root Co., Medina, O. (the center of bee culture in the world), a crate of five hives in the flat, such as I regard the best for the production of either comb or extracted honey.

They arrived in due time, were put up, painted, and prepared in all particulars for their worthy occupants. Through the kindness of a good friend I was given two weak colonies of bees in old box "gums." By purchase I secured two others of the same kind. The queens of two of these colonies were killed; and the bees, after the proper method, were doubled up with the two other colonies, which were transferred into two of my elegant modern hives. These were the black (or German) bees, common among us. As the Italians are to be preferred on many accounts, in my judgment, my next step was to order from the same source from which the hives came a fine Italian queen. Her Majesty arrived with her retinue in a special case in due time. Through the kindly consideration of these friends, with whom I have had dealings for 25 years, this queen proved to be of the very best breeding and worker stock. The old black queen of one of the hives was hunted up and unceremoniously decapitated, and the Italian queen properly introduced after the approved cage-candy method.

The two colonies stored an ample supply of honey, and went into winter quarters in fine condition. I did a little stimulative feeding in the early spring; and when the flow of nectar came they were in fine condition for gathering—not less than 50,000 strong, each. Now, Mr. Editor, to shorten the story let me give results in dollars and cents.

First, the outlay or cost of the above was $15.00, not including the Italian queen, but hives in flat, and black bees. I have taken up to date 186 lbs. of honey, which is being sold at 15 cents, worth $27.90. Here you see a clear profit of $12.90, with the fall flow of nectar to come.

The present value of hives and increase of bees at a reasonable estimate is $30.00—a clear gain of $42.90 on the $15.00 investment. The same rate of profit could have been accomplished with a larger number to start with. In a word, with proper study, energy, and application, bee-keeping in this community can become one of the most profitable occupations. With proper enterprise, and skill which comes from study and practice, it would beat raising cotton.

Will not the young men—yes, and the old ones who can not perform hard labor—wake up and investigate the possibilities of this most delightful recreation for leisure moments, and this most remunerative occupation for one who makes it a business, giving the time and study to it that all successful callings demand? F. G. RAILEY.

IT PAYS TO USE

DADANT'S FOUNDATION

BEESWAX WANTED

DADANT & SONS
HAMILTON, ILLINOIS

Big Apples are Selling at 10 Cents Each . . . .



There is money in fruit-growing right where you are. Apples are worth twice as much as oranges. If you can not raise apples, there are are other fruits equally profitable.

Start an orchard. Those who planted orchards as advised by Green's Fruit Grower are getting their reward in big profits. You can pay for the orchard by growing small fruit in it.

Green's Fruit Grower

will tell you how and where to plant, how to prune and spray, and how to make your trees productive.

It is the oldest and most popular fruit grower's magazine. January is our 30th ANNIVERSARY NUMBER. We will start your subscription with that number.

Special offer to readers of GLEANINGS IN BEE CULTURE. We will mail new subscribers Green's Fruit Grower one year on trial for 25 cents.

GREEN'S FRUIT GROWER CO.

Box G, Rochester, N. Y.

Enlist as Local Agent

for the Fast-Working, Fast-Selling

Oliver Typewriter!

The battle lines of the Oliver Typewriter forces are forming for another campaign of conquest. The triumphs of 1910—the most brilliant ever achieved by a great sales organization—have served to inspire to more mighty deeds in the coming year.

The roll-call of the Oliver Sales Organization shows over 15,000 men **under arms**—the most magnificent body of trained salesmen in the world.

This Sales Force, great as it is, cannot cope with the tremendous increase in business which the popularity of the Oliver Typewriter has created.

Resident Agents Wanted in every Town and Village

This advertisement is a call for reinforcements—to enable the Oliver Sales Force to extend its skirmish lines to all sections of the country.

The central idea of our selling system is to have—**everywhere**—a vigilant agent of the Oliver Typewriter constantly **on the ground.** Whether that agent devotes part or all of his time to the sale of the Oliver Typewriter is left to his own discretion.

Teachers, tradesmen, doctors, ministers, lawyers, stenographers, telegraph operators, printers, mechanics—men and women in a multitude of different occupations—can succeed as local agents for the Oliver Typewriter. If you have the will to take up this work, **we will point out the way.**

The OLIVER Typewriter

The Standard Visible Writer

The Oliver Typewriter has been breaking records since the day it was placed on the market. **Efficiency records, speed records, endurance** records—it has won them in quick succession. It sets the swiftest pace in sales by giving unparalleled **service.**

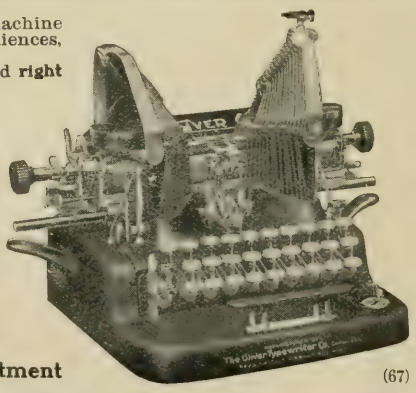
With **several hundred less parts** than other standard typewriters, its **simplicity, strength, ease of operation, versatility and convenience** are correspondingly **increased.**

"17-Cents-a-Day" Plan a Wonderful Aid to Agents

This machine, with all of its advantages, all of its time and labor-saving devices, the Local Agent can buy—**and sell**—for Seventeen-Cents-a-Day.

The Oliver Typewriter No. 5—the newest model—the $100 machine—equipped with a brilliant array of new devices and conveniences, **actually offered for pennies!**

This irresistable offer enables the Local Agent to succeed right from the word "go!"



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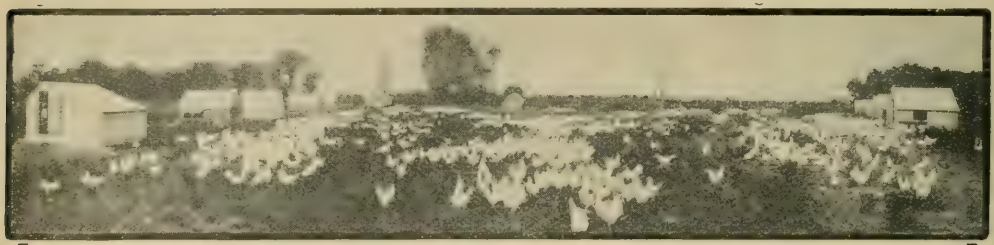
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READER: If you want to make money with poultry as the **Curtiss** brothers are making it, subscribe **now** for the **FARM JOURNAL**, and get with it the new

Curtiss Poultry Book

which tells how Roy Curtiss, a New York farmer's son, starting with a few neglected hens, has built up at the famous NIAGARA FARM, the *largest poultry plant in the world,* with sales of **over $100,000 a year.**

Roy wanted to make some money. He saw that the hens on the place were almost entirely neglected, and proposed that if his father (a grain merchant and farmer) would furnish the feed, he (Roy) would take care of the flock, and supply eggs and chickens for the farm table, and all that were left over were to belong to him. His father agreed and Roy went to work.

In two years he was using so much feed that his father had to cry quits, but the boy kept right on. He had grit and "go," just like *your* father's boys, and was determined to succeed. He would start at two o'clock A. M. for Niagara Falls, thirteen miles away, with poultry and eggs for sale. His brother joined him in the business, and it grew and grew. They took the farm, paid off the mortgage, built and added to their plant, learning slowly how to avoid losses and make profits. Their tender spring chickens and delicious ducklings captured the best hotel trade of Niagara Falls, Buffalo, and the Adirondacks, and they began to see "big things" in the poultry business.

But they had no *guidance*. They had to devise their own methods, and learn by their own mistakes. Such a guide as the **CURTISS POULTRY BOOK** would have saved them thousands of dollars and years of lost time.

This remarkable new book was written at NIAGARA FARM, by the veteran poultryman, MICHAEL K. BOYER. He had the Curtiss brothers right at his elbow, with their records and data. He says he never saw a general poultry plant so well managed at every point. No "putting on style," no fancy buildings, no ornament, but straight, solid *business*. Everything is planned for months ahead. Every day shipments go off, every day money comes in. You could hardly believe how little they *lose*. Their percentage of fertile eggs, of live, strong chickens hatched, of day-old chicks shipped without loss even to Kansas or Florida, is really wonderful.

This book describes fully their methods of managing incubators, handling eggs, feeding, killing, dressing, packing, and marketing. It gives all their formulas for mixing feed for chickens and ducks at different ages. These formulas have been gradually modified and improved, until now they bring the best results with such *certainty* that, if you couldn't get them, they would be almost priceless. All these methods have been tested by years of experience, resulting in what is believed to be THE MOST PROFITABLE GENERAL POULTRY PLANT IN THE WORLD. Whether you raise chickens, ducks, or eggs, whether you keep forty fowls or forty thousand, you will find here help that you can get in no other way.

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The FARM JOURNAL (thirty-four years old) has over 750,000 subscribers, MORE THAN ANY OTHER FARM PAPER. It is of great value to everybody, in town or country, who wants to make money by growing fruit, vegetables, poultry, eggs, milk, butter, as well as grain and stock. It is a great favorite with mothers, housekeepers, boys and girls, as well as the men. "Cream, not skim-milk," is its motto. It is clean, brief, bright, "boiled down" intensely practical. It tells in a few words, and just at the right time, what to do NOW, and the best way to do it. It is now running a very interesting series, "Back to the Soil," stories of city people who have gone to the country to make a home. If you care about outdoor life, or plants, or pets, or children, or anything that *grows*, then, no matter how many other papers you get, you and your family ought to have the **Farm Journal.**

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Gleanings in Bee Culture

VOL. XXXIX APRIL 1, 1911 NO. 7

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Stray Straws
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Bee-keeping in Southern California
Bee-keeping Among the Rockies
Conversations with Doolittle

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Book-keeping and Bee-keeping — C. B. SNAVELY
No Excuse for Breaking Sections — F. GREINER
Co-operation in Selling Honey — J. K. HEDSTROM
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Drawbacks to Bee-keeping in New Mexico — O. B. METCALFE
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CHAPTER V—What to Do just Preceding the Honey-flow

CHAPTER VI—Strong vs. Medium Colonies at the Opening of the Harvest

CHAPTER VII—How to Take Care of Swarms

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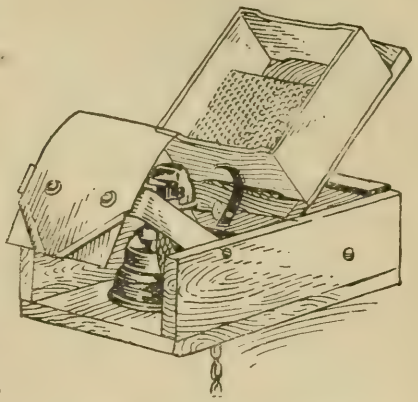
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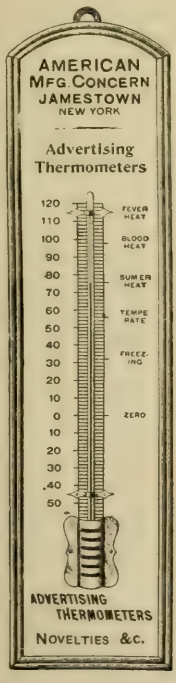
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We are masters in the art of making A No. 1 sections. Ours were the first polished sections on the market. The cross-grain sanding and buffing through which they pass in our special process of manufacture produces a crystal finish which is not equaled. And don't overlook our accurately cut V grooves. There is no breaking in folding. The saving in this item alone makes **"falcon"** sections the most economical.

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In February the three new 1911 "FALCON" distributing-houses named below gave "DEWEYS" as introductory offers. This offer closed March 15, and many have been disappointed who did not see the offer in time. Therefore it will be continued from these points through April and May for orders for for 3M or more No. 1 "FALCON" sections at regular catalog prices. Send your order to-day and have a DEWEY included. Price of "DEWEY" alone, $1.25; by mail, $1.50 postpaid.

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Have you received your thermometer? If you haven't, why don't you? We do not sell them. They are sent with orders for bee-supplies.

Write for particulars.

Our "RED" catalog describing our full line of bee-keepers' supplies is sent postpaid upon request.

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C. C. Clemons Bee Supply Co., 130 Grand St., Kansas City, Mo.
W. T. Falconer Mfg. Co., 117 No. Jefferson Street, Chicago, Ill.

Write one of the three houses just named; but if not conveniently located for shipment from one of these points write us, and we will give you the name of our nearest dealer.

W. T. Falconer Manufacturing Co.

Falconer, New York

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

COLUMBUS.—Good honey is scarce, the market wanting fancy white weighing 22 to 23 lbs. We are selling fancy at 17; No. 1, 16.

Columbus, O., March 19. EVANS & TURNER CO.

ZANESVILLE.—Honey is in normal demand with no offerings by producers. Best grades of white comb go to the retail grocery trade at 18 to 18½. Extracted is quoted at 10½ for best white. No demand for amber or dark. Producers are offered for beeswax 28 cts. cash, 30 in exchange for supplies.

Zanesville, O., March 22. E. W. PEIRCE.

KANSAS CITY.—The demand for best comb and extracted honey is light; the supply is light. We quote: No. 1 white comb, 24-section case, $3.25 to $3.35; No. 2 ditto, $3.00; No. 1 amber, 24-section case, $3.00 to $3.25; No. 2 ditto, $2.75 to $3.00; extracted white, per lb., 8½ to 9; amber, 7 to 7½. Beeswax, 28 to 30.

C. C. CLEMONS PRO. CO.

Kansas City, Mo., March 21.

CHICAGO.—There is very little demand for comb honey. The fancy grade of white brings 17 to 18, with the other grades from 1 to 3 cts. less. Amber and mixed grades range from 10 to 13 cts., and are difficult to place. Extracted is scarce, and is held at 9 to 10 cts. for white grades, and 8 to 9 cts. for the amber, but the receipts are very small. Beeswax, if of good color, and free from sediment, brings 32.

Chicago, Ill., March 21. R. A. BURNETT & CO.

DENVER.—Demand for honey lighter than usual for this time of year. We make the following jobbing quotations: No. 1 white comb honey, per case of 24 sections, $3.15; No. 1, light amber, $2.93; No. 2, $2.70. White extracted honey, 9 to 10; light amber, 8¼ to 9. We have no amber to quote. We pay 26 cts. cash, and 28 cts. in trade for yellow beeswax delivered here.

COLORADO HONEY PRODUCERS' ASS'N.

Denver, Col., March 21.

BUFFALO.—Demand for white honey, both comb and extracted, is very good. Very little in the market, some No. 2 white and buckwheat comb around, but selling very slow. Fancy white comb, 17 to 18; No. 1 white, 16 to 17; No. 2, 11 to 13; No. 1 Buckwheat, 12 to 13; No. 2, 10; white extracted, 8 to 9; amber, 7 to 7½; dark, 7 to 7½. Tumblers (white), 85 to 90 per doz. Beeswax, 28 to 30.

Buffalo, N. Y., March 20. W. C. TOWNSEND.

Honey Markets continued on page 5.

Now for 1911 Bee-Supplies

We have already received several carloads of that "finest of all Beeware"—Falconer make—anticipating the heavy rush of orders sure to come this Spring. Prepare yourself NOW, Brother, for we are going to have a heavy honey yield this season, and those who order early are the ones who will profit most. Send for our catalog to-day, and see our "MUTH SPECIAL" Dovetailed Hive, and also our "IDEAL METAL" Cover—both DANDIES. We sell you cheaper than the rest; we have the Best. Let us figure on your wants—we will surprise you.

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In this fine location on the Ohio River, right on boundary between Ohio and Kentucky, close to the Indiana line, and on main highways to Western Pennsylvania and the great South, we command facilities no other supply-dealer in this section can offer you.

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Coupled with many years of experience, and our desire to give you the utmost satisfaction, advantages like these should not be overlooked.

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This is the complete book of bee-keepers' supplies. In it you will find conveniently arranged and clearly described every thing from A to Z in the way of appliances for successful bee-keeping. Many new supplies are listed this year, and changes in former goods have been made so it is essential that you should order from our newest catalog. Of course, you are entitled to a copy. If you have dealt with us in past seasons one has been mailed to you without suggestion or request from you, but this may have gone astray. Do not lose time in telling us if you are without our money-saving price list—we want you to have a copy every year.

Poultry Supplies

A special catalog of these goods, which we will gladly furnish free upon request.

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Department Editors:—Dr. C. C. Miller, J. E. Crane, "Stenog," Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, Mrs. H. G. Acklin.

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Extracted Honey Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

Honey Markets continued from page 2.

CINCINNATI.—At the present time we have no comb honey to offer. Extracted table honey is in fair demand, and is bringing 10 cts. per lb. put up in 60-lb. cans. Amber honey in barrels is selling at 8 cts. Beeswax is selling at $33.00 per 100 lbs. These are our selling prices, not what we are paying.

Cincinnati, O., Mar. 20. C. H. W. WEBER & Co.

NEW YORK.—Trade on comb honey is quiet—some little demand for strictly fancy white stock, but sufficient supply. Off grades mixed, and buckwheat are dragging. Fancy white still brings from 14 to 15 per lb., while on all other grades prices are nominal and in quantity lots must be shaded considerably in order to effect sales. We can not encourage shipments on comb honey for the present. Extracted in good demand, especially for fancy grades, which are scarce, and hard to obtain. No change in price from our last quotations. Beeswax quiet at from 29 to 30 cts. per lb.

New York, March 20. HILDRETH & SEGELKEN.

LIVERPOOL.—Since we last reported, there has been a fair business done in Chilian honey. The sales amounted to a considerable quantity, and pile 1 was sold at $6.72 to $6.84; pile 2, $6.12 to $6.60. There has been a quiet demand for California honey at recent rates. Dark Haitien meets with only a moderate demand at $5.64 to $6.00, according to quality. We shortly expect a new crop of Haitien, and we anticipate a fair demand for pure white. The general quietness in demand was caused, we consider, by the very mild weather which we have been having this winter. Prices for other qualities remain nominally as follows: California, $10.56; Peruvian, $3.84 to $4.80; Jamaican, $6.00 to $6.72. The market on beeswax is firmer, and quotations for African are as follows: $33.64 to $34.48; American, $33.88 to $36.28; West Indian, $33.64 to $36.28; Chilian, $33.88 to $39.92; Jamaican, $36.88. TAYLOR & Co.

7 Tithebarn St., Liverpool, Eng., March 11.

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2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey

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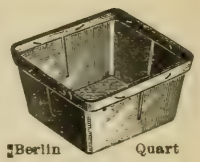
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Patent Practice in Patent Office and Courts.

Patent Counsel of The A. I. Root Co

INDIANAPOLIS.—There is a good and steady demand here for best grades of white-clover comb and extracted honey. Jobbing houses are well supplied, but practically none is now being offered by producers, and it is evident that there will be a shortage before the new crop can arrive. Fancy white comb is being offered at 18 cts.; No. 1, white, 17; extracted, 11, with some slight reductions on quantity lots. It is presumed that producers are being paid about 2 cents less than above quotations. Producers of beeswax are being paid 28 cents cash or 30 in trade.

Indianapolis, Mar. 15. WALTER S. POUDER.

ST. LOUIS.—Since our last of March 7, we have no change in our honey market to report. Extracted honey is rather scarce. The demand, however, is very limited. Comb honey is unchanged in prices with ample stocks on the market. We quote: Fancy white comb honey, 16 to 16½; Fo. 1, 15 to 15½; choice amber, 14 to 15; dark, 10 to 11. Broken and leaking honey sells at less. Extracted white clover, in 5-gal. cans, nominal at 9½ to 10; California light amber, 8½ to 9; Southern light amber, in 5-gal. cans, 8 to 8½; in barrels and half-barrels., 7½. Beeswax, prime, at 29; impure and inferior, less.

R. HARTMANN PRODUCE Co.

St. Louis, Mo., March 21.

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Forms close 10th and 25th.
Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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BEES FOR SALE!

I have 100 colonies of bees here at Flint, and there are reasons why I prefer to begin the season with a smaller number.

They are mostly in ten-frame Langstroth hives, although a few are in eight-frame hives. The hives are all new, made of soft white pine, and painted with two coats of white paint. Nearly all of the combs are built from wired foundation. The bees are all pure Italians, and mostly of the Superior Stock, or Moore strain. Every thing is strictly first class—could not be better.

Prices for ten-frame colonies are as follows: Less than five colonies, $7.00 per colony; five colonies or more, but less than ten, $6.50 per colony; ten or more colonies, $6.00 each.

Eight-frame colonies, less than five, $6.00 each; five colonies or more, but less than ten, $5.50 each; ten or more colonies, $5.00 each.

The bees will be shipped by express in May, about fruit-blooming time, and safe arrival in perfect condition guaranteed.

Each purchaser will receive the Bee-keepers' Review free for one year.

W. Z. HUTCHINSON, Flint, Mich.

Bee Ready!
Are You?

Last spring hundreds of colonies perished through sheer neglect right on the eve of a honey-flow. So far bees have wintered well. From now on is the crucial time. Don't let your bees starve. Never has clover looked more promising. This year "Bees iz bees," and if you lose them now or delay ordering your supplies, you will regret it. Write now for the PEIRCE illustrated catalog of bee-requisites.

E. W. Peirce, Zanesville, O.

BEE-SUPPLIES

Western Agents
Falconer's Goods
Write for Catalog

C. C. CLEMONS BEE SUPPLY CO.
130 Grand Ave., Kansas City, Mo.

ROOT'S GOODS
For WESTERN PENNNSYLVANIA

Liberal early-order discounts. Gleanings and choice queens GIVEN AWAY. Write at once for circular. . . Time is limited.

GEO. H. REA, - Reynoldsville, Penn.
Successor to Rea Bee & Honey Co.

. BEE . SUPPLIES

I carry an up-to-date line of standard Bee-keepers' Supplies. New England bee-keepers have secured their supplies from this house for the past fifty years. I am now prepared to serve you best in every way; standard stock, low prices, and experience in this line is all to your advantage. I have a fresh supply of The A. I. Root Company's goods. Send in your orders now.

Italian BEES and QUEENS
in their Season

Send for Price List of Bees, Queens, and Supplies.

Earl M. Nichols
Successor to W. W. Cary & Son
Lyonsville, Massachusetts

BEE-KEEPERS

We make the best polished sections. This signifies quality. Send us your orders for sections and get the best. . Catalog free.

August Lotz & Co., Boyd, Wisconsin

LEWIS BEE-WARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY CO. (Not Inc.)
Successors to YORK HONEY & BEE-SUPPLY COMPANY

148 W. Superior St., Chicago, Ill.
Send for catalog. ENOUGH SAID.

Have You Delayed Getting Your Supplies?

As the years go by, bee-keepers are ordering their goods during the winter months.

A few there are as yet who wait till the last minute, even waiting till the bees swarm and are hanging on the trees, before ordering hives.

Are you one of the last, or are you one of those "looking ahead"?

The A. I. Root Company

Syracuse, N. Y.

Established 1885



We carry an up-to-date line of

Bee-keepers' Supplies

At this season of the year we give the usual customary early-order discounts. If you are figuring your wants now to buy early and get the benefit of lowest prices, don't fail to consult us. We have

THE ROOT COMPANY'S Make of SUPPLIES

Nothing to fear as to quality. Beeswax taken in exchange for supplies.

John Nebel & Son Supply Co. High Hill, Montg. Co., Mo.

BEE SUPPLIES

We carry a full and complete line of Root's Celebrated Bee-keepers' Supplies. By buying in carload lots we are enabled to sell at factory prices f. o. b. Dallas. . . . . .

We also carry the largest and best assorted stock of the celebrated Texseed Brand Garden and Field Seeds in the South; Incubators and Brooders, and poultry supplies of all kinds.

Send for illustrated catalog.

Texas Seed & Floral Co.

Dallas, Texas

When you have honey or beeswax for sale write us.

COMB-HONEY OUTFIT No. 5

It is a matter of some difficulty for the average beginner to decide exactly what he requires as an outfit for the first start in bee-keeping. To relieve the beginner of all perplexity we list certain outfits which we think will meet his needs. The one we give below is what may be fairly considered the best. Each item has been very carefully selected, and we doubt the wisdom of leaving any article out; but the purchaser may do so without altering the prices on the other items.

1 A B C and X Y Z of Bee Culture (536 p.),	$1.50
1 copy "Facts about Bees"	.10
1 year's subscription to "Gleanings," .	1.00
1 Root Smoker	.65
1 pair cotton bee-gloves (small, med., or large)	.50
1 silk-front bee-veil	.60
1 full col. Italian bees in Danzenbaker hive (Complete with 32 section honey-boxes)	12.00
1 untested Italian queen	1.50
2 Danz. hives complete for comb honey . (Nailed and painted, ready for the bees)	6.80
1 Porter bee-escape and board . . . . (For taking honey from the bees)	.35
Special Offer Delivered at any express office north Ohio River and east Mississippi River	**$25.00**

For delivery to points outside of the above free limit, we will make terms on application.

The colony of bees is as near perfect as we can make them. The combs are beautifully straight and well filled with brood. The breeding of the queen is of the very best, so that one has the nucleus of a fine stock of bees. In many cases a return of $10.00 in honey has been secured the first year from just such an outfit as this, and in addition one or two swarms may be secured, which practically doubles the value of the investment. Order at once.

The A. I. Root Co., Medina, Ohio

Bee-keepers who Have

THOROUGHBRED CHICKENS

and want to sell eggs and stock at good prices should use space under the POULTRY heading in the

Classified Pages

In proportion to the cost it is doubtful if any other medium offers as good an opportunity for profitable returns on such offerings as

Gleanings in Bee Culture

Read this from one of our satisfied advertisers:

> "I will say that what little advertising we did in GLEANINGS has brought us about all the business we can attend to this season."

—and others say the same.

Read the POULTRY advertisements yourself. Read Mr. A. I. Root's talks on CHICKENS—advertise in GLEANINGS, and GET results.

At the Top
. . of . .
Page Seven
. . of Our . .
1911 Catatog

is described a hive combination that is rapidly coming into favor. . . .

We strongly recommend it for either comb or extracted honey production. . . . .

Points of Excellence

a—Easy to manipulate.
b—Large super capacity.
c—Uses tall sections (4x5 Danz.).
d—Takes R metal-roofed cover.
e—Moderate in price.

We would like to quote you on this hive. We know you will be pleased with it. Send for catalog. . . . .

Remember our "More Beeswax" proposition in last issue. . . . . .

We Have "ROOT QUALITY" Goods Only

M. H. HUNT & SON

Opposite Lake Shore Depot

Lansing, Michigan



"If goods are wanted quick, send to Pouder."

DEAR SIR: INDIANAPOLIS, April 1, 1911.

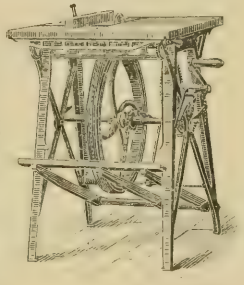
Indiana, Illinois, and Ohio are covered with a sod of white clover; bees have wintered fine, and are ahead of the season; their owners are taking unusual interest in their welfare, and I have never before had so many early orders for bee-supplies as I have been securing this season. I predict that some of you who are waiting till the flow begins before ordering your supplies will have "fits." There was once a doctor whose specialty was fits. He would throw every patient into fits and then administer his sure cure. This will not work when applied to fits about bee-supplies—better order early and prevent the fits. I am making all the noise that I possibly can in this limited space to urge you to order ahead of the rush, and, if you finally have fits, please remember that I told you so. There is a very heavy demand for the line of goods that I am handling. Three carloads of new goods have recently been added to my regular stock, and I am trying to be prepared for any emergency.

It would be a real pleasure to furnish you with my free catalog.

859 Massachusetts Ave. WALTER S. POUDER.

BARNES' Hand and Foot Power MACHINERY

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.



Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JNO. BARNES CO.,
545 Ruby St.,
ROCKFORD, . ILLINOIS.

Nature Education and Recreation

For Boys and Girls:
NATURE AND SCIENCE (of St. Nicholas Magazine), . Per year, $3.00

For Men and Women:
THE GUIDE TO NATURE (monthly, illustrated) . . Per year, 1.00
$4.00
BOTH, ONE YEAR, $3.00; sample of either, 10c.

For Teachers:
"How Nature Study Should be Taught," (203 pgs.) . Postpaid, $1.00

For Everybody:
"The Spirit of Nature Study," (222 pgs., illustrated) . postpaid, $1.00
"Walking: a Fine Art," (164 pgs., illustrated) . . . Postpaid, $1.50
"Three Kingdoms," the handbook of the AA . . . Postpaid, .75

For Plants:
Sachs Nutrient Tablets, a box, post., 10c.

For You (to aid and be aided):
The Agassiz Association (Popular Nature Society).

For Correspondents:
(To write for further information.)

Edward F. Bigelow
Arcadia : : Sound Beach, Connecticut

Golden and Three-band
Italian Bees and Queens
from Extra Selected Mothers

PRICES	1	6	12
Untested	$ 1 00	$ 5 00	$ 9 00
Selected untested .	1 25	6 50	12 00
Tested	1 50	8 00	15 00
Selected tested . .	2 00	11 00	21 00
Eight-frame colony .	6 00	33 00	61 00
Three-frame nuclei .	3 75	21 25	40 00
Two-frame nuclei . .	3 00	17 00	32 00

Safe arrival. I am now booking orders for early delivery. Twenty-two years' experience. Send your order to

E. A. SIMMONS, Greenville, Ala.

AMERICAN Bee Journal 3 Months for 10c

We have on hand some extra copies of the American Bee Journal for January, February, and March, 1911, that we would like to put into the hands of those who have never seen or read it. As long as they last, we will mail *3 copies for only 10 cents.* Should you afterward order a year's subscription, then the 10 cents may apply on it. We are offering a year's subscription to the American Bee Journal and a copy of Doolittle's "Scientific Queen-rearing"—*both for only $1.00*—the regular subscription price of the Bee Journal alone. Or, if you prefer it, instead of the Doolittle book, we will mail you a copy of "The Pearce Method of Bee-keeping." You might send 10 cents *first* for the three copies referred to, and then, after reading them, send in your order for a year's subscription. We are sure you would be pleased with the American Bee Journal. It is now in its 51st year. Address

George W. York & Co., 117 No. Jefferson St., Chicago, Ill.



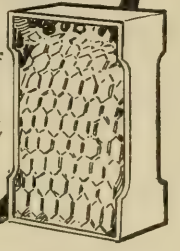
BEES PAY BIG

and require little care. All the little honey-gatherers and money-makers demand of you is to provide a home for them. They make the honey and you get the profit. What little work you must do can be made 100 per cent. easier and your profits 100 per cent. bigger if you have the

RIGHT KIND OF SUPPLIES

If you are a bee-keeper or are thinking of going into the bee business you ought to have our beautiful illustrated **New Bee Book**—just off the press. It's a complete guide to profitable bee culture. Tells you how to buy bees, what kind are best, where to locate the hives, how to care for them summer and winter, how to prepare the honey for market—in fact it tells you **all** you need to know to make bees highly profitable as a business or a side-line.

SEND FOR THIS FREE BOOK



We sell everything the bee-keeper needs and can save you money whether you keep few bees or many. Buy direct from headquarters at rock-bottom prices. Get our bee book and save money. Write now for a copy as the edition is limited.

Blanke Mfg. & Supply Co., Blanke Building St. Louis, Mo.
Successors to Blanke & Hauk Supply Co.

SAVE YOUR Queenless Colonies

Introduce a vigorous tested queen. We can supply them by return mail for $1.00 each. Queens were reared last fall from our choice strain of three-band Italians, and wintered in four-frame nuclei. Satisfaction guaranteed on all queens.

J. W. K. SHAW & CO.
Loreauville, Iberia Parish, Louisiana

Boston Is the Shipping Center of **New England**

Bee-keepers should bear this in mind when ordering their supplies. . . . A full line of supplies always in stock. . . . . Send for catalog.

H. H. JEPSON
182 Friend St. . . Boston, Mass.

NEW ENGLAND BEE-KEEPERS!

EVERY THING IN SUPPLIES
NEW GOODS
FACTORY PRICES
SAVE FREIGHT

Cull & Williams Co. . Providence, R. I.

Hilton Strain of Bees and Root's Goods to the Front again



A View of Mr. Chase's Apiary.

Friend Hilton:—I started this spring with 16 colonies; bought 30 three-frame nuclei of you; have increased to 85 strong colonies with ample stores for winter without feeding. Have taken 4000 lbs fine extracted honey and a little comb (and no drawn combs to begin with) all from full sheets of foundation. My best colony gave 329 lbs.; a three-frame nucleus, received from you May 28, gave me 210 lbs. extracted honey. But for the drouth and fires I should have had much more.
Very truly yours, G. C. CHASE, Robbins, Wis.

I am now booking orders for next season's delivery of Nuclei and Queens, and next season's supplies, and making a very liberal discount. . . . .

Write for 50-page price list, and send list of goods wanted for special discounts. All Root's Goods. Beeswax wanted, cash or trade.

Geo. E. Hilton, Fremont, Michigan

A REQUEST for our free booklet carries with it no obligation to open an account. All we ask is the opportunity of explaining clearly why your savings should earn 4% —the rate paid by the savings banks of Ohio for the past 65 years —and why your money will be absolutely safe if sent by mail to this institution, with assets of nearly

ONE MILLION

and under the supervision of the strict laws of the State of Ohio.

The Savings Deposit Bank
Medina, Ohio

Cut and mail this coupon TO-DAY

Send me your free booklet.
NAME
ADDRESS
STATE

GOLDEN ITALIAN QUEENS

Bred from straight five-band and select Golden mothers, mated to select Golden drones, 3½ miles from three-band yard. These queens are large, vigorous, and prolific; the bees gentle and hustlers. Purity of mating, safe arrival, satisfaction guaranteed. No bee-disease of any kind.

Untested	April 15 to July 1,	One,	$1.00;	six,	$ 5.00;	twelve,	$ 9.00
Selected Untested	" " "	"	1.25;	"	6.50;	"	12.00
Tested	March 1 " "	"	1.75;	"	9.00;	"	17.00
Select Tested	" " "	"	2.50;	"	13.50;	"	25.00

BREEDERS—Straight five-band, $10.00; Select Golden, $4.00 and up.

NOTE—For three-band queens at above prices, write J. M. Davis, Spring Hill, Tenn.

BEN G. DAVIS, SPRING HILL, TENNESSEE

F. J. Wardell

Queen-Breeder Specialist

Uhrichsville, Ohio, U. S. A.

"The Best is None too Good"

Italian Queens Only

My Credentials

AFTER a quarter of a century's experience, many of which as manager of The A. I. Root Company's bee-breeding yards, I ought to have acquired a very fair knowledge of the work of a bee-breeder, and what the public requires of him. It seems to me that nobody will therefore dispute my claim to be an expert at the business. Also I have managed to get together an apiary of the very best bees obtainable. I do not mean, by this, highly colored bees, but bees which combine gentleness and industry. The practical man is looking for bees which give practical results—and this is the trade I am prepared to cater to. My bees are not homely-looking—on the contrary, they are handsome; but every thing has not been sacrificed for color. Permit me to say, my bees are the best obtainable.

My Business

IS TO satisfy customers, but it is never my intention to cater to a cheap trade. My poor queens are killed as soon as found. Many would sell such queens rather than kill them, but I do not propose to compete with any in that line.

If, however, you are on the lookout for something good in the way of an extra fine queen for breeding-purposes let me have your order, and I will guarantee satisfaction. This is the line I have always followed and always intend to. For reference you may apply to The A. I. Root Company. They ought to know me; and thousands of their customers would be glad to add their testimony in my favor as a queen-breeder tried and true of many years' standing.

Price List of Italian Queens

Untested Queen	April and May,	$ 1.50		
Selected Untested Queen	"	"	1.75	
Tested Queen	"	"	3.00	
Select Tested Queen	"	"	4 00	June, $ 3.50
Breeding Queens	"	"	7.50	" 6.00
Select Breeding Queens	"	"	10.00	" 9.00
Extra Select B'd'g-queens, 1 yr. old	"	"	15.00	" 12.00

No untested queens sent before May 15; but to secure your queens early in the season it is necessary to order now. Absolutely all orders filled in rotation.

F. J. Wardell, . . . Uhrichsville, Ohio

QUEENS . . . QUEENS

that represent the highest breeds of Italian bees. Each a favorite, with a written guarantee of satisfaction. $2.00 for 1; $10.00 for 6; best breeders, $5.00.

HUBER W. LAWS, WACO, TEXAS

ITALIAN QUEENS, Nuclei, Bees by Pound. Ten-page descriptive list free. Send for it—you have my address, and I have not yours—before placing your order. Leaflets, "How to Introduce Queens," 15c; also "Increase," 15c; both for 25c. **E. E. MOTT, Glenwood, Mich.**

"Griggs Saves You Freight"

TOLEDO

Is Looked Upon by all Good Buyers as the Correct Place to Buy Goods at the Least Cost

MR. BEE-MAN:

This should appeal to you whether you have one hive or one hundred. You can save money. . . . . .

DON'T DELAY

securing your goods, but get them now. Delays are costly. . Our catalog is ready for you. A postal brings it. . Send to-day.

S. J. Griggs & Co.

25 No. Erie St., Toledo, Ohio

Successors to Griggs Bro's Co.

"Griggs, the King Bee"

J. E. HAND

the Veteran Queen-specialist

WILL begin the season of 1911 with greatly improved facilities for rearing the choicest queens. . . Our queens are not only large, vigorous, handsome, and prolific, but by reason of a judicious system of line breeding they have the power to transmit inherent tendencies of a highly desirable nature, such as hardiness, gentleness, and industry, as well as uniformity of marking, which makes them especially valuable as breeders. Every queen is warranted to produce uniformly marked bees of superior honey-gathering qualities. Don't take chances. Get the real thing. Warranted, $1.00; six, $5.00; dozen, $9.00. Tested, $1.25. Breeders, $5.00. Half pound of bees, no queen, $1.00. Three (L) frame nucleus, no queen, $3.25. No selection, therefore no culls, and a square deal for all. Valuable information free for your address.

J. E. Hand, Birmingham, O.

GOLD MEDALS
St. Louis Exposition, 1904
Jamestown Centennial, 1907



Danzenbaker Smoker

Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT GRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

The **ONE-PIECE** cap **CAN NOT clog.** It is the **COOLEST, CLEANEST, STRONGEST, BEST,** and **LARGEST NET CAPACITY** of all smokers, selling at one dollar ($1.00). We **GUARANTEE SATISFACTION** or **return** the price; only three complaints in **six years.**

Dan-z. 3½x7½-inch Prize Smoker, $1.00; by mail $1.25
With "Gleanings," $1.00 per year, and Prize Smoker, by mail 1.75
Dan-z. 3½x6-inch Victor Smoker, 80c; by mail 1.00
With "Gleanings," one year, 1200 pp., by mail 1.50

We send propolis shields with Danzenbaker Hives and Supers, and sell anything in the Bee-line at factory prices, also select three-banded Italian queens and bees.

Please send address of yourself and B-friends for FREE catalogs and prices on Bee-supplies, Bees, Queens, Hives, Sections, and Smokers. Address

F. Danzenbaker, 68-70 Woodside Lane, Norfolk, Va.

QUEENS

and bees — an improved superior strain of Italians is what QUIRIN RAISES. All yards winter on summer stands with practically no loss. Our stock is hardy, and will ward off brood diseases.

In the spring of 1899 we sent fifty nuclei to J. D. Nixon, Lafarge, Wis., and on July 20th (same year) he wrote us, saying they did just splendid, as at that writing they had already filled their supers, and that he would have to extract them. We have files of testimonials similar to the above.

Prices before July	1	6	12
Select queens	$ 1 00	$ 5 00	$ 9 00
Tested queens	1 50	8 00	15 00
Select tested queens . . .	2 00	10 00	18 00
Breeders	4 00		
Golden five-band breeders .	6 00		
Two-comb nuclei, no queen	2 50	14 00	25 00
Three-comb nuc., no queen	3 50	20 00	35 00
Full colonies on 8 frames .	6 00	30 00	

Add price of whatever grade of queen is wanted with nuclei and colonies; nuclei and colonies, if shipped before June 1st, add ¼, or 25%, extra to above price. No order too large and none too small. Will keep 500 to 1000 queens on hand ready to mail. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

QUIRIN-THE-QUEEN-BREEDER, BELLEVUE, O.

PUBLICATIONS ON
BEE CULTURE

Please use coupon below, checking the numbers of items wanted.

The pamphlets and booklets listed below are of more than ordinary interest:

1 **My First Season's Experience with the Honey-bee.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.

2 **The Bee-keeper and Fruit-grower.** A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.

3 **Bee-keeping for Sedentary Folk.** A 24-page leaflet reciting the actual experiences of an amateur bee-keeper, showing what equipment is best, points derived, etc. Free.

4 **Catalog of Bee-keepers' Supplies.** Our complete catalog will be mailed free to any address on request.

5 **Transferring Bees.** A 14-page booklet giving instructions and illustrating appliances. No need to keep your bees in old out-of-date hives when they can easily be transferred into new hives and earn profits for you. Price 10 cts.

6 **Bee-hunting.** Gives information necessary to enable one who is active and intelligent to engage in bee-hunting with success. It is well gotten up and worth the price, which is 25 cts.

7 **Spring Management of Bees.** A 14-page booklet detailing the experiences of some successful bee-keepers, and giving instructions on this ofttimes perplexing matter. Price 10 cts.

8 **Habits of the Honey-bee.** By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cts.

9 **How to Keep Bees.** A book of 228 pages detailing in a most interesting manner the experience of a beginner in such a way as to help other beginners. Price $1.00 postpaid.

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Cut Coupon Here

The A. I. Root Co., Medina, Ohio.

Please send me the items checked. I enclose $ ..... to cover the cost.

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Queen-Land

Largest Queen Circular Published

FREE to any address

See March 1 Issue

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Heathfield
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EARLY QUEENS and LATE QUEENS

Bred from pure 3 and 5 banded and Golden Italians. All queens are raised in strong colonies and mated in four-frame nuclei. All orders filled promptly.

Untested, $1.00; six, $4.50; twelve, $8.00
Tested, . 1.50; " 7.50; " 13.50

Breeders, $3.00. Three-frame nuclei, $3.00, with price of queen wanted added. . Discounts for quantity.

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1911 Three-banded Italian Queens

We are now ready to fill all orders promptly for our Three-banded Italian Queens; bred strictly for honey-gathering qualities. Unte-ted. $1.00 each, or six for $5.00, or $9 00 a dozen. Tested, $1.25 each, or six for $6.50, or $12 00 a dozen. Select tested, $1 50 each. Breeders, the very best, $3.00 to $5.00 each. We guarantee safe arrival, and will replace all dead queens that are returned to us in the cage we mailed them in.

Send All Orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas

SEND FOR FREE ADEL BEE

and Supply Catalog. You will save money if you buy direct from my factory. I make the finest polished sections on earth. I want to prove it to you. Send me your order for sections, or any thing in bee-supplies. 45,000 brood-frames at $1.50 per 100 as long as they last; size is 9 1-8 in. deep, top-bar 19 1-16 in. long, V-shape or two-groove and wedge, or Simplicity, all loose-hanging frames. 65,000 section-holders at $1.00 per 100 as long as they last. They are nicely dovetailed and are for 4 1-4 by 4 1-4 by 1 1-2, and for 4 by 5 by 1 3-8 sections. Carload section orders a specialty.

Chas. Mondeng, 140 Newton Ave., N., Minneapolis, Minn.

CANADIAN BEE-KEEPERS

E. Grainger & Co., Deer Park, Toronto, announce to Canadian bee-keepers that they have a reasonably full line of Root bee-supplies on hand for shipment from Toronto. Large shipments will be made direct from the factory, and in many cases a considerable saving may be effected by placing orders with us.

See What Our Customers Say

North Toronto, March 1, 1911.

E. Grainger & Co., Toronto.

Dear Sirs:—The goods we received from you, manufactured by The A I. Root Co., are most satisfactory. We find the frames fit beautifully; in fact, all the woodwork is so perfect and so clean and nice that we would not think of using any other make now. They are well worth the extra they cost.

A. W. O.

E. Grainger & Co., Toronto. Connaught, Mar. 7, 1911.

Dear Sirs:—Have received shipment of my order to-day. Every thing is in perfect order. Am very well pleased with the goods.

D. R.

SEND ALL ORDERS TO

E. Grainger & Co., Deer Park, Toronto, Ont.

Texas Headquarters

Root's Supplies for Bee-keepers

Brief History of this Enterprising Establishment.

In the year 1891, while yet a boy, Mr. Udo Toepperwein, now president of the Toepperwein & Mayfield Co. saw a great future in the bee industry; and, through a natural inclination he decided to take up the bee and bee-supply business as a life study. In his youthful way he would assist his father at their old homestead at Leon Springs, Texas, in caring for and cultivating bees. They would often work with the bees until late at night. To receive a shipment of hives and comb foundation from The A. I. Root Co. seemed like a holiday to them, and it would not be long after, when they could be found nailing and painting their hives. Many times they would sit in the apiary on a bee-hive at night and listen to the hum of the busy bees and try to hear a queen piping, while they inhaled the lovely odor permeating the apiary during a spring evening when the bees are at work kneading wax and building comb. Inspired by his achievements in bee culture, young Udo soon decided to embark in the business on his own account, and for several years traveled a great deal in a buggy over the country, selling bee-hives and supplies, and making bee-keepers out of farmers. Appreciating his work, The A. I. Root Co. shipped him a bicycle on which he traveled hundreds of miles, carrying a couple of blankets, a 22-caliber rifle, fishing tackle, canteen, and some necessary edibles, including a small repair outfit and some catalogs. These were packed in an oilcloth bag that his mother had made for him, strapped in front of the bicycle on the fork. Many a night he was found sound asleep on some river-bank, using his bicycle for a a pillow, while his fishing-lines could be seen dangling in the river waters, thus affording him the enjoyment of a broiled-fish breakfast, and bliss in the thought of being the happiest boy in Texas. Almost daily he would appease his appetite with wholesome rabbits, birds, or squirrels which he had bagged himself with his rifle as he traveled along the road. In this manner he worked up a large trade, enabling him to order goods to Leon Springs in carload lots and reship them to his customers.

A few years later Mr. Toepperwein found it necessary to secure better shipping facilities, and so decided to move to San Antonio, locating at 438 West Houston St., with warehouse accommodations on North Laredo St. Here his business kept on increasing to such proportions that he found it necessary, in 1903, to construct a building of his own. Finding a suitable location on the S. A. & A. P. Ry. he erected a building 40 by 250 ft. in dimensions, together with a Weed new-process comb-foundation factory, realizing the need of such a factory to enable him to supply better his customers more promptly with good fresh-made combfoundation. Thus with improved facilities the volume of his trade increased so rapidly that he found it necessary to take into the business a trustworthy partner, one upon whom he could depend during his absence. Acting upon this necessity, Mr. Toepperwein, appreciating integrity and faithfulness of his employee, Mr. W. M. Mayfield, tendered him a partnership in the business, which he cheerfully and most gratefully accepted, and accordingly the business was conducted under the firm name of Toepperwein & Mayfield. In the year 1909 the enterprise was incorporated under the name of Toepperwein & Mayfield Co., Mr. Toepperwein becoming the president and general manager, and Mr. Mayfield the secretary and treasurer. Again in 1909, the old location became inadequate to handle the growing trade; and being unable to secure more room here, the company acquired a tract of land at the corner of Nolan and Cherry Sts., along the S. P. Ry. tracks, where they erected an entirely new plant, including a two-story building 40 by 250 ft., and installed a complete outfit of new machinery in the comb-foundation factory, increasing its capacity to 500 pounds per day. In addition to these improvements they also built large and commodious sample rooms where visitors are always welcome and may interest themselves in writing letters or reading the bee journals and books of the world.

Of course, Messrs. Toepperwein & Mayfield are not unmindful of the fact that their business success is not entirely due to their own efforts, but are profoundly grateful for the valued assistance given them by their numerous patrons in the past; and, with assurances of honest dealings, hope to merit a continuance of favors in the future.

Strangers and visitors in the city, as well as those interested in the bee industry, are cordially invited to call at this mammoth instuitution, where they will always receive a hearty welcome, and be made to feel at home by a host of hustling, courteous, and accommodating bee experts.

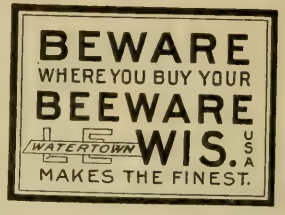
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Scientific Workmanship,
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Queen, select tested, March, April, May, $5.00; June, July, $3.50; August, September, October, $3.00. **Queen, select untested,** June, July, and August, $2.00. **Virgin Queen,** select, June, July, August, $1 50. **Nucleus,** with select tested queen and one pound bees, March, April, May, $6.00; June, $5.00; July, August, September, October, $4.50. **Mobil hive,** 10 half frames of Germ. stand. size, March, April, May, $9.00. **Carniolan original hive,** select tested queen, brood, honey; will produce 2 to 3 swarms; March, April, May, June, $9 00; August, September, October, $8.00. **By orders amounting** $50.00, ten; from $50.00 to $75.00, fifteen; from $75.00 up, twenty per cent discount. For complete price list see our ad. in March Gleanings.

Safe arrival of queens, nuclei, and hives guaranteed. International postal money order with every order. Give correct and plain address. Mailed, postage free, queens and nuclei; postage or freight paid by receiver for shipments of hives. Eventual dead queens or dead stock replaced if returned in 24 hours after arrival in postpaid package. Orders, to be effected at other times than the months above stated, will be filled, provided weather and other conditions make it possible. Write for the booklet, "The Carniolan Alpine Bee." References respecting financial and commercial responsibility of the undersigned Association can be had at every Imperial and Royal Austro-Hungarian Consulate in the U. S. of America.

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is again offering his splendid stock of favorite Italians the coming season. Queens from this strain can not be surpassed, and are the kind that get bees that make supers hard to lift.

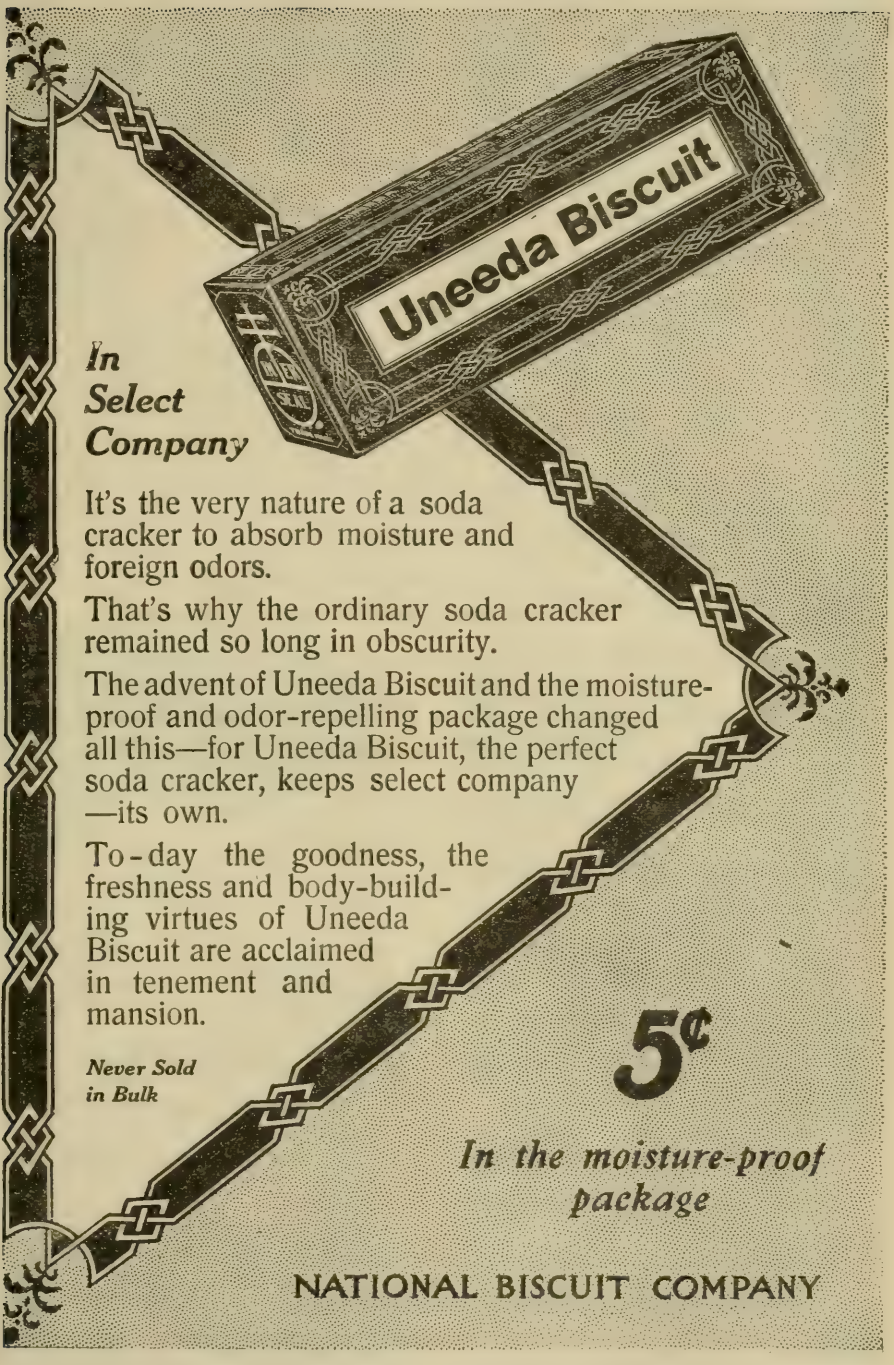
Twenty - one years a commercial queen - breeder, and an advertiser in this journal, he knows what a good queen is, and can prove it to you.

I wish you could see some of the splendid letters coming to my desk now almost daily. Laws queens are in every State in the Union, and the careful breeding of these queens has put many dollars in the pockets of his customers, as I have abundant evidence to show. I am now supplying some queens in April, and shall have plenty in May, and my prices are low, in keeping with quality of my stock.

I have about 75 strictly first-class breeding-queens that are worth many times the price I ask. I will sell at $5.00 each. Other queens, $1.00 each; six for $5 00. Satisfaction guaranteed. Circular free.

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It's the very nature of a soda cracker to absorb moisture and foreign odors.
That's why the ordinary soda cracker remained so long in obscurity.
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To-day the goodness, the freshness and body-building virtues of Uneeda Biscuit are acclaimed in tenement and mansion.
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Fences for horses, cattle, sheep, hogs, chickens, etc. 160 styles.
BARGAIN PRICES.
14 Cents Per Rod Up.
We pay the freight. Lawn Fences and Gates. Free catalog and sample.
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13¼ Cents a Rod

For 18-in. 14 3-4c for 22-in. Hog Fence; 15c for 26-inch; 18 3-4c for 32-inch; 25c for a 47-inch Farm Fence. 48-inch Poultry fence 28 1-2c. **Sold on 30 days trial.** 80 rod spool Ideal Barb Wire **$1.45** Catalogue free.
KITSELMAN BROS.,
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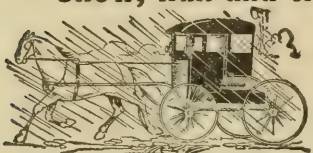


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Low wheels, broad tires. No living man can build a better. Book on "Wheel Sense" free.
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Drive 30 Days Free Through Mud, Rain, Snow, Hail and Wind



Use the **Cozy Cab** in all sorts of weather without paying us one penny.

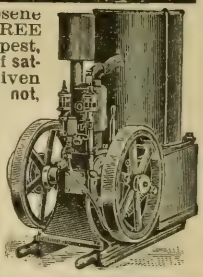
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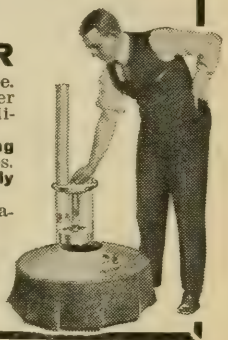
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The International Self-Humidifying Incubator

is absolutely automatic in every function, unvariable temperature, positive moisture from the moment of starting the hatch until necessary to properly dry the newly hatched unit of future profit, so thoroughly safe-guarding its entrance into poultrydom as to guarantee its livability.

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WE PAY THE FREIGHT

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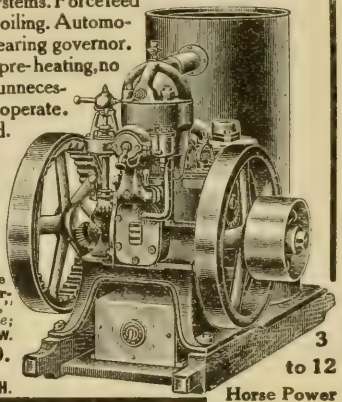
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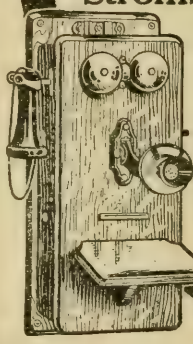
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It's faster, cheaper, better—to send news over the wire than over the road. Get market reports, weather reports, neighborhood news, and send orders to town, every day—by telephone.

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LOW FACTORY PRICES We sell the highest grade bicycles direct from factory to rider at lower prices than any other house. We save you $10 to $25 middlemen's profit on every bicycle. Highest grade models with Puncture-Proof tires, Imported Roller chains, pedals, etc., at prices no higher than cheap mail order bicycles; also reliable medium grade models at unheard of low prices.

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received for his 1910 sugar beet crop. This was Mr. Grant's third crop of beets on a farm bought five years ago for $3000. Here is where the Government is spending

Six Million Dollars Irrigating Farms That You Can Homestead

The land is free for 5 years' residence and Government water rights cost $46 an acre in 10 yearly payments. No interest.

162 farms under Government irrigation averaged $26.80 per acre yield in alfalfa in 1910.

Here you can raise sugar beets, potatoes, alfalfa, oats, winter wheat, barley, apples and all small fruits.

OTHER MILLIONS are being spent to irrigate Carey Act Lands. Only 30 days' residence required. Easy payments. Low rate of interest.

Dairying, poultry raising and bee keeping are profitable.

Churches and schools have been established, and the country is being settled by a fine class of people. New districts will soon be opened to entry.

Burlington Route

If you want one of these rich Government prizes, write me today.

D. CLEM DEAVER
General Agent
Landseekers' Information Bureau
266 Q Building
Omaha, Neb.

Mondell 320-acre *free* homesteads —northeastern Wyoming. Ask about them. 6505



COFFEE
ONE CENT PER POUND

Salzer's French Bean Coffee
(SOJA HISPIDA)

A wholesome drink! The healthiest ever; you can grow it in your own garden on a small patch 10 feet by 10, producing 50 lbs. or more. Ripens in Wisconsin in 90 days. Used in great quantities in France, Germany and all over Europe.

Send **15** cents in stamps and we will mail you a package giving full culture directions, as also our Mammoth seed catalog free; or send **31** cents and get, in addition to above, 10,000 kernels unsurpassable vegetable and flower seeds—enough for bushels of luscious, different vegetables and brilliant flowers.

JOHN A. SALZER SEED COMPANY
173 South 8th St. La Crosse Wis.

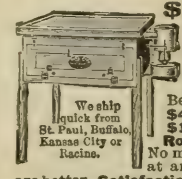


Big News For Incubator Buyers

Famous Belle City Incubator wins "Tycos" cup contest over machines costing 2 to 5 times more—making it the Double World's Champion.

Order Now—from this ad—to get in champion class quick. See below.

J. V. Rohan, Pres. Belle City Incubator Co.



$7.55 Buys Best 140-Egg Incubator

Double cases all over; best copper tank; nursery, self-regulating. Best 140-chick hot-water brooder, **$4.85.** Both ordered together, **$11.50. Freight prepaid (E. of Rockies).** No machines at any price are better. **Satisfaction guaranteed.** Write for book today or send price now and save time.



Belle City Incubator Company, Box 69 Racine, Wisconsin

One Year's Free Trial

THERE is but one way to buy a first-class high-grade piano or organ and save money and that is the Cornish way We make all our own instruments at our own factory—sell direct to the consumer at our factory prices—give you a **year's free trial** and let you pocket all the middleman's fat profits.



Now here is our offer: Send for our large handsome free piano and organ book—pick out any instrument you want and we will ship it direct to your home for a **full year's free trial.** You'll be under no obligation—you will not be tied up in any way. If the piano is not exactly as you think it should be ship it right back at our expense.

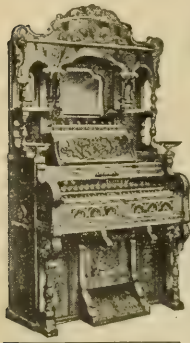
Cornish Pianos and Organs

are the finest instruments made and on account of our "selling direct to the consumer" cost you least. They have the sweetest and richest tones—most elaborate and handsome cases—the most up-to-date designs—and are built to last a lifetime. No piano or organ could be better no matter what you may pay. And we give you a full **year's free trial** to prove this—to prove the value of the Cornish instruments



You Take No Risk

The Cornish Bond is your protection. This we send with every piano or organ that leaves our factory and it binds us absolutely to every statement and guarantee we make. It states that you can have a year's free trial—can choose your terms of payment—can have two years' to pay and that we will pay the freight if you so desire.



Free Book

Send for the **beautiful free Cornish book** today. It shows the most complete line of pianos and organs in the world. It shows the best instruments for the least money and at terms anyone can easily arrange to meet. We will also send our book showing letters from 5000 satisfied Cornish users and there are more than a quarter of a million of them. It shows how you can save piano money. Write for this handsome free book today and say whether you are interested in a piano or organ.

Cornish Co. Washington, New Jersey
Established Over A Half Century

Buyer's Bureau

Why do we invite the readers of GLEANINGS to avail themselves freely of the service of our *Buyer's Bureau?* This, we imagine, is a question many of our friends have asked. We are very glad to tell our reasons—glad to explain that it is not because we have special interest in any particular article or group of articles that are advertised in this journal or elsewhere, but to show how, when we help you, we are also helping ourselves.

GLEANINGS IN BEE CULTURE is what is known as a class paper. It has its circulation among men and women who are engaged or interested in a special pursuit, and a very interesting and ofttimes very profitable pursuit it is; but these facts we on the inside understand and appreciate much more readily than do manufacturers who purchase advertising space. Sometimes it is rather difficult for us to convince these people that they really do bee-keepers an injustice by not using advertising space in GLEANINGS to tell of their products; but, thanks to the loyal coöperation you are giving our Buyer's Bureau, this condition is changing. Whereas we formerly talked theories—reasoned with the advertiser that it was only natural that good people such as we know bee-keepers to be should use his wares—we now give concrete evidence. We send inquiries to many concerns every day for full information on prices, styles, etc., of goods in which the readers of GLEANINGS have expressed their interest. Their letters asking this assistance have been sent to this department.

Just how our service is given will, perhaps, be well illustrated in the following quotations from letters which have recently passed between a reader of GLEANINGS and the Buyer's Bureau.

The inquiry came from a West Virginia merchant who wanted to get in touch with some one who could supply him with dried apples in quantities. This paragraph is from his letter:

"If you know of any parties in your section who deal in dried apples, will you kindly give me prices of same?"

To this letter we replied:

"Your inquiry for name of some party who deals in dried apples has been referred to this department for attention. We do not happen to know of any one in this vicinity who has this product for sale; but there is a concern in Rochester, N. Y., which, I think, could supply your requirements. The name of this firm is ———, and I believe they rank among the largest fruit-evaporators in the country. Unquestionably they will be very glad to quote you prices upon receipt of your inquiry."

Thus, you will see, the Buyer's Bureau was able to perform a help-service by putting a friend in direct touch with a concern that has for sale just the goods he wants.

Almost always the nature of the inquiries which come to us are such that we can give even better service than in the instance cited above. Where a specific inquiry—such as a request for prices on an incubator of a certain size—cream-separator, automobile, seeds, poultry, eggs, etc., reaches us we not only supply the names of people who have these articles for sale but take it upon ourselves to inform each manufacturer or advertiser that a copy of his catalog and price list with this information is wanted. Considerable time is saved in this way, and the publishers of GLEANINGS are able to prove the loyalty of their readers and the interest in the advertiser's product.

Of course, the Buyer's Bureau will conclude transactions when desired. After prices, etc., have been obtained, and a purchase is to be made, we are always glad to be the medium of transfer for the final deal. Oftimes we are able to secure special attention to orders sent through this department, and this in itself is one excellent reason why it pays to use the Buyer's Bureau—especially as we make no charge whatever for any service we render.



MANATEE FLORIDA..

America's Fruit and Garden Market

Oranges, Grapefruit, Vegetables

command the highest prices. Quick transportation and low freight rates to best Eastern and Northern Markets.

Rich Lands at Low Prices

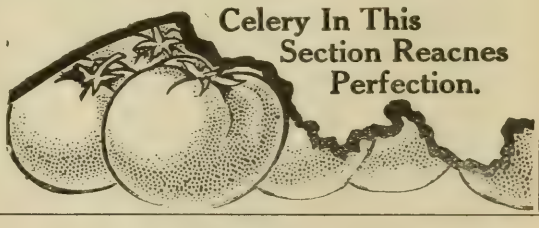
are available now, but prices are advancing — ideal climate — unlimited supply of fresh, pure water — plenty of high-class labor. People are satisfied who have settled here. Finest climate the year round. No freezes; no intense heat.

Two and Three Crops a Year Net $500 to $1500 per Acre

An interesting and instructive booklet fully describing "The Land of Manatee," on West Coast of Florida, will be sent free.

Address —

J. W. WHITE
General Industrial Agent
Seaboard Air Line Railway
Dept. J, Norfolk, Va.



Celery In This Section Reacnes Perfection.

SPRAY FRUITS AND FIELD CROPS and do whitewashing in most effectual, economical, rapid way. Satisfaction guaranteed. BROWN'S HAND OR POWER **Auto-Sprays**

No. 1, shown here, is fitted with Auto-Pop Nozzle—does work of 3 ordinary sprayers. Endorsed by Experiment Stations and 300,000 others. 40 styles and sizes of hand and power sprayers—also prices and valuable spraying guide in our Free Book. Write postal now.

THE E. C. BROWN COMPANY
20 Jay St., Rochester, N. Y.



THE "BEST" LIGHT

A portable, pure white, steady, safe light. Brighter than electricity or acetylene. 100 candle power. No grease, dirt nor odor. Lighted instantly. Costs 2 cts. per week. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.

THE BEST LIGHT CO.
306 E. 5th St., Canton, Ohio

MAKES AND BURNS ITS OWN GAS

FARMOGERM

High-Bred Nitrogen Gathering Bacteria

Increases Crops and Makes Poor Soil Good Soil

You will surely plant some of the crops known as legumes, such as garden and field peas and beans, alfalfa, all the clovers, alsike, vetch, etc. With all these crops you may use Farmogerm. And that will mean not only a bumper crop this year, but soil so rich in nitrates that it will produce several big yields of **any crop** without more nitrogen fertilizer being needed. Because Farmogerm inoculates the soil with nitrogen-gathering bacteria of strong vitality, specially bred up to a high state of nitrogen-fixing power. They increase rapidly in the soil and plant roots, by the millions, and draw nitrogen from the air, feeding it to the growing crop and storing it in the soil for future crops.



Farmogerm will cut your fertilizer bills in half. A trial will prove our claims. It is no experiment. Let us send you letters from those who have used it and **know.** High authorities recommend it. It is **guaranteed** to be right. It is **Ready For Use.** Just mix with water and moisten seed or spray over soil or young plants. It insures larger yield, greater food value, earlier maturity. When ordering, state what crop you want to test.

Acre Size, $2.00—Garden Size, 50c.

Why spend money for expensive nitrate fertilizers and for spreading when you can put more nitrates in your soil than crops can use in several seasons at the low cost of $2.00 an acre and practically **no extra work.**

WRITE TODAY FOR BOOK. M N. You have nothing to lose and perhaps hundreds of dollars to gain through a better and more economical method of fertilizing. This is the most wonderful development of modern scientific farming. Investigate—that's all we ask.

EARP-THOMAS FARMOGERM CO.
Bloomfield, N. J.

Better Than Nitrate of Soda

at fraction of cost and labor. According to Government figures, a crop well inoculated with nitrogen-gathering bacteria will leave in the soil, for future crops, an amount of available nitrogen equal to from 800 to 1,000 lbs. of nitrate of soda. Yet the soda would cost you $20.00. The Bacteria will cost you $2.00. Which for you?

WAIT!

Get OUR Offer



Free Trial

Before You Buy Any Incubator or Brooder at any price—Greatest Bargain—Success Guaranteed.

Many of our customers were about to buy some other make of incubator and brooder, but when they got our offer they switched to our way in a **hurry.** That's why we ask **you** to write us a postal **at once** and just wait till **our proposition** reaches you. We know we've got them all beat a mile on **value** and the minute you see our price and read about Unito quality you'll agree with us. You want a **real** incubator and brooder. Our price will

Save $5 to $7

Maybe more. Thousands of these incubators and brooders have taken the place of cheap, "Made-to-sell" machines and **now** their owners are making big money. Don't decide in a hurry. Wait till you get our offer. Compare Unito machines with **any** others at **any** price, then it's up to you. Prompt shipment guaranteed—within 24 hours after order comes. But **first** mail us a postal for our remarkable money-saving offer and book.

THE UNITED FACTORIES CO.,
Box X 38, Cleveland, Ohio.

If Going to

Washington, D. C.

Write for Handsome Descriptive Booklet and Map

HOTEL RICHMOND

17th and H Sts., N. W.

Location and size: Around the corner from the White House. Direct street-car route to palatial Union Station; 100 rooms; 50 baths.

Plans, rates, and features: European, $1.50 per day upward; with bath, $2.50 upward.

American, $3.00 per day upward; with bath, $4.00 upward.

Club breakfast, 20 to 75 cts. Table d'Hote, breakfast, $1.00; Luncheon, 50c; Dinner, $1.00.

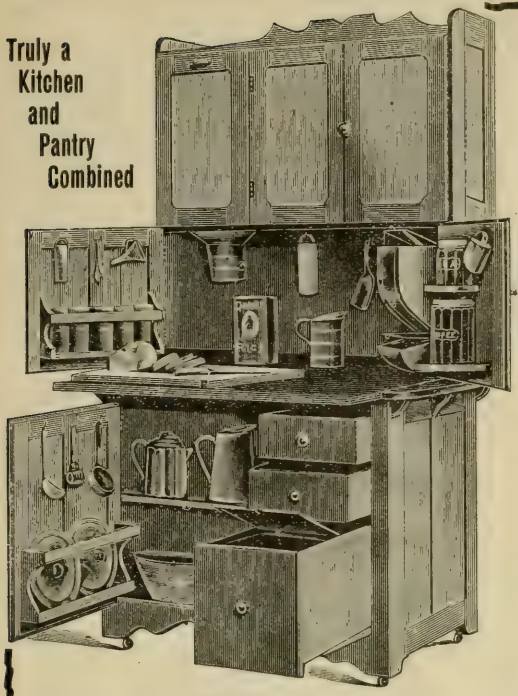
A Model Hotel Conducted for Your Comfort

CLIFFORD M. LEWIS, Prop.

SUMMER SEASON: The American Luzerne in the Adirondack foothills. Wayside Inn and Cottages on the beautiful Lake Luzerne, Warren Co., New York. Open June 26 to October 1.

: : BOOKLET : :

Truly a Kitchen and Pantry Combined



No. 400
The Bon Ton of all Kitchen Cabinets

Mrs. Housewife

This kitchen-cabinet means to you what the most valuable machine on the farm means to your husband.

It means a revelation in kitchen convenience—a time and labor saving you can not compute. No more tiresome drudgery, running here and there for this article or that — to the cellar, to the pantry, rummaging through drawers, bins, and jars — in this cabinet there is a place for every thing, and every thing is always in its place. System is easy because no other plan can be practiced with this cabinet.

Let us tell you how this cabinet is made—how we use oak of the finest quality, of its generous measurements, practical fittings and conveniences found in no other kitchen cabinet. Let us quote you prices and send you complete descriptions of this and half a dozen other kitchen cabinets we make. Our plan of DEALING DIRECT, our economical selling expense—our desire to thoroughly satisfy you — all suggest that you should write for further facts without delay.

Geo. F. Felker Cabinet Co.
Lebanon, Indiana

EVERGREENS



Nursery grown, suitable for all purposes. $4.50 and up per thousand. We have 50 millions. Our low prices will astonish you. Also Hardy Forest trees, Shade, Ornamental and Fruit trees, Shrubs, Vines, etc. Our beautiful Catalog is crowded with valuable information. This and 50 Great Bargain Sheet are Free. Send for them today.

D. HILL NURSERY CO., Box 246, Dundee, Ill.
Evergreen Specialists



CHICKS of QUALITY

Safe Arrival Guaranteed

From 18 varieties. All prize-winning strains. Prices reasonable; also all kinds of supplies. Brooders, and feeds. Catalog free.

JOS. A. BLUM & CO.
Dept. O Chatfield, Ohio

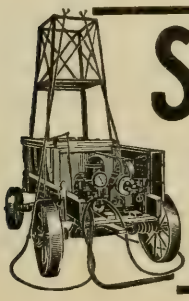
FERTILE·VIRGINIA·FARMS



N&W Ry.

$15 PER ACRE and up; easy payments. Productive soil, mild climate, fine water, good roads, close markets, unsurpassed school and social advantages. Write for beautiful illustrated Quarterly, other attractive literature and cheap excursion rates. F. H. LaBaume, Ag'l Agt., Norfolk & Western Railway, Box 2079, Roanoke, Va.

NO IRRIGATION HERE **YEARLY RAINFALL 45 INCHES!!**



SPRAY with the LEADER Gasoline High Pressure Machine

Has 3½ Horse-Power, 4-Cycle Engine and Hopper Jacket for Cooling
It supplies 10 nozzles at a pressure of 200 lbs with safety valve blowing off, and this service can easily be increased without overtaxing the engine.

A Complete Spraying Rig and it will refill the tank, saw wood, grind feed, run your repair shop, shell or clean your grain, run the cream separator or the churn, and is safe, simple and satisfactory.
Also 2-Horse-Power Rigs with Triplex Pumps—Also a full line of Barrel, Knapsack, and Power Potato Sprayers with Mechanical Agitators, etc. Catalogue FREE.

FIELD FORCE PUMP CO.
88-11th St., ELMIRA, N. Y.

General Agents: John Deere Plow Co., Kansas City, Omaha, St Louis, Brackett-Shaw & Lunt Co., Boston, Mass. C. P. Rothwell & Co., Martinsburg, W. Va.



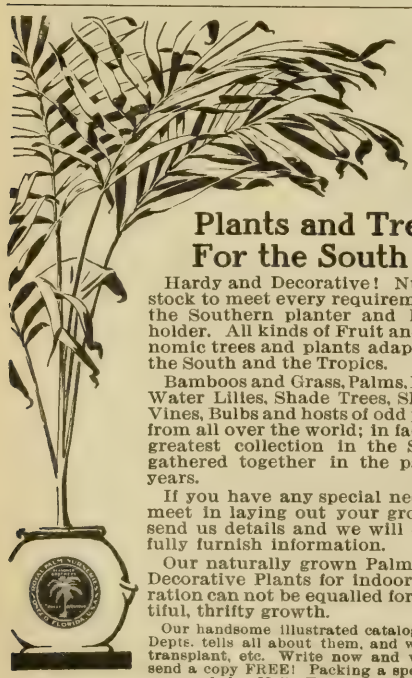
MAULE'S SEEDS

ONCE GROWN ALWAYS GROWN

is the reason why for many years past I have done such an enormous seed business. 79,430 customers in Pennsylvania alone, with almost half a million the world over. My New Seed Book for 1911 is a wonder; contains everything in seeds, bulbs and plants worth growing. Weighs 12 ounces; 600 illustrations, 4 colored plates, 176 pages. Any gardener sending his name on a postal card can have it for the asking. Address

WM. HENRY MAULE
1707-09-11 Filbert St., Philadelphia, Pa.

Send 5 cents (stamps) and mention this paper and I will enclose in the catalogue a packet of seed of the above choice pansy.



Plants and Trees For the South

Hardy and Decorative! Nursery stock to meet every requirement of the Southern planter and householder. All kinds of Fruit and Economic trees and plants adapted to the South and the Tropics.

Bamboos and Grass, Palms, Ferns, Water Lilies, Shade Trees, Shrubs, Vines, Bulbs and hosts of odd plants from all over the world; in fact, the greatest collection in the South, gathered together in the past 28 years.

If you have any special needs to meet in laying out your grounds, send us details and we will cheerfully furnish information.

Our naturally grown Palms and Decorative Plants for indoor decoration can not be equalled for beautiful, thrifty growth.

Our handsome illustrated catalog of 17 Depts. tells all about them, and when to transplant, etc. Write now and we will send a copy FREE! Packing a specialty; we send by Mail, Express, or Freight SAFELY to most distant points.

Royal Palm Nurseries **REASONER BROS., Oneco, Florida**

A WORD FROM THE SUBSCRIPTION DEPARTMENT.

The advantage of promptly renewing subscriptions to GLEANINGS is made manifest at this time. Quite a number of our friends whose subscriptions expired during the winter months neglected to send their renewal order; and after a few days of grace—all that we are permitted to give under the postal rulings—their names were removed from our mailing-list. The result is that we are now receiving several requests daily for the January, February, and other back numbers. With the return of spring and warm days, interest reverts to honey-bees, and curiosity to know what is going on in beedom brings the old members into the fold; but we are, unfortunately, in a position where no more copies of back numbers for the past six months, at least, can be supplied. Only a very limited supply of these issues (which must be retained for our files and bound volumes) are on hand, and, of course, there will be no others.

Again we suggest that subscriptions be renewed promptly upon receipt of our first renewal notice. We know that a great many of our friends treasure their unbroken files of this journal, and that the loss of a single number would be an unpleasant occurrence: but under conditions like those which exist just now it is impossible for us to date subscriptions prior to the current issue or to send copies of recent numbers.

Sweet-clover Seed

Sweet clover is one of the chief sources of honey in Utah, Idaho, and other regions of the West, as well as in many localities in the South and other sections of the country. In recent years farmers are also learning of its great value in enriching the soil by the introduction of nitrogen. We recently printed a booklet of about 50 pages entitled "The Truth about Sweet Clover." This contains the experience of a great many who have grown it to a greater or less extent. We shall be pleased to mail this booklet to those interested, free, on request. We have a good stock of choice fresh seed which we offer at the following prices. As to the comparative value of the different varieties, we will say that the white, or *Melilotus alba*, is most common, and therefore the best known. The yellow is desirable because it begins blooming usually from two to four weeks earlier than the white. As to the two varieties of yellow, one of the experiment stations has said there was a distinction without a difference. From the testimony available, the annual, or *Melilotus Indica*, blooms first; and in California, where our seed was procured, it is reported as growing from two to six feet high, depending on the character of soil, moisture, and other conditions.

In lots of—	1 lb.	10 lbs.	25 lbs.	100 lbs.
Hulled Yellow Annual (*Melilotus Indica*), per lb	17c	15c	14c	13c
Hulled Yellow Biennial (*Melilotus Officinalis*),	20c	18c	17c	16c
Hulled White	25c	22c	21c	20c
Unhulled White (*Melilotus alba*) per lb	16c	14c	13c	12c

The prices are all subject to market changes.

THE A. I. ROOT COMPANY, MEDINA, O.

In regard to my subscription to GLEANINGS, when I gave Mr. Hunt an order for your publication he said I could and would like to renew it, and I intended to do so when I ordered goods from him. I have decided to drop back to your bee-supplies again. Your prices are right for quality of goods and fair dealing. I know that any one wishing goods that are right, and who places an order for Root's goods, will find that satisfaction is nailed in the same box with the goods. Such has been my experience. You never sent me No. 2 goods when the order read No. 1. I do not buy No. 2 goods, but have been stung elsewhere.

Hopkins, Mich., March 20. GEO. TISHHOUSE.



SEEDS

If you love Flowers write me a letter (not postal) for **Park's Floral Guide,** teeming with floral notes, pronouncing the big flower names, giving a germination table, showing nearly 1000 flower pictures. It's different. It insures success. Be sure to see it. **Best seeds at lowest prices.** 42d yr.

5 Fine Gloxinias, 5 colors, 25c
7 Double Begonias, 7 " 25c
5 Fringed Begonias, 5 " 25c
25 Fine Mixed Gladiolus, 25c

10 Pkts. Choice Flower Seeds, 10 cts.

Aster, Q. of Market, Mxd. | Pinks, New Japan, Mxd.
Larkspur, Stock-flowd, " | Poppy, New Shirley "
Pansy, Giant Fragrant " | Portulaca, Large-flwd, "
Petunia, New Bedding, " | Sweet Peas " "
Phlox Drummondi, new " | Mixed Seeds, 1000 kinds.

10 Pkts. Choice Vegetables, 10 cts.

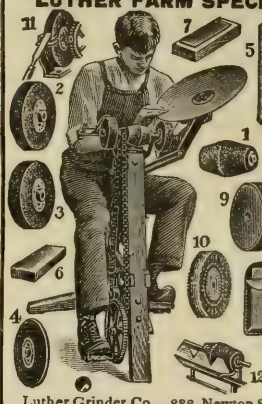
Beet, Imp. Early Turnip. | Onion, Danvers Yellow.
Cabbage, Early Solid Cone | Parsnip, Large Guernsey.
Cabbage, Late Flat Dutch | Radish, Special Mixture
Cucumber, White Spine. | Tomato, New Matchless.
Lettuce, Malta Drumhead | Turnip, Purple-top Globe

Send 10c for either lot, or 20c for both. Or, send 60c for club of three (60 pkts.) and I'll add four 2-oz. pkts. (worth 40c) Best Sweet Corn, Beans, Peas and Squash, also, trial subscription to **Park's Floral Magazine,** which cheers and brightens more than **600,000 homes every month.** Six lots (124 pkts.), $1.00. Club with friends.

GEO. W. PARK, B21, La Park, Pa.

SharpenTools FREE

LUTHER FARM SPECIAL GRINDER



I want to send you this wonderful grinder, freight prepaid, for free trial to prove its value as a great labor saving machine for sharpening all kinds of tools.

10 DAYS FREE TRIAL

Has genuine Carborundum wheels—will not draw temper from steel—25 times faster than grindstone. Half million in use. Guaranteed 10 years. 12 MACHINES IN ONE Write today for 10 days Free Trial Offer and sharpen your farm tools free.

C. J. Luther, Pres.

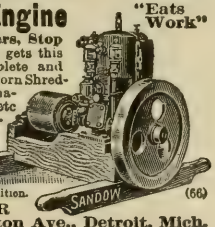
Luther Grinder Co., 888 Newton St., Milwaukee, Wis.

850,000 GRAPEVINES

69 Varieties. Also Small Fruits, Trees, etc. Best Rooted Stock, Genuine, cheap, 2 sample vines mailed for 10c. Desc. price-list free. LEWIS ROESCH & SON, Box A Fredonia, N. Y.

Let SANDOW Run It!

Wonderful Work Engine "Eats Work"



Farmers and Shop Owners, Stop Sweating! A few dollars gets this grand little work engine, complete and ready to run Cream Separators, Corn Shredders, Grist Mills, Feed Mills, Dynamos, Printing Presses, etc., etc. Gives a lifetime of steady service. All Sizes. 2 to 20 h. p. No cranking! No cams! No gears! Only 3 moving parts. Finest construction. Thousands in use. Guaranteed 5 years. Write for Special Introductory Proposition. (66)

DETROIT MOTOR CAR SUPPLY CO., 72 Canton Ave., Detroit, Mich.

A Market-place of Great Renown—The Classified Pages of Gleanings in Bee Culture. Read and profit.



H. C. Phelps, President,

Let Me Pay the Postage on My Big Free Book to You!

Though it costs me 21c for every one of these books, yet I'll send you one free because I want you to know about my Celebrated Split Hickory Buggies—made-to-order—sold direct from my factory to you at home on 30 Days' Free Road Test—guaranteed two years. Over 140,000 Split Hickory Vehicles now in use giving splendid satisfaction.

I'll Save You $25.00 and up on this Split Hickory Special Buggy

Big saving on over 100 other styles, and full line of Harness. My 1911 book gives description and prices on over 125 styles of Split Hickory Vehicles—tells how they are made—and why they are best to buy—shows you more vehicles to choose from than you could see in 10 big store rooms. May I send you this book free? Will you write to-day? Address me personally.



The Ohio Carriage Mfg. Co.

Station 293 Columbus, Ohio

Write for Split Hickory Buggy Book

TO-DAY --- FREE

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

FOR SALE.—Alfalfa honey, extracted, in 10-lb. cans at 9 cts. per lb. C. C. CLEMONS PRODUCE CO., Kansas City, Mo.

FOR SALE.—Clover extracted honey in new 60-lb. cans. Write for particulars. Sample, 4 c., postage. E. C. PIKE, Box 100, St. Charles, Ill.

FOR SALE.—Choice light-amber extracted honey—thick, well-ripened, delicious flavor. Price 9 cents per lb. in new 60-lb. cans. J. P. MOORE, Morgan, Ky.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—Fine qualities of white and light-amber extracted honey. Send samples with lowest prices f. o. b. New York. Also state how packed, and quantity you have. Are always in the market for beeswax. HILDRETH & SEGELKEN, New York.

For Sale

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

FOR SALE.—Bees, honey, and bee-supplies. We are in the market for beeswax and honey. OGDEN BEE AND HONEY CO., Ogden, Utah.

If you use a quantity of 60-lb. cans, let us quote you a low price. I. J. STRINGHAM, 105 Park Place, New York.

FOR SALE.—100 eight-frame L. dovetailed comb-honey supers, good order, plain separators, $25.00; or will exchange for four-frame extractor. J. D. BIXBY, Covina, Cal.

FOR SALE.—300 cases of second-hand five-gallon cans in good condition; single cases, 35 cts.; 5 cases or more, 30 cts. per case. J. E. CRANE & SON, Middlebury, Vt.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins), Penn, Miss.

FOR SALE.—New crop of alfalfa seed; 4 lbs. by mail, prepaid, $1.10; 25 lbs. by freight or express, at 18 cts.; 50 lbs. at 17 cts.; 100 lbs., $16.00. Also hulled white-sweet-clover seed at the same price. R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

HONEY-CANS.—By arrangement with a large manufacturer I can supply new five-gallon square tin cans, boxed, at a price that will save you money. Write for prices, stating how many you can use. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

I am closing up an out-apiary, and offer for sale a four-frame (L.) Root automatic extractor, honey-cart, uncapping-barrels, and other implements that go with an extracting-outfit, as well as a honey-house 12 x 14 feet, and 12 feet high. JAMES MCNEILL, Hudson, N. Y.

FOR SALE.—A 5 x 8 Excelsior printing-press and complete outfit; cost $75.00; will sell for $65.00, or will exchange for standard 3 h. p. motor cycle in good running order. Full description of printing-outfit on request. G. HERMAN PETERSON, Rt. 1, Box 4, Deerwood, Minn.

Real Estate

FOR SALE.—Forty acres of land, 37 acres cleared, new house, new windmill and tanks, 6 acres of peach orchard. Price $2300. D. COOLEY, Kendall, Mich.

FOR SALE.—Some good bargains in South Dakota farms and relinquishments. Good crops. Address J. J. BREWER, Sturgis, So. Dakota.

FOR SALE.—Five-acre citrus grove, 166 colonies of bees, complete outfit, honey-house; honey 85 to 90 cents per gallon, N. Y.; large living-house; well; horse; harness; $50 carpenter outfit. $2000 cash. F. MCCANN, La Gloria, Cuba.

FOR SALE.—330 feet by 330 of good orange land fronting on county road; saw palmetto and oranges all around; half-mile from main street of Saratoga; $300 cash; no swamp; good bee location. THOS. MCLAINE, Sarasota, Fla.

Bees and Queens

FOR SALE.—Golden-all-over queens, and bee-keepers' supplies. T. L. MCMURRAY, Silverton, W. Va.

Extra early golden queens, $1.00. No disease. Cheaper in lots. MORGAN & MARSHALL, Hamburg, La.

WANTED.—Bees. I pay cash. F. A. ALLEN, Philipsburg East, Que., Canada.

If you are in the market for bees in car lots we can please you. L. E. WEST, Llano Grande, Tex.

Send for my price list of leather-colored Italian queens. GEO. B. HOWE, Black River, N. Y.

WANTED.—Carload of bees in May. DECKER THOMSON, McGregor, Mich.

WANTED.—Bees. I pay cash. What have you to offer? WILEY A. LATSHAW, Carlisle, Ind.

FOR SALE.—Fifty colonies in eight-frame hives. S. V. REEVES, Haddonfield, N. J.

WANTED.—Bees within 50 miles of New York; also comb honey. J. M. BROOKFIELD, Rahway, N. J.

Bees and queens of quality. Supplies. Catalog. STRINGHAM, 105 Park Place, New York City.

WANTED.—Bees by the pound, nucleus, or full colony. J. B. MASON, Mechanic Falls, Me.

WANTED.—200 colonies of bees, or less, within 250 miles of Detroit. A. W. SMITH, Birmingham, Mich.

FOR SALE.—Fifty strong colonies of bees in ten frame hives, $4.50 each. O. A. KEENE, Topeka, Kan

WANTED.—200 colonies of bees in hives. State kind of bees, hives, and prices.
Address WM. LARSEN, Green Bay, Wis.

FOR SALE.—50 strong colonies of Italian bees in eight-frame Dovetailed hives, $4.00 each.
O. D. ANDERSON, Aberdeen, Miss.

FOR SALE.—About 90 colonies of bees in fair condition, cheap, to close an estate. Address
C. H. VAN VEEHTEN, Victor, N. Y.

FOR SALE.—64 colonies of bees in ten-frame hives; good condition; $4.00 per colony.
HUBNER, 1316 Glen Ave., Colorado Springs, Col.

Italian queens, 75 cts.; tested, $1.00; breeders, $5.00 each; two-frame nucleus with queen, $2.50.
E. M. COLLYER, 75 Broadway, Ossining, N. Y.

Bungalow Golden Italians; also non-swarming and educated queens, $3.00 to $100.00.
HENRY W. BRITTON, Stoughton, Mass.

Improved red-clover Italian queens bred from the best honey-gatherers obtainable. Untested, $1.00; 6 for $5.50; 12 for $10.00. J. H. GIBBS, Berlin, Md.

WANTED.—200 colonies of bees. State kind of bees, hives, and price, in first letter.
R. S. MARSHALL, Tribes Hill, N. Y.

FOR SALE.—200 colonies of pure Italian bees in 8 and 10 fr. Dov. hives at $6.00 per colony; in lots of 10, $5.00 per colony. F. A. GRAY, Redwood Falls, Minn.

Golden queens, untested, $1.00; select untested, $1.50; breeders, $5.00 to $10; also Root's bee-supplies. Write for catalog. ROB'T INGHRAM, Sycamore, Pa.

Missouri-bred Italian queens; none better; prices right; write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

Golden and red-clover Italian queens; superior stock. Write for prices. WM. A. SHUFF,
Aldan, Delaware Co., Pa.

Early red-clover Italian queens, extra good honey-gatherers. Untested, 75 cts.; 6 for $4.25; tested, $1.50; select tested, $2.00.
E. F. HI'RLEBAUS, Bradentown, Fla.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction.
W. W. DAKIN, Hood River, Ore.

FOR SALE.—Westwood red-clover queens and bees; nuclei and full colonies a specialty.
HENRY SHAFFER,
2860 Harrison Ave., Station L, Cincinnati, O.

FOR SALE.—Golden untested queens. April 1, 75 cts. each; also three-band if wanted. Safe arrival and perfect satisfaction.
R. O. COX, Rt. 4, Greenville, Ala.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Bradley's Store, Va.

Italian queens, good as the best; untested, 75 cts.; tested, $1.00. Shipments begin April 1st for bees by the pound and nucleus. Write for prices.
C. B. BANKSTON, Buffalo, Leon Co., Texas.

FOR SALE.—Twenty colonies of Italian bees; fifty comb-supers; extractor, combs, etc., all in good condition, at a bargain. Write at once for prices to
JAMES WARMINGTON, Yamhill, Ore.
Goods for sale are at Honey Creek, Wis.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white, sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

FOR SALE.—Fifteen colonies of bees in eight-frame chaff hives, free from disease, in lots to suit.
ALBERT SIEVERS, JR.,
14 Clover St., Yonkers, N. Y.

We offer, for 1911, yellow Golden queens from the best breeders to be found. Queens sent by return mail. Safe arrival and satisfaction guaranteed. Tested queens, $1.00 each; untested, 75 cts.; 3, $2.00; 10, $6.00. Reference, F. & M. bank.
W. S. MCKNIGHT, Newton, Ala.

Golden queens—very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei, and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Ready April 15. queens from our Superior Golden stock. They have a record of over 200 lbs. of honey per colony. One queen-yard at the same old stand, and one here. Untested, $1.25; 6, $6.00; 12, $10.00. Tested, $1.50 to $10.00. Discount on large orders. List free. T. S. HALL, Talking Rock, Pickens Co., Ga.

ITALIAN QUEENS.—Reared in strong colonies by the Doolittle method from extra select breeders. Three-band, leather-colored Italians exclusively, from the strain of The A. I. Root Co. Hardy, vigorous, and great honey-gatherers. Ready April 15. One dollar each; breeders, $5.00. Orders filled in rotation as received.
THE CROWN APIARIES, Mesilla Park, New Mex.

Help Wanted

WANTED.—A man to manage 50 colonies of bees, who also understands gardening and horticulture. Must be sober. E. C. M. RAND, West Nyack, N. Y.

WANTED.—Two good reliable men who understand queen-rearing and comb-honey production. Give reference, and wages wanted, in first letter.
RASMUS HOFF, Idaho Falls, Idaho.

WANTED.—An experienced man in raising comb honey, to begin work about May 1st. Give references, experience, and wages wanted, in first letter. OGDEN BEE AND HONEY CO., Ogden, Utah.

WANTED.—To correspond with young bee-men who have helped me through full seasons in the past. Special inducements. A. G. Kersten, Jack Wing, Alfred Struck, Geo. Johnson, Charlie Trout, Charlie Anderson, Birt Henery, Mart Standfield.
C. I. GRAHAM, Lemoncove, Tulare Co., Cal.

WANTED.—Two competent bee-men—one on a ranch near Wasco, Cal.; wages $40.00 per month and board by the year; other work furnished after bee season; the other on shares, about 125 stands, near Pomona, Cal.; usual rate. Answer at once, with references, if you mean business.
PALM FRUIT CO., Wasco, Cal.

WANTED.—A thoroughly up-to-date and capable young man who desires to go to California, either under employment or as manager, or to take an interest in a comb-honey and queen business. State age, experience, and salary required; whether single or married; in short, give particulars in first letter. Address
Box 32311, care of GLEANINGS IN BEE CULTURE.

Position Wanted

WANTED.—Position by a young married man, experienced in bee culture. References if required. Give full particulars when writing.
H. L. SOPER, 302 Pringle Ave., Jackson, Mich.

Poultry

FOR SALE.—Duston White Wyandottes, $2.00; 15 eggs, $1; $5 per 100. ELMER GIMLIN, Taylorville, Ill.

Buttercups for utility and beauty; selected pens; unlike others. H. V. MEEKER, Earl St., Toledo, O.

Barred Rocks, Bradley strain. Stock and eggs for sale. MRS. W. L. BENNETT, Crooksville, O.

FOR SALE.—Buff Orpington eggs, $1.25 per 15; $6.00 per 100. J. M. MUNDELL, Hobart, Ind.

S. C. Black Minorca eggs, $1.00 per 15; $5.00 per 100. THOS. E. EBERSOLE, Carrollton, O.

Indian Runner duck eggs, $1.00 per 13. Booklet free. AARON FISHER, Box 37, La Park, Pa.

Eggs, circular free. Thousand Leghorns, Rocks, Orpingtons. M. A. BROWN, Rt. 3, Attleboro, Mass.

White and Brown Leghorn chicks; five other breeds. Price right. Catalog free.
D. Y. TAYLOR, Lyons, N. Y.

FOR SALE.—Prize-winning Buff Orpington and Single-comb White Leghorn eggs, $2.00 per 15; $4.00 per 100. E. L. LANE, Trumansburg, N. Y.

Ruby Red Rhode Island Reds. Eggs, chicks, show birds, very reasonable.
2018 Mascher St., Philadelphia, Pa.

Superior strain of S. C. W. Leghorns. Guaranteed layers. Eggs, $1.25 per 15; $6.00 per 100.
JOHN S. ROSS, Cokeville, Pa.

FOR SALE.—White P. Rock eggs, $1.50 per 15; few select cockerels, $2.00 each. Fine stock. Excellent winter layers. MRS. A. L. DAVIS, Batavia, O.

A thing of beauty is a joy for ever. Eggs, chicks, show birds. Prices very reasonable.
2018 Mascher St., Philadelphia, Pa.

FOR SALE.—S. C. W. Leghorn eggs for hatching; from vigorous, heavy-laying strain; $1.25 per 15, $5.00 per 100. D. G. LITTLE, Hartley, Ia.

BUFF AND WHITE ORPINGTON eggs for hatching, $3.00 and $5.00 per 15. Prize-winning stock. Leading strains. WILL ASHLEY, Medina, O.

As white as the driven snow (Kellerstrass strain). Chicks, show birds, very reasonable.
2018 Mascher St., Philadelphia, Pa.

W. Rocks are the best winter layers. Let me help you start right. Prices on eggs or day-old chicks on request. B. T. BOSERMAN, Williamstown, O.

S. C. White Leghorn, the "business hen." Have a fine laying strain. Eggs, $1.00 per 15. Incubator eggs, $4.00 per 100. F. B. LOOMIS, Rushville, N. Y.

White-Buff Orpingtons, Minorcas, Barred Rocks, R. C. Reds. Eggs, $2.00 per 15.
F. B. SCHLOTTER, Keokuk, Iowa.

FOR SALE.—S. C. W. Leghorn and Indian Runner duck eggs—$5.00 and $7.00 per 100. Circular free.
C. H. ZURBURG, Topeka, Ill.

S. C. B. Leghorns, bred from record layers. Eggs, $2.00 per 15; $3.50 per 30. E. M. SHIRK,
Edgwood, Wheeling, W. Va.

Partridge Wyandottes and Partridge Rocks—also all leading varieties. Prize-winning stock and eggs—reasonable. Catalog free.
JOHN T. CROUTHAMEL, Franconia, Pa.

FOR SALE.—Indian Runner duck, White Wyandotte eggs. Utility stock, $1.00 per setting.
J. F. MICHAEL, Winchester, Ind.

White-faced Black Spanish eggs for hatching; 15, $1.00; 50, $3.00; 100, $5.00. Also dealer in bee-keepers' supplies of all kinds. A. W. SWAN, Centralia, Kan.

BUTTERCUP EGGS—the A. I. Root favorites. Purest strain from original imported stock Eggs, $3.50 for 15. Fertility guaranteed. Reference, Root Co.
SECRETARY POULTRY ASSOCIATION, Medina, O.

Eggs from prize-winners — Rhode Island Whites, S. Comb White Leghorns, and Rhode Island Reds. Write for prices.
ARTHUR EDDY, Orleans Four Corners, N. Y.

Partridge Plymouth Rocks exclusively: The best strain. Eggs, $1.50 per 15; $2.50 per 30; prompt shipment. MRS. DOROTHY THOMPSON,
Box 17, Campbellstown, O.

S. C. White Leghorns exclusively. Bred to lay. Baby chicks. Eggs for hatching. All breeding males score 94 to 95¼, from 200-egg hens. Cat. free. Keystone Poultry Farm, Box 2500, New Milford, Pa.

Rose Comb Rhode Island Reds, Red Cloud strain; beautiful birds, raised on free range. Eggs for hatching. Write for prices.
M. L. MAIN, Grand Valley, Pa.

Indian-Runner-duck-culture book; full history; 75 cts., money order; fawn and white; 11 eggs, $2.50; 30, $5.00. Catalog, 2 stamps. LEVI S. YODER,
Box 50, Dublin, Pa.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St, Joseph, Mo.

Eggs from "Bred to Lay," good utility, S. C. Buff Leghorn fowls; $1.00 for 15; $5.00 per 100. From an extra-select pen, $2.50 per 15.
LEWIS FRANCISCO, Rt. 1, Mosinee, Wis.

Mr. Beekeeper, my new catalog is yours for the asking. Send for it. Eggs of Barred and White Plymouth, White Wyandotte, per 15, $1.00. We shall be pleased to hear from you. We fill orders promptly. H. S. DUBY, St. Anne, Ill.

SICILIAN BUTTERCUPS.—Stock and eggs for sale from original imported blood and from my ribbon-winners at the Appalachian Exposition and other shows. Free circular. MRS. J. S. DUMARESQ,
Cato's Hall, Easton, Md.

Eggs for hatching from the following varieties: R. C. Brown Leghorn, S. C. R. I. Red, Houdan, and Plymouth Rocks. Send your wants, mentioning breed, to INVINCIBLE P. YARDS,
Box F, Oak Summit, N. Y.

S. C. Rhode Island Reds. I shall have a limited number of settings from my $25.00 pen of S. C. R. I. Reds at $3.00 for 13 eggs. This stock is line bred to lay from the famous Wyckoff and Tompkins strains. Special care taken in shipping eggs.
L. W. BOYDEN, 682 West Liberty St., Medina, Ohio.

R. C. R. I. Reds, Buff Wyandottes, S. C. White Leghorns—the kind that lay and pay; winners and bred from winners, Madison Square, Cleveland, Toledo, Jamestown, etc. Eggs for hatching. Mating and special sales list for the asking. Write to-day.
CONSOLIDATED POULTRY YARDS CO., Canton, O.

Lowest prices; 350 varieties; pheasants; poultry; Phœnixfowl; parrots; all kinds of birds; animals; rabbits; eggs for hatching. Price catalog (300 illustrations) 25 cents; complete work on raising pheasants, wild game; colored plates; 75 cts. Exchanges made. U. S. PHEASANTRY, Poughkeepsie, N. Y.

Indian Runner ducks from imported stock, fawn and white; very easy to raise and easy to keep. They are beauties too—lay eggs all the year; lay heaviest in winter. Eggs, $1.50 per 13; $7.00 per 100. Let me start you to success.
C. O. YOST, Rt. 4, Winchester, Ind.

Buff Leghorn eggs of quality. Our birds speak for themselves. Your order will be filled from hens that lay at 5 months; big layers, good payers. Do not wait—order to-day. Only $3.00 per setting.
WM. BRITTON,
Prop. Hillside Poultry Farm, Huntington, Ind.

S. C. R. I. Reds, large and beautiful, rich in color, and rich egg-layers; the winning strain. Eggs from exhibition pens, $2.00 per 15; $10.00 per 100. Eggs from standard pens, $1.00 per 15; $5.00 per 100. I can please you, sure.
C. O. YOST, Rt. 4, Winchester, Ind.

Order your copy of "American Standard of Perfection" through GLEANINGS. The new edition of this greatest of all poultry-books is now ready. Beautiful plates show feather-markings, etc., of every standard breed. Price $1.50, postpaid, in cloth; $2.25 in morocco binding.
BUYERS' BUREAU, GLEANINGS IN BEE CULTURE.

CHOICE STOCK.—"It pays to buy the best." Strictly pure-bred White Plymouth Rock and R. C. Rhode Island Reds, bred for laying as well as for show purposes. These two breeds are the best all-the-year-round layers, and are heavy and thrifty—regular mortgage-lifters. Eggs, 15 for $2.00; 30 for $3.50; 100 for $7.50. If you fail to hatch 75 per cent of my eggs I will duplicate the order at half price.
H. P. FAJEN, Stover, Mo.

BABY CHICKS.—We can supply from high-grade stock-baby chicks of the following: White Leghorns; Brown Leghorns; White Plymouth Rocks; Barred Plymouth Rocks; Buff Orpingtons. It is necessary to place orders, as we shall have a limited number. Any of the above at 10 cts. each; safe arrival guaranteed.
AMBROSE & KNIGHT, Urbana, O.
Hardware, stoves, seeds, bee-supplies.

Bee-keepers' Directory

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York City.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Italian queens from direct imported mothers, red-clover strain. After June 1, $1.00. Circular.
A. W. YATES, 3 Chapman St., Hartford, Ct.

Improved golden-yellow Italian queens for 1911. Beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in '08-'09 without a single loss. For prices see large ad. QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

Special Notices

By OUR BUSINESS MANAGER

SECOND-HAND CANS.

We have emptied a good many five-gallon cans of honey in the last six months, the majority of which have been destroyed. We have saved the best of them, and can recommend them for use in shipping dark or off grades of honey. We would not advise any thing short of new cans for choice white honey; but for amber or off grades a second-hand can in good condition will answer nicely. We offer these cans, packed two in a case, at $3.00 for 10 boxes; $25.00 for 100 boxes; 50 at 100 rate.

NO. 50 JARS WITH PORCELAIN TOP.

We have on hand a few gross of No. 25 jars with porcelain top and lacquered tin rim, packed one gross in a crate, which we offer as they are, to close out, at $5.50 per gross; 5 gross at $5.25. We have not been advertising them packed in this way for some time, and this is some old stock which has been on hand for some time. A few of the caps may be slightly spotted with rust; but, being lacquered, they are protected and in fairly good condition.

MAPLE SYRUP AND SUGAR.

The season to date has not been very favorable for producing maple syrup or sugar; and, as a result, the supply is rather limited. What we have secured to date is very fine, and we quote as follows:

1 one-gallon can, $1.25 per gallon.
1 case of 6 one-gallon cans, $1.15 per gallon.
2 or more cases at $1.10 per gallon.

We are practically sold out in sugar and can not accept orders except in very limited quantities and at a higher price than quoted in previous issue of GLEANINGS.

SWEET-CLOVER SEED.

We have a good stock of hulled yellow-sweet-clover seed of both varieties, and a fair supply of white, both hulled and unhulled. Just as we go to press we have secured about 600 lbs. of hulled white in Kansas, and for the next few days we will accept orders for shipment direct from Gordon, Kansas, while this stock lasts, at regular prices. To parties in the East we can ship hulled white from New York city subject to previous sale.

A NEW FOUNDATION-MACHINE AT SECOND-HAND PRICE IN CANADA.

If any of our Canadian customers are in want of a six-inch thin super-foundation mill we know of one which the owner claims has never been used, and which he wants to dispose of. It can be had at the shipping-point in Ontario for $18.00, subject to previous sale. We can not supply samples from the machine, but offer it on the representation of the party now holding it, whom we have every reason to believe is reliable.

Convention Notices.

The annual meeting of the Connecticut Bee-keepers' Association will be held in the Y. M. C. A. building, Hartford, on Friday, April 14. Doors open at 9 A.M. Formal meeting at 10:30. Let it be a rouser! Come, everybody! Three cheers for the honey and money-making hustlers!
Hartford, Conn., March 14. JAS. A. SMITH.

The North Texas Bee-keepers' Association will hold its next meeting at Enloe, Delta Co., on the first Wednesday and Thursday in April. All bee-keepers everywhere are cordially invited to attend. No hotel bill to pay. We expect to have a great time. J. M. HAGOOD, Endoe, Pres.,
W. H. WHITE, Greenville, Sec.

IT PAYS TO USE

DADANT'S FOUNDATION

BEESWAX WANTED

DADANT & SONS
HAMILTON, ILLINOIS



Big Apples are Selling at 10 Cents Each . . . .

There is money in fruit-growing right where you are. Apples are worth twice as much as oranges. If you can not raise apples, there are are other fruits equally profitable.

Start an orchard. Those who planted orchards as advised by Green's Fruit Grower are getting their reward in big profits. You can pay for the orchard by growing small fruit in it.

Green's Fruit Grower

will tell you how and where to plant, how to prune and spray, and how to make your trees productive.

It is the oldest and most popular fruit grower's magazine. January is our 30th ANNIVERSARY NUMBER. We will start your subscription with that number.

Special offer to readers of GLEANINGS IN BEE CULTURE. We will mail new subscribers Green's Fruit Grower one year on trial for 25 cents.

GREEN'S FRUIT GROWER CO.

Box G, Rochester, N. Y.

MAIN LINES TO EVERYWHERE FROM THE
WASHINGTON BRANCH

THE bulk of our trade at this branch comes from Southern Pennsylvania, Delaware, Maryland, the Virginias, and Carolinas; but this well-located office at the national center is also on the main line to the great South. No better service to the section along the Atlantic Coast can be had. A realization of our opportunity at this important distributing-point has encouraged us to make most careful and complete preparations for prompt and efficient service. . .

Read of Our Facilities

1911 Supplies and Stock.

Abundant room in this branch enables us to carry a very large stock which represents practically every article in the big Root line. All goods listed in former price lists, and still on sale, are here, together with the new and improved lines shown in this 100th edition of our catalog. Carload lots of fresh supplies continually come from our factory to keep our stock complete. No delay in filling even the largest orders at Washington, is our policy.

Shipping Facilities.

Through railroad service to the heart of the South, main trunk lines north and west, steamship service along the Atlantic Coast, with all contingent facilities for quick handling of freight and express make our location an important one for bee-keepers who live in this great section and want the best bee-supplies with a minimum of delay and transportation expense.

Packing.

We do not charge for packing, boxing, or delivering to freight or express offices here in Washington. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B., Washington. If no agent at your station, notify us and we will prepay, and bill charges after shipment. Often during the busy season much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what charges will be from here.

Root Goods are Standard Goods!

Remember that ROOT'S Bee-keepers' Supplies are recognized all over the world as the STANDARD—standard in dimensions, standard in quality. Every part and place fits exactly in the place it was intended for. All parts are made with the utmost care and accuracy, and can be placed in any other hive of the same style without a hitch in fit. Our lumber is selected with a view to getting the best to be procured. It is carefully sorted and thoroughly seasoned. And no less care is taken in the choice of any material whatever that goes into a product which, when finished, is to bear the ROOT label.

The Washington Branch has the benefit of the experience of a manager who thoroughly understands the requirements of those engaged in this business either for profit or pleasure. He couples with his knowledge the desire to make his service valuable to you upon any occasion. Bee-keeping is gaining prominence in the Southland, and it will pay to investigate the opportunities offered by this pursuit in connection with poultry, fruit, and similar alliances. Do not be afraid to make known you wants—come to Washington, or write and we will show you every possible consideration.

THE A. I. ROOT COMPANY

333 11th St., Washington, D. C.

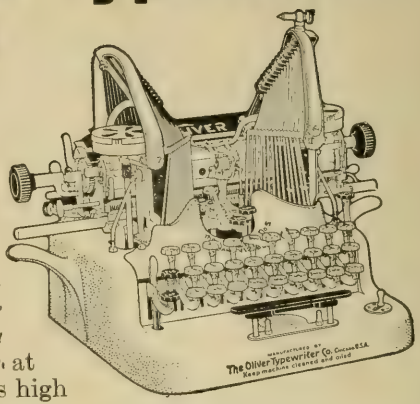
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A message of vital moment to the vast audience reached by this magazine.

We are selling the Oliver Typewriter—the Standard Visible Writer—the New Model No. 5—the regular $100 machine — for Seventeen Cents a Day! Whether you sit in the councils of great corporations or are perched on a bookkeeper's high stool—*whatever your part in the world's activities*—this offer of the Oliver Typewriter means something worth while to *you*.



Mightiest Machine in World's Workshop

The terrific pace of modern business demands mechanical aids of the highest degree of efficiency. Foremost among all the inventions that speed the day's work—that take the tension from *men* and transfer it to *machines*—is the *Oliver Typewriter*.

The Oliver Typewriter is the mightiest machine in the World's Workshop. It weaves the million threads of the world's daily transactions into the very fabric of business. It works with the smooth precision of an automatic machine. It adapts itself to the diversified needs of ten thousand business conditions.

Brilliant Exclusive Features

The Oliver is illuminated by scores of brilliant innovations not found on other typewriters. Its remarkable time-saving devices and conveniences include the Vertical and Horizontal Line Ruler, the Disappearing Indicator, the Tabulator, the Back Spacer, the Adjustable Paper Feed, the Double Release, the Automatic Spacer, the Locomotive Base.

Time and again, when our existing models met every demand of the public, we have brought out important *improvements* at great expense, without adding a cent to the price.

100 per cent Efficiency

The Oliver Typewriter has an efficiency of 100 per cent. every day in the week and from one year's end to another.

Its printing mechanism works freely in a framework of solid steel, which gives wonderful stability and the limit of durability.

It operates with the lightest touch and thus prevents fatigue. The swiftest operator can not overtake the speed of an Oliver Typewriter. It writes in beautiful, readable type and, of course, it *writes in sight*.

Every office, whether equipped with one Oliver Typewriter or a battery of Olivers, secures the very maximum of typewriter service at the minimum of cost and labor.

The simplicity, strength and easy operation of the Oliver Typewriter make it most desirable for use in the home.

The OLIVER Typewriter

The Standard Visible Writer

The basic idea upon which its towering supremacy rests is its wonderful Double Type-Bar. What the Selden patent is to the automobile, this principle is to the typewriter, *only we do not license its use on any other writing machine.*

The Doublh Type-Bar gives the Oliver Typewriter its positive DOWNWARD STROKE, the secret of *perfect printing, light touch, easy operation, and perfect alignment.*

COUPON

The Oliver Typewriter Company,
116 Prospect St., Cleveland, Ohio.

Gentlemen:—Please send your Art Catalog and details of "*17-Cents-a-Day*" offer on the Oliver Typewriter.

Name.....

Address.....

.....

Yours for Pennies! Send the Coupon

Having simplified the *typewriter* to the utmost, we have now simplified its *purchase* until you can own it for the trifling sum of Seventeen Cents a Day.

A small cash payment brings you the magnificent new model Oliver No. 5. Then you save Seventeen Cents a Day and pay *monthly* until the machine is *yours*.

No matter what typewriter you are using, you can turn it in as first payment on the Oliver and let *pennies* complete the purchase.

Send coupon or letter for the handsome Catalog and full details of the popular Penny Plan. (66)

The Oliver Typewriter Co.

Sales Department

116 Prospect St. CLEVELAND, OHIO

Gleanings in Bee Culture

VOL. XXXIX APRIL 15, 1911 NO. 8

Editorial
Stray Straws
Siftings
Bee-keeping in the Southwest
Conversations with Doolittle

A Plea for Home-bred Queens — ALFRED L. HARTL
No Swarms in Five Years — C. D. BENTON
Toads in South America — JUAN CHRISTENSEN
Bee-keeping in Florida — E. G. BALDWIN
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A Sweet-clover Cow — WESLEY FOSTER
The Paint to Use Depends on Locality — W. A. PRYAL
Carbolized Cloths — JOSEPH GRAY
Swarm Control in Bulk-comb-honey Production — J. J. WILDER
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Plurality of Queens in One Hive — GEO. W. RICH
Ordinance to Prevent Bringing in Disease — OTTO LUHDORFF

Heads of Grain **Our Homes**
High-pressure Gardening

THE A. I. ROOT COMPANY

St. Paul Branch

1024 Mississippi St., St. Paul, Minn.

Is the natural distributing-point for Root's Goods in the following territory, and has been established at this location for 20 years.

Minnesota	North Dakota
Western Wisconsin	South Dakota
Northern Iowa	Montana
Western Canada	Idaho

SUPPLIES

Practically every article mentioned in the Root catalog is kept in stock at St. Paul. Carload shipments from the factory are forwarded frequently to keep the stock complete. At the 1910 Minnesota State Fair we were awarded first prize for the best exhibit of apiarian tools and fixtures; also for best hive for comb honey and for best hive for extracted honey.

SERVICE

We are constantly seeking to improve our facilities for filling orders ACCURATELY and PROMPTLY. Many delays will be avoided if patrons will state whether eight-frame or ten-frame size is wanted when ordering any of the following articles:

Honey-boards,	Wire for Entrance-guards,
Porter Bee-escapes with Board,	Hives,
Super-covers,	Supers,
Queen and Drone Traps,	Covers,
Entrance-guards,	Bottoms.

PRICES

The prices in the Root catalog are factory prices, f. o. b. Medina; but at this branch they are f. o. b. St. Paul, thus saving much in time and freight to Northwestern bee-keepers ordering from St. Paul. SEND FOR FREE CATALOG.

QUEENS

Orders booked now for spring delivery of queens.

WAX

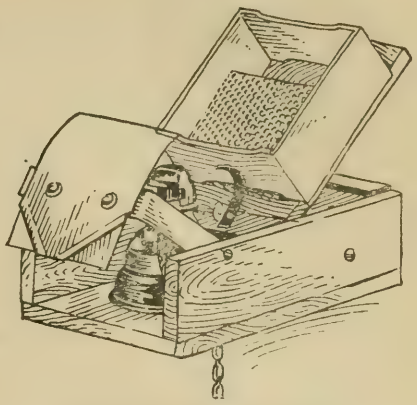
We are paying 28c cash, 30c in trade for clean wax

THE A. I. ROOT COMPANY

ST. PAUL, MINN.

PILCHER & PALMER, Northwestern Managers . . . 1024 Mississippi Street

"Falcon" Sections



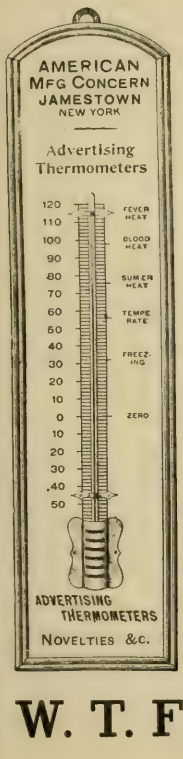
Dewey Foundation-fastener

We are masters in the art of making A No. 1 sections. Ours were the first polished sections on the market. The cross-grain sanding and buffing through which they pass in our special process of manufacture produces a crystal finish which is not equaled. And don't overlook our accurately cut V grooves. There is no breaking in folding. The saving in this item alone makes **"Falcon"** sections the most economical.

Prices of Falconer Sections	1M	3M	5M
A No. 1 Bee-way Sections	$5.50	$15.00	$23.75
A No. 1 Plain Sections	5.25	14.25	22.50

No. 2 sections, 50c per M. less.

Dewey Foundation-fasteners



The excellent work and universal satisfaction given by the "DEWEY" has made its sale steadily increase, till now it is the most popular fastener on the market. Its free-swing plate never soots the section, and its speed is limited only by the ability of the operator.

In February the three new 1911 "FALCON" distributing-houses named below gave "DEWEYS" as introductory offers. This offer closed March 15, and many have been disappointed who did not see the offer in time. Therefore it will be continued from these points through April and May for orders for for 3M or more No. 1 "FALCON" sections at regular catalog prices. Send your order to-day and have a DEWEY included. Price of "DEWEY" alone, $1.25; by mail, $1.50 postpaid.

"Falcon" Thermometers

Have you received your thermometer? If you haven't, why don't you? We do not sell them. They are sent with orders for bee-supplies.

Write for particulars.

Our "RED" catalog describing our full line of bee-keepers' supplies is sent postpaid upon request.

Ross Brothers Company, 90 Front St., . . Worcester, Mass.
C. C. Clemons Bee Supply Co., 130 Grand St., Kansas City, Mo.
W. T. Falconer Mfg. Co., 117 No. Jefferson Street, Chicago, Ill.

Write one of the three houses just named; but if not conveniently located for shipment from one of these points write us, and we will give you the name of our nearest dealer.

W. T. Falconer Manufacturing Co.

Falconer, New York

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—Fancy and No. 1 white comb honey is bringing 14 to 15; white extracted, 11 to 12. Beeswax, 30. BLAKE-LEE CO.

4 Chatham Row, Boston, Mass., April 6.

CINCINNATI.—At present we have no comb honey to offer. Extracted table honey is in fair demand at 10 cts., in 60-lb. cans. Amber honey in barrels is selling at 8. Beeswax is selling at $33.00 per 100 lbs. These are our selling prices, not what we pay.

Cincinnati, April 4. C. H. W. WEBER & CO.

CINCINNATI.—We are selling fancy comb honey for from $3.75 to $4.00 per case; fancy white extracted, in 60-lb. cans, two in a crate, 10 to 11; amber, 5¾ to 7, according to quality and quantity purchased. We are paying 30 cts. cash or 32 in trade for bright yellow beeswax delivered here.

THE FRED W. MUTH CO.

Cincinnati, Ohio, April 5.

ZANESVILLE.—Honey is in normal demand with no offerings by producers. Best grades of white comb go to the retail grocery trade at 18 to 18½. Extracted is quoted at 10½ for best white. No demand for amber or dark. Producers are offered for beeswax 28 cts. cash, 30 in exchange for supplies.

Zanesville, O., April 5. E. W. PEIRCE.

DENVER.—Demand for honey lighter than usual for this time of year. We make the following jobbing quotations: No. 1 white comb honey, per case of 24 sections, $3.15; No. 1, light amber, $2.93; No. 2, $2.70. White extracted honey, 9 to 10; light amber, 8¼ to 9. We have no amber to quote. We pay 26 cts. cash, and 28 cts. in trade for yellow beeswax delivered here.

COLORADO HONEY PRODUCERS' ASS'N.

Denver, Col., April 5.

CHICAGO.—It is difficult to make sales of honey in any quantity at this time of the year, yet there is a little moving all the while at about the following prices: No. 1 to fancy, 17 to 18; white, No. 2 grade, 1 to 3 cts. less; amber, 10 to 12. Extracted is in light supply, and for the basswood and white-clover grades 10 cts. is obtainable, and any good white honey will now bring 9 cts.; ambers, 8 to 9. All of the preceding grades are governed by the quality and style of package. Beeswax of a good yellow grade, if clean, sells upon arrival at 33 cts.

Chicago, Ill., April 5. R. A. BURNETT & CO.

Honey Markets continued on page 5.

Now for 1911 Bee-Supplies

We have already received several carloads of that "finest of all Beeware"—Falconer make—anticipating the heavy rush of orders sure to come this Spring. Prepare yourself NOW, Brother, for we are going to have a heavy honey yield this season, and those who order early are the ones who will profit most. Send for our catalog to-day, and see our "MUTH SPECIAL" Dovetailed Hive, and also our "IDEAL METAL" Cover—both DANDIES. We sell you cheaper than the rest; we have the Best. Let us figure on your wants—we will surprise you.

THE FRED W. MUTH CO.

51 Walnut Street "The Busy Bee Men" Cincinnati, Ohio

ALMOST READY

To what stage have your preparations for the coming busy season advanced? Are you almost ready? Have you anticipated a generous honey-flow—the big crop we are all looking for? or have you timidly stocked up on sections, extra supers, foundation and other supplies so essential to successful bee-keeping?

Get Ready Now!

You save absolutely nothing by waiting; and, on the other hand, a little delay may mean a serious loss to you. Just the time when you are going to need that small rush order, other bee-keepers, who have also waited, are going to be in a big hurry too. We never have to remind our friends of our convenient location and well-fitted warehouse in the season of honey-flow. We get orders just as fast as we can possibly attend to them; but this service is not satisfactory, as a rule, to the patron who wants IMMEDIATE shipments. The only way to avoid all danger of delay is to order far enough in advance to get in ahead of the other man's order. Give us a little time to put your goods up in a careful and painstaking way—to make shipments over the cheapest routes—to serve you as we always try to do.

Let us remind you again of our new catalog. This is a book you ought to have. It lists all the approved appliances of modern bee-keeping, and prices them at figures that will save you money. Better not wait longer if you have not received your copy—GET IT TO-DAY!

Remember, if you please, our excellent facilities for prompt and satisfactory shipments. We take care of all orders very promptly—in season or out. Our patrons know that Prompt Shipments and Complete Stocks are Weber recommendations; but we suggest EARLY ORDERS that you may not be disappointed. Even a few hours' time seems terribly long to wait when a few hundred sections are needed. We have experienced these delays—we want to help you guard against them. The ONLY WAY is to ORDER NOW!

Poultry Supplies

A special catalog of these goods, which we will gladly furnish free upon request.

C. H. W. Weber & Co., Cincinnati, O.

2146 Central Avenue

Gleanings in Bee Culture

E. R. ROOT, Editor — A. I. ROOT, Editor Home Dept. — H. H. ROOT, Ass't Editor — J. T. CALVERT, Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, "Stenog," Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, Mrs. H. G. Acklin.

$1.00 per year. When paid in advance: 2 years, $1.50; 3 years, $2.00; 5 years, $3.00.

POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian Postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

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HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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Extracted Honey Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

THE NATIONAL BEE-KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey

MEMBERSHIP DUES

One dollar a year.

OFFICERS AND EXECUTIVE COMMITTEE

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Are you a member? If not, why not send the annual dues of $1.00 at once to Treasurer France? Every progressive bee-keeper should be a member of this, the greatest bee-keepers' organization in America.

BEES AND BEE-HIVES

from New York City. For twenty years our business has been to furnish fixtures for bee-keeping. When you are in need, we will be pleased to quote you. Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

PATENTS

25 YEARS' PRACTICE

CHAS. J. WILLIAMSON, Rooms 304 to 307, Savings Bank Bldg., 7th and E. Sts., WASHINGTON, D. C.

Patent Practice in Patent Office and Courts.

Patent Counsel of The A. I. Root Co

Honey Markets continued from page 2.

INDIANAPOLIS.—There is a good and steady demand here for best grades of white-clover comb and extracted honey. Jobbing houses are well supplied, but practically none is now being offered by producers, and it is evident that there will be a shortage before the new crop can arrive. Fancy white comb is being offered at 18 cts.; No. 1, white, 17; extracted, 11, with some slight reductions on quantity lots. It is presumed that producers are being paid about 2 cents less than above quotations. Producers of beeswax are being paid 29 cents cash or 31 in trade.

Indianapolis, April 3. WALTER S. POUDER.

ST. LOUIS.—Our honey-market is entirely unchanged since our quotation of March 21st. There have been small receipts of Southern honey which have moved out slowly on account of the prevailing high prices. Should the receipts increase, our market will undoubtedly decline. Comb honey is not plentiful. The demand for it is limited, and there is enough to go around. We quote fancy comb honey at 16 to 16½; No. 1, 15 to 15½; choice amber, 14 to 15; dark, 10 to 11. Broken and leaking honey sells at less. White clover, extracted, in five-gallon cans, is nominal at 9 to 9½; California light amber, 8¼ to 9; Southern light amber in five-gallon cans, 8 to 8½; in barrels and half-barrels, 7½. Beeswax, prime, 29; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., April 7.

Poultry Advertisements Pay!

"An Inquiry from Gleanings is Usually a Sure Sale"

C. O. YOST

Crystal White Orpingtons | S. C. R. I. Reds | Indian Runner Ducks

R. F. D. 4, WINCHESTER, IND., March 30, 1911.

Gleanings in Bee Culture, Medina, Ohio.

Gentlemen:—Enclosed find check for $10.00 for which credit my advertising account.

I feel that I want to say that GLEANINGS so far has been my best paper as to advertising. An inquiry from GLEANINGS is usually a sure sale.

I shall advertise heavily in GLEANINGS another year.

Yours respectfully, C. O. YOST.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873 CIRCULATION 35,000 72 Pages Semi-monthly

A. L. BOYDEN, Advertising Manager

ADVERTISING RATES

Twenty-five cents per agate line, flat. Fourteen lines to inch.
SPACE RATES. To be used in one issue: One-fourth page, $12.50; one-half page, $25.00; one page, $50.00.
Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover, 50 per cent additional
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.
Column width, 2⅝ inches.
Column length, 8 inches.
Columns to page, 2 (regular magazine page).
Forms close 10th and 25th.
Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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THE APRIL REVIEW

illustrates and describes an apiary with ideal surroundings. It is sheltered by undergrowth; well protected from fire: passing teams are not likely to be stung, and the hives are well located in relation to the honey-house.

E. F. Atwater illustrates and describes a simple machine for imbedding splints in foundation to prevent sagging.

R. D. Bradshaw, Payette, Idaho, tells how he made over $4000 in a single apiary by being "Johnnie on the spot."

Transfering, Italianizing, making increase, and getting surplus are subjects upon which the editor answers questions regarding a lot of bees in box hives. In one sense it is a continuation of his "Story of a Season."

Two pages are devoted to showing how bee-keepers may secure "expert advice" the same as merchants, manufacturers, and others secure help from "systematizers."

Geo. B. Howe has an article on "Breeding for Best Bees."

Besides these there are the usual number of other articles, editorials, extracts, comments, etc.

Send ten cents for this issue, and with it will be sent two other issues, also some very attractive clubbing offers. The ten cents may apply on any subscription sent in later.

W. Z. HUTCHINSON, Flint, Mich.

Queens . . . Queens

200 to 300 per month. Untested, $1.00; tested, $1.25; select tested, $2.00; breeders, $3.00. Nuclei, full colonies, bees by the pound. Have letter from the State certifying my bees are free from foul brood.

Frank M. Keith, 83½ Florence St, Worcester, Mass.

New Strawberries

Nearly 100 varieties to select from. We guarantee our plants to be high grade and equal to any. Our 18th annual catalog is ready; write for one

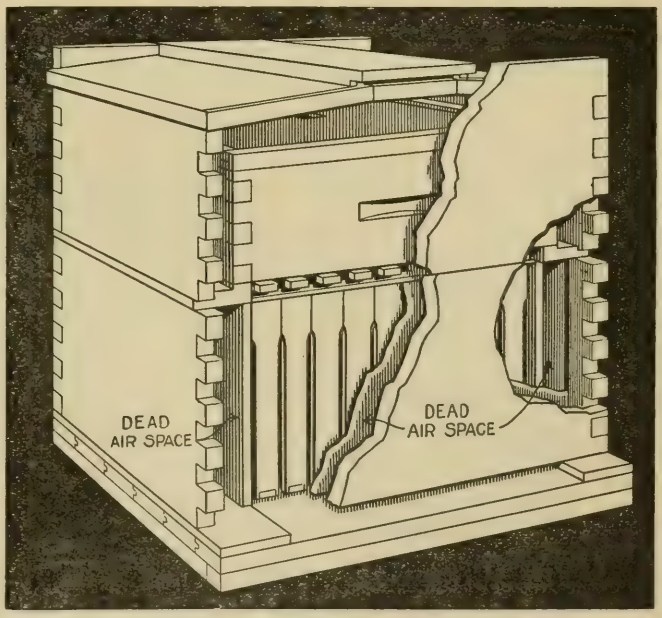
The Flansburgh & Potter Co.
Box 330, Leslie, Mich.

PROTECTION HIVE

Outer wall, ⅞; inner wall, ¾; clear white pine; Hoffman frames; workmanship the finest; air-spaces or packing, as you prefer. The best hive on the market, and guaranteed to please you, or money refunded. Immediate shipment. Order a sample lot.

Five 10-frame hives with five Dovetail supers, any style, as per cut.. $14.00
Five 10-frame hives, with 5 plain T supers. 12.50
Five 10-frame hives, no supers 11.25

Special circular, showing 12 large illustrations, and 40-page catalog of supplies for the asking.



A. G. WOODMAN COMPANY, GRAND RAPIDS, MICHIGAN

LEWIS BEE-WARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY CO. (Not Inc.)
Successors to YORK HONEY & BEE-SUPPLY COMPANY

148 W. Superior St. Chicago, Ill.
Send for catalog. ENOUGH SAID.

Have You Delayed Getting Your Supplies?

As the years go by, bee-keepers are ordering their goods during the winter months.

A few there are as yet who wait till the last minute, even waiting till the bees swarm and are hanging on the trees, before ordering hives.

Are you one of the last, or are you one of those "looking ahead"?

The A. I. Root Company

Syracuse, N. Y.

Established 1885

We carry an up-to-date line of

Bee-keepers' Supplies

At this season of the year we give the usual customary early-order discounts. If you are figuring your wants now to buy early and get the benefit of lowest prices, don't fail to consult us. We have

THE ROOT COMPANY'S Make of SUPPLIES

Nothing to fear as to quality. Beeswax taken in exchange for supplies.

John Nebel & Son Supply Co. High Hill, Montg. Co., Mo.

BEE SUPPLIES

We carry a full and complete line of Root's Celebrated Bee-keepers' Supplies. By buying in carload lots we are enabled to sell at factory prices f. o. b. Dallas. . . . . .

We also carry the largest and best assorted stock of the celebrated Texseed Brand Garden and Field Seeds in the South; Incubators and Brooders, and poultry supplies of all kinds.

Send for illustrated catalog. .

Texas Seed & Floral Co.

Dallas, Texas

When you have honey or beeswax for sale write us.

COMB-HONEY OUTFIT No. 5

It is a matter of some difficulty for the average beginner to decide exactly what he requires as an outfit for the first start in bee-keeping. To relieve the beginner of all perplexity we list certain outfits which we think will meet his needs. The one we give below is what may be fairly considered the best. Each item has been very carefully selected, and we doubt the wisdom of leaving any article out; but the purchaser may do so without altering the prices on the other items.

1 A B C and X Y Z of Bee Culture (536 p.),	$1.50
1 copy "Facts about Bees"	.10
1 year's subscription to "Gleanings," .	1.00
1 Root Smoker	.65
1 pair cotton bee-gloves (small, med., or large)	.50
1 silk-front bee-veil	.60
1 full col. Italian bees in Danzenbaker hive (Complete with 32 section honey-boxes)	12.00
1 untested Italian queen	1.50
2 Danz. hives complete for comb honey . (Nailed and painted, ready for the bees)	6.80
1 Porter bee-escape and board . . . . (For taking honey from the bees)	.35

Special Offer Delivered at any express office north Ohio River and east Mississippi River **$25.00**

For delivery to points outside of the above free limit, we will make terms on application.

The colony of bees is as near perfect as we can make them. The combs are beautifully straight and well filled with brood. The breeding of the queen is of the very best, so that one has the nucleus of a fine stock of bees. In many cases a return of $10.00 in honey has been secured the first year from just such an outfit as this, and in addition one or two swarms may be secured, which practically doubles the value of the investment. Order at once.

The A. I. Root Co., Medina, Ohio

Bee-keepers who Have

THOROUGHBRED CHICKENS

and want to sell eggs and stock at good prices should use space under the POULTRY heading in the

Classified Pages

In proportion to the cost it is doubtful if any other medium offers as good an opportunity for profitable returns on such offerings as

Gleanings in Bee Culture

Read this from one of our satisfied advertisers:

"I will say that what little advertising we did in GLEANINGS has brought us about all the business we can attend to this season,"

—and others say the same.

Read the POULTRY advertisements yourself. Read Mr. A. I. Root's talks on CHICKENS—advertise in GLEANINGS, and GET results.

At the Top

. . of . .

Page Seven

. . of Our . .

1911 Catatog

is described a hive combination that is rapidly coming into favor. . . .

We strongly recommend it for either comb or extracted honey production. . . . .

Points of Excellence

a—Easy to manipulate.
b—Large super capacity.
c—Uses tall sections (4x5 Danz.).
d—Takes R metal-roofed cover.
e—Moderate in price.

We would like to quote you on this hive. We know you will be pleased with it. Send for catalog. . . . .

Remember our "More Beeswax" proposition in last issue. . . . . .

We Have "ROOT QUALITY" Goods Only

M. H. HUNT & SON

Opposite Lake Shore Depot

Lansing, Michigan



"If goods are wanted quick, send to Pouder." . . . Twenty-second Year.

BEE-SUPPLIES

A large and complete stock of the Root Goods offered at the factory schedule of prices. My system of rotating does not permit any accumulation of old stock. My comb foundation is always fresh from the mills; my sections fresh and bright, and hives have all latest improvements. I accept beeswax in payment for goods, or I will pay highest market price for wax in cash. I am in need of more wax at all times.

My **Perfection Tight-seal Jars** are acknowledged as being the best for extracted honey, and I assume all responsibility in shipping, guaranteeing safe arrival. I mean exactly what I say.

My new **Paper Honey-jars** are cheap enough for retailers to give away with their honey. No more waiting to exchange jars or crocks when you deliver your honey. My catalog tells all about these things, and is sent free.

WALTER S. POUDER, 859 Massachusetts Avenue, Indianapolis, Indiana

The Purity of the

SWEET-CLOVER SEED

Sold by The A. I. Root Co. is Attested to by the U. S. Government

READ THIS LETTER:

Brooksville, Ky., March 13, 1911.

The A. I. Root Co., Medina, Ohio.

Gentlemen:—Some time ago I sent to you for a sample of your white and yellow sweet-clover seed. After receiving the samples I sent them to Washington, D. C. The yellow hulled tested 99.71 per cent of pure seed; the unhulled white tested 99.11 per cent of pure seed. I think that is fine. I inclose you the sample that you sent me, and want you to send me 80 lbs. of the same lot that this sample is out of, or some equally good. Send the seed by freight.

Yours truly, H. A. JETT.

We have a booklet, published for free distribution, which tells THE TRUTH ABOUT SWEET CLOVER. Ask for your copy.

PRICES

In lots of—	1 lb.	10 lb.	25 lb.	100 lb.
Hulled Yellow Annual (*Melilotus Indica*), lb.	17c	15c	14c	13c
Hulled Yellow Biennial (*Melilotus officinatis*).	20c	18c	17c	16c
Hulled White	25c	22c	21c	20c
Unhulled White (*Melilotus alba*) per lb.....	17c	15c	14c	13c

The prices are all subject to market changes.

As to the comparative value of the different varieties, we will say that the white, or *Melilotus alba*, is most common, and therefore the best known. The yellow is desirable because it begins blooming usually from two to four weeks earlier than the white. As to the two varieties of yellow, one of the experiment stations has said there was a distinction without a difference.

The A. I. Root Company, Medina, O.

Nature Education and Recreation

For Boys and Girls:
NATURE AND SCIENCE (of St. Nicholas Magazine), . Per year, $3.00

For Men and Women:
THE GUIDE TO NATURE (monthly, illustrated) . . Per year, 1.00
$4.00
BOTH, ONE YEAR, $3.00; sample of either, 10c.

For Teachers:
"How Nature Study Should be Taught," (203 pgs.) . Postpaid, $1.00

For Everybody:
"The Spirit of Nature Study," (222 pgs., illustrated) . postpaid, $1.00
"Walking; a Fine Art," (164 pgs., illustrated) . . . Postpaid, $1.50
"Three Kingdoms," the handbook of the AA . . . Postpaid, .75

For Plants:
Sachs Nutrient Tablets, a box, post., 10c.

For You (to aid and be aided):
The Agassiz Association (Popular Nature Society).

For Correspondents:
(To write for further information.)

Edward F. Bigelow
Arcadia : : Sound Beach, Connecticut

AMERICAN Bee Journal 3 Months for 10c

We have on hand some extra copies of the American Bee Journal for January, February, and March, 1911, that we would like to put into the hands of those who have never seen or read it. As long as they last, we will mail *3 copies for only 10 cents.* Should you afterward order a year's subscription, then the 10 cents may apply on it.

We are offering a year's subscription to the American Bee Journal and a copy of Doolittle's "Scientiffc Queen-rearing"—*both for only $1.00*—the regular subscription price of the Bee Journal alone. Or, if you prefer it, instead of the Doolittle book, we will mail you a copy of "The Pearce Method of Bee-keeping." You might send 10 cents *first* for the three copies referred to, and then, after reading them, send in your order for a year's subscription. We are sure you would be pleased with the American Bee Journal. It is now in its 51st year. Address

George W. York & Co., 117 No. Jefferson St., Chicago, Ill.



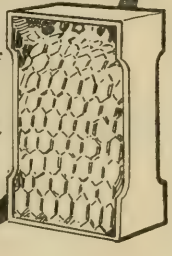
BEES PAY BIG

and require little care. All the little honey-gatherers and money-makers demand of you is to provide a home for them. They make the honey and you get the profit. What little work you must do can be made 100 per cent. easier and your profits 100 per cent. bigger if you have the

RIGHT KIND OF SUPPLIES

If you are a bee-keeper or are thinking of going into the bee business you ought to have our beautiful illustrated **New Bee Book**—just off the press. It's a complete guide to profitable bee culture. Tells you how to buy bees, what kind are best, where to locate the hives, how to care for them summer and winter, how to prepare the honey for market—in fact it tells you **all** you need to know to make bees highly profitable as a business or a side-line.

SEND FOR THIS FREE BOOK



We sell everything the bee-keeper needs and can save you money whether you keep few bees or many. Buy direct from headquarters at rock-bottom prices. Get our bee book and save money. Write now for a copy as the edition is limited.

Blanke Mfg. & Supply Co., Blanke Building
St. Louis, Mo.
Successors to Blanke & Hauk Supply Co.

SAVE YOUR Queenless Colonies

Introduce a vigorous tested queen. We can supply them by return mail for $1.00 each. Queens were reared last fall from our choice strain of three-band Italians, and wintered in four-frame nuclei. Satisfaction guaranteed on all queens.

J. W. K. SHAW & CO.
Loreauville, Iberia Parish, Louisiana

NEW ENGLAND BEE-KEEPERS!

EVERY THING IN SUPPLIES
NEW GOODS
FACTORY PRICES
SAVE FREIGHT

Cull & Williams Co. . Providence, R. I.

Boston Is the Shipping Center of **New England**

Bee-keepers should bear this in mind when ordering their supplies. . A full line of supplies always in stock. . . . . Send for catalog.

H. H. JEPSON
182 Friend Street . BOSTON, MASS.

Hilton Strain of Bees and Root's Goods to the Front again



□ A View of Mr. Chase's Apiary.

Friend Hilton:—I started this spring with 16 colonies; bought 30 three-frame nuclei of you; have increased to 85 strong colonies with ample stores for winter without feeding. Have taken 4000 lbs. fine extracted honey and a little comb (and no drawn combs to begin with) all from full sheets of foundation. My best colony gave 329 lbs.; a three-frame nucleus, received from you May 23, gave me 210 lbs. extracted honey. But for the drouth and fires I should have had much more.
Very truly yours, G. C. CHASE, Robbins, Wis.

I am now booking orders for next season's delivery of Nuclei and Queens, and next season's supplies, and making a very liberal discount. . . . .

Write for 50-page price list, and send list of goods wanted for special discounts. All Root's Goods. Beeswax wanted, cash or trade.

Geo. E. Hilton, Fremont, Michigan

. BEE . SUPPLIES

I carry an up-to-date line of standard Bee-keepers' Supplies. New England bee-keepers have secured their supplies from this house for the past fifty years. I am now prepared to serve you best in every way; standard stock, low prices, and experience in this line is all to your advantage. I have a fresh supply of The A. I. Root Company's goods. Send in your orders now.

Italian BEES and QUEENS
in their Season

Send for Price List of Bees, Queens, and Supplies.

Earl M. Nichols
Successor to W. W. Cary & Son
Lyonsville, Massachusetts

HOTEL VICTORIA
Chicago

In the heart of wholesale, retail, and theatrical district.

Fireproof construction.
$1.00 and Up per Day

Remodeled and refurnished at an expense of over $150,000.

OPPOSITE LA SALLE DEPOT,
Cor. Clark & Van Buren Sts.

ELMER C. PUFFER,
Managing Director.

We Save You Money!

We Manufacture Dovetailed Hives, Sections, Shipping - cases, Brood-frames, Separators, Section - holders, Berry Crates and Boxes.

QUALITY Our hives are made of best grade white pine, cut accurate and smooth to standard measure. Sections are of basswood, polished on both sides. There are no better goods made.

PRICE Our factory is well equipped, and we make goods as cheap as or cheaper than anybody else. We sell first hand, and can save you the middleman's profit. Will quote delivered prices by return mail, if you state your wants. Our prices will surprise you.

SERVICE We carry a complete line of every thing used in the apiary—foundation, smokers, and extractors always on hand. Shipping facilities are as good as can be found anywhere. We want your business; no order is too small for careful attention; none too large for us to handle. We guarantee prompt and satisfactory service. Catalog is free.

Minnesota Bee-Supply Company
Minneapolis, Minn.

Bee Ready!
Are You?

Last spring hundreds of colonies perished through sheer neglect right on the eve of a honey-flow. So far bees have wintered well. From now on is the crucial time. Don't let your bees starve. Never has clover looked more promising. This year "Bees iz bees," and if you lose them now or delay ordering your supplies, you will regret it. Write now for the PEIRCE illustrated catalog of bee-requisites.

E. W. Peirce, Zanesville, O.

BEE-SUPPLIES

Western Agents
Falconer's Goods
Write for Catalog

C. C. CLEMONS BEE SUPPLY CO.
130 Grand Ave., Kansas City, Mo.

ROOT'S GOODS
For WESTERN PENNNSYLVANIA

Liberal early-order discounts. Gleanings and choice queens GIVEN AWAY. Write at once for circular. . . Time is limited.

GEO. H. REA, - Reynoldsville, Penn.
Successor to Rea Bee & Honey Co.



CHICKS of QUALITY
Safe Arrival Guaranteed

From 18 varieties. All prize-winning strains. Prices reasonable; also all kinds of supplies, Brooders, and feeds. Catalog free.

JOS. A. BLUM & CO.
Dept. O, Chatfield, Ohio

BEE-KEEPERS

We make the best polished sections. This signifies quality. Send us your orders for sections and get the best. . Catalog free.

August Lotz & Co., Boyd, Wisconsin

"Griggs Saves You Freight"

TOLEDO

is Looked Upon by all Good Buyers as the Correct Place to Buy Goods at the Least Cost

MR. BEE-MAN:

This should appeal to you whether you have one hive or one hundred. You can save money. . . . . .

DON'T DELAY

securing your goods, but get them now. Delays are costly. . Our catalog is ready for you. A postal brings it. . Send to-day.

S. J. Griggs & Co.

25 No. Erie St., Toledo, Ohio

Successors to Griggs Bro's Co.

"Griggs, the King Bee"

J. E. HAND

the Veteran Queen-specialist

WILL begin the season of 1911 with greatly improved facilities for rearing the choicest queens. . . Our queens are not only large, vigorous, handsome, and prolific, but by reason of a judicious system of line breeding they have the power to transmit inherent tendencies of a highly desirable nature, such as hardiness, gentleness, and industry, as well as uniformity of marking, which makes them especially valuable as breeders. Every queen is warranted to produce uniformly marked bees of superior honey-gathering qualities. Don't take chances. Get the real thing. Warranted, $1.00; six, $5.00; dozen, $9.00. Tested, $1.25. Breeders, $5.00. Half pound of bees, no queen, $1.00. Three (L) frame nucleus, no queen, $3.25. No selection, therefore no culls, and a square deal for all. Valuable information free for your address.

J. E. Hand, Birmingham, O.

GOLD MEDALS
St. Louis Exposition, 1904
Jamestown Centennial, 1907



Danzenbaker Smoker

Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT GRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

The **ONE-PIECE** cap **CAN NOT clog.** It is the **COOLEST, CLEANEST, STRONGEST. BEST,** and **LARGEST NET CAPACITY** of all smokers, selling at one dollar ($1.00). We **GUARANTEE SATISFACTION** or **return** the price; only three complaints in **six years.**

Dan-z, 3½x7½-inch Prize Smoker, $1.00; by mail $1.25
With "Gleanings," $1.00 per year, and Prize Smoker, by mail 1.75
Dan-z, 3½x6-inch Victor Smoker, 80c; by mail 1.00
With "Gleanings," one year, 1200 pp., by mail 1.50

We send propolis shields with Danzenbaker Hives and Supers, and sell anything in the Bee-line at factory prices, also select three-banded Italian queens and bees.

Please send address of yourself and B-friends for FREE catalogs and prices on Bee-supplies, Bees, Queens, Hives, Sections, and Smokers. Address

F. Danzenbaker, 68-70 Woodside Lane, Norfolk, Va.

A REQUEST for our free booklet carries with it no obligation to open an account. All we ask is the opportunity of explaining clearly why your savings should earn 4% —the rate paid by the savings banks of Ohio for the past 65 years —and why your money will be absolutely safe if sent by mail to this institution, with assets of nearly

ONE MILLION

and under the supervision of the strict laws of the State of Ohio.

The Savings Deposit Bank

Medina, Ohio

Cut and mail this coupon TO-DAY

Send me your free booklet.
NAME
ADDRESS
STATE

Bee-keepers in TEXAS

Find the Toepperwein & Mayfield Company Warehouses a Never-failing Source of Supply. . . . . .

Our complete stocks of everything in the big ROOT line of Bee-supplies insure prompt shipments with low freight charges from this convenient center.

Our years of experience are of benefit to you. We know the exact conditions under which you are working; know what to advise you if you seek our assistance; know how to help you secure a big paying crop of honey.

BUY YOUR BEE-SUPPLIES IN SAN ANTONIO!

We are Located Here at Home to Save You Money

Get our new catalog; list your requirements and get our prices. Come and visit us when you can; go through our sample-rooms; see the newest ideas in beedom; enjoy our hospitality. Let us show you how comb foundation is made. Our foundation-mills have a capacity of over 500 lbs. per day, and we want your trade. This is Texas headquarters. Buy here and save money.

Booklets on Bee-keeping

For the benefit of students in bee-keeping who want to make a practical start this year we have arranged to distribute a number of helpful booklets, all nicely printed and illustrated, all free. Send in your name, or the names of a few neighbors or friends, and we will mail copies to them. Much information on outfits for beginners and advanced bee-keepers is given in these booklets. They are all well worth reading.

TOEPPERWEIN & MAYFIELD COMPANY

Cor. Nolan and Cherry Sts., San Antonio, Texas


Uneeda Biscuit
In Select Company
It's the very nature of a soda cracker to absorb moisture and foreign odors.
That's why the ordinary soda cracker remained so long in obscurity.
The advent of Uneeda Biscuit and the moisture-proof and odor-repelling package changed all this—for Uneeda Biscuit, the perfect soda cracker, keeps select company —its own.
To-day the goodness, the freshness and body-building virtues of Uneeda Biscuit are acclaimed in tenement and mansion.
Never Sold in Bulk
5¢
In the moisture-proof package
NATIONAL BISCUIT COMPANY

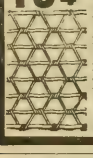
BROWN FENCE

SAMPLE FREE

Rust Proof - Bull Strong

Fences for horses, cattle, sheep, hogs, chickens, etc. 160 styles.
BARGAIN PRICES.
14 Cents Per Rod Up.
We pay the freight. Lawn Fences and Gates. Free catalog and sample.
The Brown Fence & Wire Co.,
DEPT. 91 CLEVELAND, OHIO

13¼ Cents a Rod



For 18-in. 14 3-4c for 22-in. Hog Fence; 15c for 26-inch; 18 3-4c for 32-inch; 25c for a 47-inch Farm Fence. 48-inch Poultry fence 28 1-2c. **Sold on 30 days trial.** 80 rod spool Ideal Barb Wire **$1.45** Catalogue free.
KITSELMAN BROS.,
Box 21 MUNCIE, IND.

"KANT-KLOG" SPRAYERS

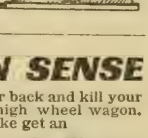
Spraying Guide Free



Something New
Gets twice the results with same labor and fluid. Flat or round, fine or coarse sprays from same nozzle. Ten styles. For trees, potatoes, gardens, whitewashing, etc. **Agents Wanted.** Booklet Free.
Rochester Spray Pump Co. 207 Broadway Rochester, N. Y.

Keep Ants Away

They will not attack or come near woodwork if it is painted with
AVENARIUS CARBOLINEUM
REGISTERED
and will stay away from beehives so protected. Write for circulars.
Carbolineum Wood Preserv'g Co
Dept. 103, Milwaukee, Wis.



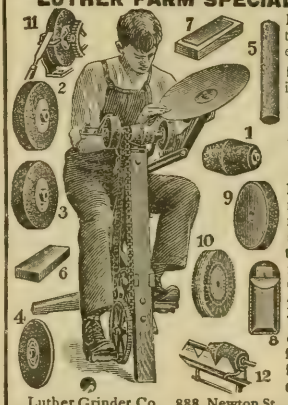


WAGON SENSE

Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an
Electric Handy Wagon
It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.
ELECTRIC WHEEL CO., Box 23, Quincy, Ill.

Sharpen Tools FREE

LUTHER FARM SPECIAL GRINDER



I want to send you this wonderful grinder, freight prepaid, for free trial to prove its value as a great labor saving machine for sharpening all kinds of tools.
10 DAYS FREE TRIAL
Has genuine Carborundum wheels—will not draw temper from steel—25 times faster than grindstone. Half million in use. Guaranteed 10 years. 12 MACHINES IN ONE Write today for 10 days Free Trial Offer and sharpen your farm tools free.
C. J. Luther, Pres.
Luther Grinder Co., 888 Newton St., Milwaukee, Wis.



SPRAY
fruits and field crops with best effect—least expense—less time, for biggest profits. No other sprayers as good as
Brown's Hand and Power
AUTO-SPRAYS
40 styles, sizes and prices
and valuable spraying guide in our book, sent free for name on postal. Choose any auto-spray—it is guaranteed to satisfy you completely.
Used by the U. S. Government and State Experiment Stations
and 300,000 others. Auto-Spray No. 1—Ideal outfit for 5 acres of potatoes or 1 acre of trees. Auto-Spray No. 11 for larger operations. We have Gasoline and Traction Power Auto-Sprays for largest orchards and fields. Write now for valuable book.
THE E. C. BROWN COMPANY
20 Jay St., Rochester, N. Y.



PRATT'S
"SCALECIDE"
Will positively destroy SAN JOSE SCALE and all soft bodied sucking insects without injury to the tree. Simple, more effective and cheaper than Lime Sulphur. Not an experiment. **One gallon makes 16 to 20 gallons spray by simply adding water.**
Send for Booklet, "Orchard Insurance."
B. G. PRATT CO., 50 CHURCH ST., NEW YORK CITY.

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N&W Ry.

$15 PER ACRE and up; easy payments. Productive soil, mild climate, fine water, good roads, close markets, unsurpassed school and social advantages. Write for beautiful illustrated Quarterly, other attractive literature and cheap excursion rates. **F. H. LaBaume, Ag'l Agt.,** Norfolk & Western Railway, Box 2079, Roanoke, Va.
NO IRRIGATION HERE **YEARLY RAINFALL 45 INCHES!!**





SPRAY with the **Empire King.**

He who attempts to grow fruits without a Sprayer is handicapped. Blight and bugs, rot and rust, mold and mildew, all conspire to damage the crop, and in all cases succeed if the farmer does not spray. This is the only hand pump having automatic agitator and brush for cleaning strainer. Valuable book of instruction free **FIELD FORCE PUMP CO., 881 11TH ST., ELMIRA, N. Y.**



A Check for $9,763.00

Is What J. M. Grant

A Big Horn Basin Farmer

received for his 1910 sugar beet crop. This was Mr. Grant's third crop of beets on a farm bought five years ago for $3000. Here is where the Government is spending

Six Million Dollars Irrigating Farms That You Can Homestead

The land is free for 5 years' residence and Government water rights cost $46 an acre in 10 yearly payments. No interest.

162 farms under Government irrigation averaged $26.80 per acre yield in alfalfa in 1910.

Here you can raise sugar beets, potatoes, alfalfa, oats, winter wheat, barley, apples and all small fruits.

OTHER MILLIONS are being spent to irrigate Carey Act Lands. Only 30 days' residence required. Easy payments. Low rate of interest.

Dairying, poultry raising and bee keeping are profitable.

Churches and schools have been established, and the country is being settled by a fine class of people. New districts will soon be opened to entry.

Burlington Route

If you want one of these rich Government prizes, write me today.

D. CLEM DEAVER
General Agent
Landseekers' Information Bureau
266 Q Building
Omaha, Neb.

Mondell 320-acre *free* homesteads —northeastern Wyoming. Ask about them. 6505

GREATEST NET PROFITS



ARE MADE IN THE LAND OF MANATEE ON THE WEST COAST OF FLORIDA, GROWING **ORANGES, GRAPEFRUIT AND VEGETABLES.**

Highest prices secured in Northern and Eastern Markets. Quick transportation —low freight rates via. S. A. L. Ry. Cheap lands —ideal climate—two and three crops a year—$500 to $1500 net per acre. People who locate here are satisfied. Write for free illustrated booklet. Address:

J. W WHITE,
GEN'L INDUSTRIAL AGENT, SEABOARD AIR LINE RY.
DEPT. J NORFOLK, VA.

450,000 TREES

200 varieties. Also Grapes, Small Fruits, etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Catalog free. **LEWIS ROESCH & SON, Box A, Fredonia, N. Y.**



Let Me Pay the Postage on My Big FREE Book to You

This is just a little ad but it will bring you my Big 1911 Book Free—postage paid by me. Show you over 125 styles and save you $25.00 or up if you'll

Write a Postal

See my Split Hickory Auto-Seat, color illustrated in book. Prices will astonish you. All sold on 30 Days' Road Test—2-Year Guarantee. Also harness. Write me now.



H. C. Phelps, Pres.
The Ohio Carriage Mfg. Co.
Sta. 293, Columbus, Ohio

WHY TAKE A CHANCE with Your EGGS OR CHICKS?



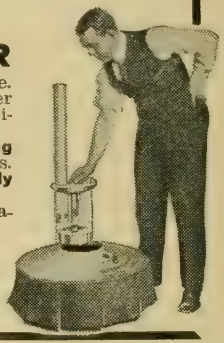
Don't blame your poor hatches to the parent stock, or the eggs, because lack of moisture, irregular heat, and cheap incubators, are responsible for the death of millions of chicks in the shell every year.

The International Self-Humidifying Incubator

is absolutely automatic in every function, unvariable temperature, positive moisture from the moment of starting the hatch until necessary to properly dry the newly hatched unit of future profit, so thoroughly safe-guarding its entrance into poultrydom as to guarantee its livability.

Your brooder losses are not always the fault of the chicks.
Ultimate success depends on the proper mothering of the chicks.

THE INTERNATIONAL SANITARY HOVER



is the only one positively supplying the highest temperature at the outer edge. Therefore, no loss by crowding to the center and every chick has a chance under this hover. Entire metal construction. Portable and adjustable to all conditions. Eliminates expensive brooder house equipment.

Our best efforts are centered in the production of **Day-Old-Chicks and Hatching Eggs** from matured stock. No pullet eggs are used except for table purposes. **All orders for Incubators, Hovers, Day Old Chicks or Hatching Eggs will positively be filled within 24 hours after receipt.**

Send to-day for 1911 catalogue on incubators and hovers, also our stock catalogue on Rancocas Strain Baby Chicks and Hatching Eggs.

INTERNATIONAL POULTRY SALES CO.
Home Office, Box 310, Brown's Mills, N. J.
Branch, No. 21 Barclay St., New York City

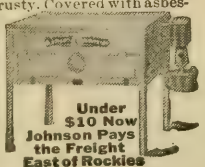


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Johnson says tell you to sure send your name this time for his 1911 price—less than $10 for Old Trusty, freight prepaid (East of Rockies)—based on 100,000 capacity and only 7% profit.

My 1911 Book Tells You

Take 30, 60 or 90 days' trial. Remember Johnson's 10-year guarantee on Old Trusty. Covered with asbestos and again covered with handsome sheet metal. 80% or better hatches guaranteed. Simple and sure.



Under $10 Now Johnson Pays the Freight East of Rockies

Send Name
My big 1911 book has hundreds of photos. Every page a poultry sermon. Write postal to

M. M. JOHNSON
Clay Center, Nebraska

Ideal Hatcher and Brooder BOTH FOR $10



Freight Prepaid

Not "cheap"—but the biggest value ever offered. Output limited at this price. Famous Ideal Incubator, 120 egg size, metal covered all 'round; safest, surest, simplest profitmaker for beginner or old timer. Self ventilating; self regulating. 120-chick Ideal Brooder never equaled. Both complete, $10.00. I pay freight east of Missouri River and north of Tennessee. Write for delivered prices beyond. Don't miss this big value. Get my **Free Book** anyway. Best guide to poultry success and biggest profits. Equally attractive prices on larger size Ideals. Send your name now to

J. W. MILLER CO., Box 48, Freeport, Ill.

$7.55 Buys Best 140-Egg Incubator



We ship quick from St. Paul, Buffalo, Kansas City or Racine.

Double cases all over; best copper tank; nursery, self-regulating. Best 140-chick hot-water brooder, $4.85. Both ordered together, $11.50. Freight prepaid (E. of Rockies).



No machines at any price are better. **Satisfaction guaranteed.** Write for book today or send price now and save time.

Belle City Incubator Company, Box 69 Racine, Wisconsin

Quality Higher—Price Lower



Tried and Proven for 17 Years

We beat them all again. Get our DIRECT-TO-YOU proposition, low prices, and BIG FREE BOOK on **SUCCESSFUL** Incubators and Brooders before you buy anywhere this year—the greatest value ever offered. Catalog FREE—send name. If you want a book on "Proper Care of Chicks, Ducks, Turkeys"—send 10 cents.

Des Moines Incubator Co. 190 Second St., Des Moines, Ia.

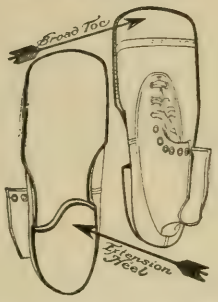
THE "BEST" LIGHT



Gives 500 candle power. Casts no shadow. Costs 2 cents per week. Makes and burns its own gas. Over 200 styles. Every lamp warranted. No dirt. No odor. No grease. Agents wanted. Write for catalog, now.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

The Coward Shoe



The natural foot-form last of this Special Coward Shoe, with its broad toe and snug heel-seat, allows free play to the foot muscles used in walking. Shoe has a flexible tread with a special construction that supports the arch and ankle, and prevents "flat-foot."

Mail Orders Filled. Send for Catalogue.

JAMES S. COWARD
264-274 Greenwich St., near Warren St., New York
SOLD NOWHERE ELSE



SEEDS

If you love Flowers write me a letter (not postal) for **Park's Floral Guide,** teeming with floral notes, pronouncing the big flower names, giving a germination table, showing nearly 1000 flower pictures. It's different. It insures success. Be sure to see it. **Best seeds at lowest prices.** 42d yr.

5 Fine Gloxinias, 5 colors, 25c
7 Double Begonias, 7 " 25c
5 Fringed Begonias, 5 " 25c
25 Fine Mixed Gladiolus, 25c

10 Pkts. Choice Flower Seeds, 10 cts.

Aster, Q. of Market, Mxd.
Larkspur, Stock-flowd, "
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Mixed Seeds, 1000 kinds.

10 Pkts. Choice Vegetables, 10 cts.

Beet, Imp. Early Turnip.
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Cabbage, Late Flat Dutch
Cucumber, White Spine.
Lettuce, Malta Drumhead
Onion, Danvers Yellow.
Parsnip, Large Guernsey.
Radish, Special Mixture
Tomato, New Matchless.
Turnip, Purple-top Globe

Send 10c for either lot, or 20c for both. Or, send 60c for club of three (60 pkts.) and I'll add four 2-oz. pkts. (worth 40c) Best Sweet Corn, Beans, Peas and Squash, also, trial subscription to **Park's Floral Magazine,** which cheers and brightens more than **600,000 homes every month.** Six lots (124 pkts.), $1.00. Club with friends.

GEO. W. PARK, B21, La Park, Pa.

Get The Dealers' Profit

You select your own terms



WHEN you buy a piano or organ from a dealer you must pay his profit. You must pay the wholesaler's profits; you must pay salesmen's salaries store rents, and other expenses. These accumulative profits often double the price of the instrument and you **have** to pay them. But the Cornish plan does away with all these middlemen's profits—you buy direct from the factory—you pay half the dealer's price—you receive 100 cents value and satisfaction for every dollar you put in a

Cornish Piano or Organ

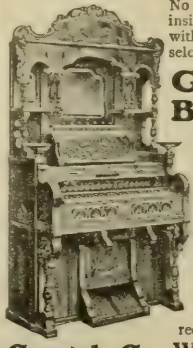
These instruments have for over half a century been regarded as standard—no better instruments are made than Cornish instruments. No matter how much you pay you cannot get an instrument with a purer, richer tone, or one with more perfect action, or one that is made to better withstand the test of time. Cornish pianos and organs have been made by the same family for fifty years—three generations of master craftsmen and are sold direct from the factory to the home at the lowest price possible for a first-class standard instrument.

A Year's Trial Free



So confident are we that any Cornish piano or organ will delight you in every particular that we are willing to place any instrument you may select right in your own home for a whole year's trial and test, **absolutely free.** If the instrument does not please you in every respect the trial will not cost you one penny Besides we give you

Two Years' Time To Pay If Necessary



No money required in advance. We insist upon your being fully satisfied with the Cornish instrument you select before we ask you to pay for it.

Get Our Big Book Free

Our big, handsome art portfolio catalogue pictures Cornish pianos and organs, tells how they are made and explains why we are able to give you double value for your money. You should have this book before you invest a cent in a piano or organ. It costs us nearly a dollar to place it in your hands, but we send it free. We will also send you a book of 5000 names and addresses of recent satisfied Cornish purchasers.

Cornish Co. **Washington, New Jersey**
Established Over Half A Century

GOLDEN ITALIAN QUEENS

Bred from straight five-band and select Golden mothers, mated to select Golden drones, 3½ miles from three-band yard. These queens are large, vigorous, and prolific; the bees gentle and hustlers. Purity of mating, safe arrival, satisfaction guaranteed. No bee-disease of any kind.

Untested	April 15 to July 1,	One, $1.00;	six, $ 5.00;	twelve, $ 9.00
Selected Untested	" " "	1.25;	" 6.50;	" 12.00
Tested	March 1 " "	1.75;	" 9.00;	" 17.00
Select Tested	" " "	2.50;	" 13.50;	" 25.00

BREEDERS—Straight five-band, $10.00; Select Golden, $4.00 and up.

NOTE—For three-band queens at above prices, write J. M. Davis, Spring Hill, Tenn.

BEN G. DAVIS, SPRING HILL, TENNESSEE

F. J. Wardell

Queen-Breeder Specialist

Uhrichsville, Ohio, U. S. A.

"The Best is None too Good"

Italian Queens Only

My Credentials

AFTER a quarter of a century's experience, many of which as manager of The A. I. Root Company's bee-breeding yards, I ought to have acquired a very fair knowledge of the work of a bee-breeder, and what the public requires of him. It seems to me that nobody will therefore dispute my claim to be an expert at the business. Also I have managed to get together an apiary of the very best bees obtainable. I do not mean, by this, highly colored bees, but bees which combine gentleness and industry. The practical man is looking for bees which give practical results—and this is the trade I am prepared to cater to. My bees are not homely-looking—on the contrary, they are handsome; but every thing has not been sacrificed for color. Permit me to say, my bees are the best obtainable.

My Business

IS TO satisfy customers, but it is never my intention to cater to a cheap trade. My poor queens are killed as soon as found. Many would sell such queens rather than kill them, but I do not propose to compete with any in that line.

If, however, you are on the lookout for something good in the way of an extra fine queen for breeding-purposes let me have your order, and I will guarantee satisfaction. This is the line I have always followed and always intend to. For reference you may apply to The A. I. Root Company. They ought to know me; and thousands of their customers would be glad to add their testimony in my favor as a queen-breeder tried and true of many years' standing.

Price List of Italian Queens

Untested Queen . . .	April and May,	$ 1.50		
Selected Untested Queen . .	"	"	1.75	
Tested Queen	"	"	3.00	
Select Tested Queen . . .	"	"	4 00	June, $ 3.50
Breeding Queens . . .	"	"	7.50	" 6.00
Select Breeding Queens . .	"	"	10.00	" 9.00
Extra Select B'd'g-queens, 1 yr. old	"	"	15.00	" 12.00

No untested queens sent before May 15; but to secure your queens early in the season it is necessary to order now. Absolutely all orders filled in rotation.

F. J. Wardell, . . . Uhrichsville, Ohio



QUEENS—248 lbs. of comb honey was taken from a single colony. Queens of this colony, untested, 75 cents; tested, $1.00. We make and sell bee-goods. Eight-frame Dovetailed hive, $1.35 complete. Send for circular.
Chestnut Hill Apiary, Biglerville, Pa.

Our Famous RED-CLOVER and GOLDEN QUEENS
Ready after May 1. Untested, 50c; select untested, 75c; tested, $1.00. Nuclei, $1.00 per frame.
Evansville Bee and Honey Co., . Evansville, Indiana

QUEENS

and bees — an improved superior strain of Italians is what QUIRIN RAISES. All yards winter on summer stands with practically no loss. Our stock is hardy, and will ward off brood diseases.

In the spring of 1899 we sent fifty nuclei to J. D. Nixon, Lafarge, Wis., and on July 20th (same year) he wrote us, saying they did just splendid, as at that writing they had already filled their supers, and that he would have to extract them. We have files of testimonials similar to the above.

Prices before July	1	6	12
Select queens	$ 1 00	$ 5 00	$ 9 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	10 00	18 00
Breeders	4 00		
Golden five-band breeders	6 00		
Two-comb nuclei, no queen	2 50	14 00	25 00
Three-comb nuc., no queen	3 50	20 00	35 00
Full colonies on 8 frames	6 00	30 00	

Add price of whatever grade of queen is wanted with nuclei and colonies; nuclei and colonies, if shipped before June 1st, add ¼, or 25%, extra to above price. No order too large and none too small. Will keep 500 to 1000 queens on hand ready to mail. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

QUIRIN-THE-QUEEN-BREEDER, BELLEVUE, O.

Golden and Three-band

Italian Bees and Queens

from Extra Selected Mothers

PRICES	1	6	12
Untested	$ 1 00	$ 5 00	$ 9 00
Selected untested	1 25	6 50	12 00
Tested	1 50	8 00	15 00
Selected tested	2 00	11 00	21 00
Eight-frame colony	6 00	33 00	61 00
Three-frame nuclei	3 75	21 25	40 00
Two-frame nuclei	3 00	17 00	32 00

Safe arrival. I am now booking orders for early delivery. Twenty-two years' experience. Send your order to

E. A. SIMMONS, Greenville, Ala.

1911 Three-banded Italian Queens

We are now ready to fill all orders promptly for our Three-banded Italian Queens; bred strictly for honey-gathering qualities. Unte ted $1.00 each, or six for $5.00, or $9 00 a dozen. Tested, $1.25 each, or six for $6.50, or $12 00 a dozen. Select tested, $1 50 each. Breeders, the very best, $3.00 to $5.00 each. We guarantee safe arrival, and will replace all dead queens that are returned to us in the cage we mailed them in.

Send All Orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas

ITALIAN QUEENS

Nuclei, Bees by Pound. Ten-page descriptive list free. Untested, $1.00. Reduced rates July 1. List to select from, clubbing "The Pearce Method of Bee-keeping," price 50 cts., with a guaranteed queen for $1.10. Books by return; queens after June 10. Leaflets, "How to Introduce Queens,' 15c; also "Increase," 15c; both for 25c. Send for list.

E. E. MOTT, Glenwood, Mich.

W. H. LAWS

is again offering his splendid stock of favorite Italians the coming season. Queens from this strain can not be surpassed, and are the kind that get bees that make supers hard to lift.

Twenty-one years a commercial queen-breeder, and an advertiser in this journal, he knows what a good queen is, and can prove it to you.

I wish you could see some of the splendid letters coming to my desk now almost daily. Laws queens are in every State in the Union, and the careful breeding of these queens has put many dollars in the pockets of his customers, as I have abundant evidence to show. I am now supplying some queens in April, and shall have plenty in May, and my prices are low, in keeping with quality of my stock.

I have about 75 strictly first-class breeding-queens that are worth many times the price I ask. I will sell at $5.00 each. Other queens, $1.00 each; six for $5 00. Satisfaction guaranteed. Circular free.

Address

W. H. LAWS

Beeville, Bee Co., Texas

QUEENS! QUEENS!! QUEENS!!!

by which the world's standard is reckoned; queens that will have your hives *filled* with bees when the honey is coming—that's when you want them. A hive of bees containing one of these queens, in *any* apiary, would stand out with that strong superiority and grand personality born only of the best breeding. $2.00 for 1; $10.00 for 6; best breeders, $5.00.

HUBER W. LAWS, WACO, TEXAS

DOOLITTLE & CLARK

are now booking orders for ITALIAN BREEDING QUEENS of last fall's rearing. They are fine ones, and have wintered nicely. . . Prices: $2.50, $5.00, and $10.00. Will be ready to send out any time after May 1. . . No, we haven't moved, but mail sent by Marietta reaches us sooner than via Borodino. Address

MARIETTA, Onondaga County, NEW YORK

EARLY QUEENS and LATE QUEENS

Bred from pure 3 and 5 banded and Golden Italians. All queens are raised in strong colonies and mated in four-frame nuclei. All orders filled promptly.

Untested, $1.00; six, $4.50; twelve, $8.00
Tested, . 1.50; " 7.50; " 13.50

Breeders, $3.00. Three-frame nuclei, $3.00, with price of queen wanted added. . Discounts for quantity.

A. B. Marchant, . . Sumatra, Fla.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

FOR SALE.—Alfalfa honey, extracted, in 10-lb. cans at 9 cts. per lb. C. C. CLEMONS PRODUCE CO., Kansas City, Mo.

FOR SALE.—Choice light-amber extracted honey—thick, well-ripened, delicious flavor. Price 9 cents per lb. in new 60-lb. cans.
J. P. MOORE, Morgan, Ky.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—Fine qualities of white and light-amber extracted honey. Send samples with lowest prices f. o. b. New York. Also state how packed, and quantity you have. Are always in the market for beeswax. HILDRETH & SEGELKEN, New York.

For Sale

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

FOR SALE.—Hives made of Oregon cedar. Catalog on request. Prices reasonable.
WILLIAMS BROTHERS, Lents, Oregon.

FOR SALE.—125 eight-frame L. dovetailed comb-honey supers in flat; fence separators and nails, No. 1, $40.00. ELIAS FOX, Hillsboro, Wis.

FOR SALE.—Bees, honey, and bee-supplies. We are in the market for beeswax and honey.
OGDEN BEE AND HONEY CO., Ogden, Utah.

If you use a quantity of 60-lb. cans, let us quote you a low price.
I. J. STRINGHAM, 105 Park Place, New York.

My Langstroth-Simplicity two-story hives are going fast—only 20 left; $15.00 for the lot; complete except frames. No disease, etc.
L. F. HOWDEN, Fillmore, N. Y.

FOR SALE.—300 cases of second-hand five-gallon cans in good condition; single cases, 35 cts.; 5 cases or more, 30 cts. per case.
J. E. CRANE & SON, Middlebury, Vt.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successor to J. M. Jenkins), Penn, Miss.

FOR SALE.—New crop of alfalfa seed; 4 lbs. by mail, prepaid, $1.10; 25 lbs. by freight or express, at 18 cts.; 50 lbs. at 17 cts.; 100 lbs., $16.00. Also hulled white-sweet-clover seed at the same price.
R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

HONEY-CANS.—By arrangement with a large manufacturer I can supply new five-gallon square tin cans, boxed, at a price that will save you money. Write for prices, stating how many you can use.
C. J. BALDRIDGE, Homestead Farm, Kendala, N. Y.

FOR SALE.—500 cases, two 60-lb. cans to case, practically free from nail-holes, and were new tins and cases when originally shipped to us. Will sell the lot for 20 cts. apiece, or smaller quantities at 25 cts.
THE F. B. THOMPSON CO., Detroit, Mich.

FOR SALE.—100 lbs. of Dadant meduium brood foundation, 5 lbs. at 55 cts.; 25 lbs. at 50 cts.; 100 lbs., or quantity left, at 48 cts.; 100 cases of second-hand five-gallon cans in good condition, at 40 cts. a case; 15 cases or less, at 45 cts., f. o. b. cars at Kenner, La.
H. C. AHLERS, Saint Rose, La.

FOR SALE.—Fifty second-hand eight-frame Dovetailed hives complete; four ten-frame chaff hives; 2500 sections; some queen-excluder zinc; 75 eight-frame moving screens, and 75 boxes of empty 60-lb. cans free from rust. All cheap. Write for description and prices to JOHN C. BULL,
Route 8, Valparaiso, Ind.

I will offer at public sale, the highest bidder the buyer, on April 29, 1911, 35 colonies of Italian bees; Danzenbaker hives, Dovetailed hives, two-frame reversible extractor, Dadant uncapping-can; sections; 2000 strawberry-crates; incubator and brooders full of Black Minorca chicks; bee-books and bee-journals. Bids for whole or parts will be received by mail up to the above date: 58 twin mating-hives; two frames containing wooden cells for forcing a breeding queen to lay eggs in cell cups; 600 blank cells for the same, never used. I am going out of the business, and will sell all; also an Oliver typewriter, and a ten-acre farm alongside the railroad. A. H. KANAGY, Kishacoquillas, Pa.

Wants and Exchanges

WANTED.—To exchange Brown Leghorns, stock or eggs, none better, for two or three frame nuclei of Italian bees and queen. J. R. HILL, Urbana, O.

WANTED.—To exchange for bees, 25 Langstroth hives; also Root's queen-rearing outfit, including 50 nuclei, new. GEO. P. WIGGIN, Sharon, Mass.

WANTED.—To exchange bee-hives and supers; 260-egg incubator; 25 varieties of apple-trees, for beeswax, poultry, rifle, typewriter.
F. H. MCFARLAND, Hyde Park, Vt.

WANTED.—Copies of GLEANINGS for Feb. 1, 1911. Subscribers having a copy of GLEANINGS to spare of the issue mentioned, will please so advise us. Numbers which are not in good condition are not needed. THE A. I. ROOT CO., Medina, O.

Real Estate

FOR SALE.—Forty acres of land, 37 acres cleared, new house, new windmill and tanks, 6 acres of peach orchard. Price $2300.
D. COOLEY, Kendall, Mich.

FOR SALE.—Five-acre citrus grove, 166 colonies of bees, complete outfit, honey-house; honey 85 to 90 cents per gallon, N. Y.; large living-house; well; horse; harness; $50 carpenter outfit. $2000 cash.
F. MCCANN, La Gloria, Cuba.

FOR SALE.—330 feet by 330 of good orange land fronting on county road; saw palmetto and oranges all around; half-mile from main street of Sarasota; $300 cash; no swamp; good bee location.
THOS. MCLAINE, Sarasota, Fla.

Opportunities

Reliable bee-keeper wants 100 or more colonies of bees within reasonable distance of Detroit or Buffalo. Address F 801, care of GLEANINGS, Medina, O.

Party has a good five-passenger touring car, fully equipped, used less than two years, to sell at a bargain; cost new $1100; sold a few months ago for $650; can be had now for $400 cash, or will take comb or extracted honey or wax in exchange.
Address Box 18, care of GLEANINGS, Medina, O.

Bees and Queens

FOR SALE.—Golden-all-over queens, and bee-keepers' supplies. T. L. MCMURRAY, Silverton, W. Va.

Extra early golden queens, $1.00. No disease. Cheaper in lots. MORGAN & MARSHALL, Hamburg, La.

FOR SALE.—Fifty colonies in eight-frame hives.
S. V. REEVES, Haddonfield, N. J.

If you are in the market for bees in car lots we can please you. L. E. WEST, Llano Grande, Tex.

Bees and queens of quality. Supplies. Catalog.
STRINGHAM, 105 Park Place, New York City.

WANTED.—Bees by the pound, nucleus, or full colony. J. B. MASON, Mechanic Falls, Me.

WANTED.—Carload of bees in May.
DECKER THOMSON, McGregor, Mich.

Golden queens $1.00; 6 for $5.00; 12 for $9.00; untested. J. B. CASE, Port Orange, Fla.

Golden queens, untested, remainder of season, 75 cts. each. R. O. COX, Rt. 4, Greenville, Ala.

FOR SALE.—Three-frame nuclei on Langstroth frames, with queen, $2.25.
W. H. STANLEY, Dixon, Ill.

Golden Italian queens and nuclei. No disease. Write for prices. J. H. WAGNER,
Box 305, Beatrice, Neb.

FOR SALE.—150 colonies of Italian bees, free from disease (equipped for producing extracted honey), at a bargain. B. WALKER, Clyde, Ill.

WANTED.—200 colonies of bees in hives. State kind of bees, hives, and prices.
Address WM. LARSEN, Green Bay, Wis.

Italian queens, 75 cts.; tested, $1.00; breeders, $5.00 each; two-frame nucleus with queen, $2.50.
E. M. COLLYER, 75 Broadway, Ossining, N. Y.

Bungalow Golden Italians; also non-swarming and educated queens, $3.00 to $100.00.
HENRY W. BRITTON, Stoughton, Mass.

Improved red-clover Italian queens bred from the best honey-gatherers obtainable. Untested, $1.00; 6 for $5.50; 12 for $10.00. J. H. GIBBS, Berlin, Md.

FOR SALE.—200 colonies of pure Italian bees in 8 and 10 fr. Dov. hives at $6.00 per colony; in lots of 10, $5.00 per colony. F. A. GRAY, Redwood Falls, Minn.

Golden queens, untested, $1.00; select untested, $1.50; breeders, $5.00 to $10; also Root's bee-supplies. Write for catalog. ROB'T INGHRAM, Sycamore, Pa.

Missouri-bred Italian queens; none better; prices right; write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

Golden and red-clover Italian queens; superior stock. Write for prices. WM. A. SHUFF,
Aldan, Delaware Co., Pa.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction.
W. W. DAKIN, Hood River, Ore.

FOR SALE.—Westwood red-clover queens and bees; nuclei and full colonies a specialty.
HENRY SHAFFER,
2860 Harrison Ave., Station L, Cincinnati, O.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Bradley's Store, Va.

Italian queens, good as the best; untested, 75 cts.; tested, $1.00. Shipments begin April 1st for bees by the pound and nucleus. Write for prices.
C. B. BANKSTON, Buffalo, Leon Co., Texas.

FOR SALE.—Fifty colonies of Italian bees in eight-frame, lower story of hives full of bees and honey; mostly Hoffman frames, and comparatively new hives; $4.00 each. W. F. HAYS, Edgar, Neb.

Nuclei with queens for last part of May and first part of June delivery. Prices, f. o. b. Pearl City, Ill., $3.50 each; 5 or more, $3.25 each; 10 or more, $3.00 each. On S. L. frames. Place orders now.
D. J. BLOCHER, Pearl City, Ill.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white, sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

I will ship 15 three-frame nuclei with tested and *select* tested honey queens of 1910, f. o. b. Kenner, La., Am. Express, on date wanted, at $2.75 each to first order accompanied with $5.00 or more; one or more at $3.00 each. H. C. AHLERS, Saint Rose, La.

Golden queens—very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei, and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

We offer, for 1911, yellow Golden queens from the best breeders to be found. Queens sent by return mail. Safe arrival and satisfaction guaranteed. Tested queens, $1.00 each; untested, 75 cts.; 3, $2.00; 10, $6.00. Reference, F. & M. bank.
W. S. MCKNIGHT, Newton, Ala.

Ready April 15, queens from our Superior Golden stock. They have a record of over 200 lbs. of honey per colony. One queen-yard at the same old stand, and one here. Untested, $1.25; 6, $6.00; 12, $10.00. Tested, $1.50 to $10.00. Discount on large orders. List free. T. S. HALL, Talking Rock, Pickens Co., Ga.

QUEENS—Scoggins' strain.—Accidentally discovered what I believe to be the greatest honey-gatherers known—a cross of Cyprians and Italians; thoroughly tested eight years for honey. If it is honey you want, buy these queens. Only a few extra-fine ones for sale. Price $1.00 to $5.00 for introduction. J. B. SCOGGINS, Fouke, Ark.

ITALIAN QUEENS.—Reared in strong colonies by the Doolittle method from extra select breeders. Three-band, leather-colored Italians exclusively, from the strain of The A. I. Root Co. Hardy, vigorous, and great honey-gatherers. Ready April 15. One dollar each: breeders, $5.00. Orders filled in rotation as received.
THE CROWN APIARIES, Mesilla Park, New Mex.

Fine Italian bees at a bargain. I have 325 stands of bees at Alma, Mo., in 8 and 10 frame hives, at $4.75 a stand; nuclei at $2.75, with queen. I will ship only the first week in May and last week in June from Alma, Mo., or will ship from Stover, Mo., at any time at regular price. Send for catalog of queens and bees and bee-supplies, and of incubators, brooders, and eggs of fine R. C. R. I. Reds and White Rocks. J. L. FAJEN, Stover, Mo.

Help Wanted

WANTED.—At once, a man who has had some experience with bees to assist in large apiaries.
C. B. HOWARD, Romulus, N. Y.

WANTED.—Good bee-man. State experience and full particulars in first letter.
APPLETON & BAGNALL, Simi, Cal.

WANTED.—Man to work with bees the coming season—begin at once. State age, experience, and wages in first letter.
THE ROCKY MOUNTAIN BEE CO., Berthoud, Col.

WANTED.—An experienced man in raising comb honey, to begin work about May 1st. Give references, experience, and wages wanted, in first letter. OGDEN BEE AND HONEY CO., Ogden, Utah.

Position Wanted

WANTED.—A situation in the Eastern States by an experienced bee-keeper.
F. G. DENZINGER, Olean, N. Y.

Poultry

FOR SALE.—Duston White Wyandottes, $2.00; 15 eggs, $1; $5 per 100. ELMER GIMLIN, Taylorville, Ill.

Buttercups for utility and beauty; selected pens; unlike others. H. V. MEEKER, Earl St., Toledo, O.

Barred Rocks, Bradley strain. Stock and eggs for sale. MRS. W. L. BENNETT, Crooksville, O.

FOR SALE.—Buff Orpington eggs, $1.25 per 15; $6.00 per 100. J. M. MUNDELL, Hobart, Ind.

Barred Plymouth Rock eggs for hatching, $2.00 per 15. K. R. SHELDON, Monmouth, Ill.

S. C. White Orpington eggs from extra good matings, $2.00 per 15. FRANK BRISCOE, DePauw, Ind.

Indian Runner duck eggs, $1.00 per 13. Booklet free. AARON FISHER, Box 37, La Park, Pa.

Eggs, circular free. Thousand Leghorns, Rocks, Orpingtons. M. A. BROWN, Rt. 3, Attleboro, Mass.

White and Brown Leghorn chicks: five other breeds. Price right. Catalog free.
D. Y. TAYLOR, Lyons, N. Y.

BUFF AND WHITE ORPINGTON eggs for hatching, $3.00 and $5.00 per 15. Prize-winning stock. Leading strains. WILL ASHLEY, Medina, O.

Leghorns, S. C. White; our "Egghorn" strain world's greatest layers; 15 eggs, guaranteed, $2.00.
A. SCHWIND, Chatham, N. Y.

White and Buff Rocks, 15 eggs per setting, $1.50; R. C. R. I. Reds, $2.00; Brown Leghorns, $1.00.
D. J. BLOCHER, Pearl City, Ill.

Single-comb Brown Leghorns, $1.00 per 15 eggs; for incubator, $3.75 per 100.
DAVE GLADFIELD, Rt. 34, Peoria, Ill.

W. Rocks are the best winter layers. Let me help you start right. Prices on eggs or day-old chicks on request. B. T. BOSERMAN, Williamstown, O.

S. C. White Leghorn, the "business hen." Have a fine laying strain. Eggs, $1.00 per 15. Incubator eggs, $4.00 per 100. F. B. LOOMIS, Rushville, N. Y.

White-Buff Orpington's, Minorcas, Barred Rocks, R. C. Reds. Eggs, $2.00 per 15.
F. B. SCHLOTTER, Keokuk, Iowa.

FOR SALE.—S. C. W. Leghorn and Indian Runner duck eggs—$5.00 and $7.00 per 100. Circular free.
C. H. ZURBURG, Topeka, Ill.

S. C. B. Leghorns, bred from record layers. Eggs, $2.00 per 15; $3.50 per 30. E. M. SHIRK, Edgwood, Wheeling, W. Va.

FOR SALE.—Indian Runner duck, White Wyandotte eggs. Utility stock, $1.00 per setting.
J. F. MICHAEL, Winchester, Ind.

White-faced Black Spanish eggs for hatching; 15, $1.00; 50, $3.00; 100, $5.00. Also dealer in bee-keepers' supplies of all kinds. A. W. SWAN, Centralia, Kan.

Partridge Wyandottes and Partridge Rocks—also all leading varieties. Prize-winning stock and eggs—reasonable. Catalog free.
JOHN T. CROUTHAMEL, Franconia, Pa.

S. C. White Leghorns exclusively. Bred to lay. Baby chicks. Eggs for hatching. All breeding males score 94 to 95¾, from 200-egg hens. Cat. free. Keystone Poultry Farm, Box 2500, New Milford, Pa.

Indian-Runner-duck-culture book; full history; 75 cts., money order; fawn and white; 11 eggs, $2.50; 30, $5.00. Catalog, 2 stamps. LEVI S. YODER, Box 50, Dublin, Pa.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St. Joseph, Mo.

Mr. Beekeeper, my new catalog is yours for the asking, Send for it. Eggs of Barred and White Plymouth, White Wyandotte, per 15, $1.00. We shall be pleased to hear from you. We fill orders promptly. H. S. DUBY, St. Anne, Ill.

SICILIAN BUTTERCUPS.—Stock and eggs for sale from original imported blood and from my ribbon-winners at the Appalachian Exposition and other shows. Free circular. MRS. J. S. DUMARESQ, Cato's Hall, Easton, Md.

R. C. R. I. Reds, Buff Wyandottes, S. C. White Leghorns—the kind that lay and pay; winners and bred from winners, Madison Square, Cleveland, Toledo, Jamestown, etc. Eggs for hatching. Mating and special sales list for the asking. Write to-day.
CONSOLIDATED POULTRY YARDS CO., Canton, O.

DAY-OLD CHICKS.—White Leghorn, Buff Orpington, Barred Rocks, White Rocks. Our chicks are large, strong, well hatched. They are sure to grow and do well. We can supply a limited number only, from best strains, at 10, 12, 15 cents each. Be friendly. Write your wants.
AMBROSE & KNIGHT, Urbana, O.

Indian Runner ducks from imported stock, fawn and white; very easy to raise and easy to keep. They are beauties too—lay eggs all the year; lay heaviest in winter. Eggs, $1.50 per 13; $7.00 per 100. Let me start you to success.
C. O. YOST, Rt. 4, Winchester, Ind.

Buff Leghorn eggs of quality. Our birds speak for themselves. Your order will be filled from hens that lay at 5 months; big layers, good payers. Do not wait—order to-day. Only $3.00 per setting.
WM. BRITTON,
Prop. Hillside Poultry Farm, Huntington, Ind.

S. C. R. I. Reds, large and beautiful, rich in color, and rich egg-layers; the winning strain. Eggs from exhibition pens, $2.00 per 15; $10.00 per 100. Eggs from standard pens, $1.00 per 15; $5.00 per 100. I can please you, sure.
C. O. YOST, Rt. 4, Winchester, Ind.

S. C. Rhode Island Reds. I shall have a limited number of settings from my $25.00 pen of S. C. R. I. Reds at $2.00 for 13 eggs. This stock is line bred to lay from the famous Wyckoff and Tompkins strains. Special care taken in shipping eggs.
L. W. BOYDEN, 682 West Liberty St., Medina, Ohio.

R. C. R. I. Reds. Finest flock of Rose Combs in Western Pennsylvania. We use a good cockerel for every 11 hens, therefore these eggs are practically all fertile. Utility, $1.00 per 15; from show-pen, $2.00. Circular free.
GOLDENROD BEE AND POULTRY FARM,
Grand Valley, Pa.

Order your copy of "American Standard of Perfection" through GLEANINGS. The new edition of this greatest of all poultry-books is now ready. Beautiful plates show feather-markings, etc., of every standard breed. Price $1.50, postpaid, in cloth; $2.25 in morocco binding.
BUYERS' BUREAU, GLEANINGS IN BEE CULTURE.

CHOICE STOCK.—"It pays to buy the best." Strictly pure-bred White Plymouth Rock and R. C. Rhode Island Reds, bred for laying as well as for show purposes. These two breeds are the best all-the-year-round layers, and are heavy and thrifty—regular mortgage-lifters. Eggs, 15 for $2.00; 30 for $3.50; 100 for $7.50. If you fail to hatch 75 per cent of my eggs I will duplicate the order at half price.
H. P. FAJEN, Stover, Mo.

CHICK FEED.—We carry in stock the finest, cleanest, sweetest chick feed that can be made. It is composed of clean pure seeds of many kinds—no weed seed nor dirt; no waste; they eat all of it. Chicks grow and thrive on our feed. Two sizes—fine, for small chicks; medium for larger. Price per 100 lbs., $2.50. Do not kill your chicks by feeding poor mixtures. Ask for samples. Poultry supplies of all kinds. AMBROSE & KNIGHT, Urbana, O.

Miscellaneous

Dahlias, 20 kinds, $1.00; other bargains. The best, at fair prices. H. BURT, Taunton, Mass.

Cherry currant, postpaid, $1.00 per 25.
THOMAS ASHMEAD, Williamson, N. Y.

Bee-keepers' Directory

Bees, queens, supplies, and export; free school.
W. C. MORRIS, Nap. Heights, Yonkers, N. Y.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York City.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Italian queens from direct imported mothers, red-clover strain. After June 1, $1.00. Circular.
A. W. YATES, 3 Chapman St., Hartford, Ct.

Improved golden-yellow Italian queens for 1911. Beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in '08-'09 without a single loss. For prices see large ad. QUIRIN-THE-QUEEN-BREEDER,
Bellevue, Ohio.

GRAY PRINTING CO., Fostoria, O.
Make ENGRAVINGS for GLEANINGS

Books and Magazines.

THE FRUIT-GROWERS GUIDE-BOOK.

By E. H. Favor, published by The Fruit-Grower. price $1.00.

This book is designed as a means of assisting many persons who are undertaking the growing of fruit on a commercial scale, yet who feel the need of specific information on many orcharding problems. It is of interest to both the amateur and professional fruit-grower, and is written in a clear, easy style.

This volume is of especial interest as it contains some of the latest information on the important subjects of orchard heating, and of spraying peaches for the control of brown rot; also the most desirable sites and locations for orchards; how to plant, prune, spray and pack the important orchard fruits.

It contains in condensed form the cream of the important facts of orcharding; contains 285 pages, and is splendidly illustrated.

We can furnish it from this office postpaid for $1.00.

"THE STORY OF THE SOIL."

"The Story of the Soil," by Cyril G. Hopkins, Professor of Soils and Crops, University of Illinois, a practical farmer and a scientific soil investigator; a book of 350 pages, handsomely printed with clear type on heavy wove white paper, in strong and durable binding; well illustrated with photographic reproductions of actual results secured in profitable systems of permanent soil improvement. This book can be obtained through us for $1.50, by freight or express, or for $1.62 postpaid.

"I must say I think the book is destined to do more good, stir more thought, encourage more upward effort among the farmers of this country than any other publication that has yet appeared. It was a happy thought making a human story of it.
Ex-Governor W. D. HOARD."

TEN EARS OF CORN FOR $350.

W. N. Scarff, the well-known nurseryman of New Carlisle, Ohio, whose advertisements have made their appearance in GLEANINGS for several years in advance of each planting season, has informed us of his latest acquisition of ten prize ears of corn. These were purchased at the National Corn Show held a few weeks back at Columbus, and Mr. Scarff paid at the rate of $35.00 per ear—$350 for the ten. Of course, Mr. Scarff's object is to improve the strain of seed corn he is selling throughout the world, and his judgment in buying the best at any price is to be complimented,

Convention Notices.

The Eastern New York Bee-keepers' Association will hold its fourth semi-annual convention in the City Hall, Albany, April 20. Sessions, 10:30 A.M. and 1:30 P.M. Dr. Burton N. Gates, of the Agricultural College, Amherst, Mass., is expected to give an address.

W. D. West, Middleburgh, N. Y., State Bee Inspector, will give a talk on foul brood; also on what to do and what not to do.

Alden Hilton, Schenectady, N. Y., will treat the subject of "Some Mistakes Made by Some Bee-keepers."

Henry Lansing, Troy, N. Y., will handle the subject of "Retailing the Honey Crop" He will also exhibit and demonstrate the hive he uses.

An urgent invitation is extended for all to attend who can possibly make it convenient to do so. A good time is anticipated.

Indian Fields, N. Y. S. DAVENPORT, Sec.

SHORT COURSE IN BEE-KEEPING GIVEN BY THE MASSACHUSETTS AGRICULTURAL COLLEGE, AMHERST, MASS., MAY 24 TO JUNE 7, 1911.

Throughout the year the Massachusetts Agricultural College has been receiving calls for a course in bee-keeping. To meet the demand, a short course covering the lines indicated herewith has been arranged. During the past year a regular department of instruction has been established at the college. This consists of an apiary, a museum, and library equipment.

The work as laid out is of the most practical nature, and every attempt will be made to emphasize the points which are most worth while, giving short cuts and modern methods most helpful to bee-keepers. The course is limited to fifteen students. Registrations are accepted in the order in which they are received.

The following experts in bee-keeping will give the work:

Dr. Burton N. Gates, Assistant Professor in Bee-keeping; Apiarist of Experiment Station, Amherst.

Dr. Wm. P. Brooks, Director of the Massachusetts Agricultural Experiment Station, Amherst.

Dr. George E. Stone, Professor of Botany, Massachusetts Agricultural College, Amherst.

Dr. Henry T. Fernald, Professor of Entomology, Massachusetts Agricultural College, Amherst.

Dr. James B. Paige, Professor of Veterinary Science, Massachusetts Agricultural College, Amherst.

Other bee-experts will be engaged for other lectures.

COURSES OF STUDY.

1. Practical Phases of Bee-keeping.—Lectures and demonstrations; personal and individual instruction in the handling of bees; rearing of queens; construction and use of different kinds of hives; comb and extracted honey; increase of colonies; control of swarming; the hiving of bees. Especial attention will be given to the diseases of bees and to their treatment, which are now known to be prevalent in practically all parts of the State.—DR. GATES.

2. Crops for Honey-bees.—Lectures and excursions; the relation of bees to fruits and forage-plants; a study of the plants yielding nectar; what to grow and how to grow them.—DR. BROOKS.

3. The Relation of Honey-bees to the Pollination of Plants.—Lectures and laboratory work; a study of the parts of the flower which produce pollen and nectar; foods of bees; a microscopical study will be made of the character of the grains which compose bee-bread, and of the organs which secrete nectar.—DR. STONE.

4. Structure of Bees.—The structure of bees as related to their work; how pollen and honey are gathered and carried to the hive; the production of wax; the composition of a colony; the principles of swarming, etc.—three lectures.—Dr. H. F. FERNALD.

5. Bees and Bee-keepers' Supplies.—The different types of hives, smokers, veils, and other equipment necessary in the successful development of this industry.—DR. PAIGE.

CONVENTION OF BEE-KEEPERS, JUNE 6 AND 7.

As a closing feature of this short course, a convention of bee-keepers is being planned for the above dates. Features of this convention will be the lectures and demonstrations by some of the leading authorities in this country, who are being especially engaged for this occasion, and the exhibits of bee-keepers' supplies and equipment.

Men and women who can not come for the whole course, and organizations of bee-keepers, are invited to meet at the college on those dates. By correspondence in advance, every effort will be made to render comfortable everybody who comes. A separate program of this convention will be issued later.

EXPENSE OF TAKING THE COURSE.

No tuition or fee will be charged. Board can be had at Draper Hall at $4.00 a week. Rooms in the vicinity of the college cost $1.50 to $3.00 a week, depending upon whether the room is occupied by one or two people. Rooms will be reserved for those who write for them in advance. For other information address WILLIAM D. HURD,

Director of Extension Work, Amherst, Mass.

Special Notices

BY OUR BUSINESS MANAGER

All communications for A. I. Root should now be addressed to Medina, Ohio, instead of Bradentown, Florida.

SWEET-CLOVER SEED.

We are again obliged to advance the price of unhulled white-sweet-clover seed one cent a pound. Our price till further notice will be: 1 lb., 17 cts.; 10 lbs., $1.50; 25 lbs., $3.50 or 100 lbs. for $13.00. We have a limited supply of this as well as of the hulled white. Of the hulled yellow annual we have a good supply. See adv't in another column.

BUCKWHEAT SEED.

We are prepared to furnish seed buckwheat, either silverhull or Japanese, at the following prices, not prepaid; Japanese, one peck, 35 cts.; ½ bushel, 65 cts, bushel, $1.20; 2 bushels, $2.25 Silverhull, peck. 40 cts.; ½ bushel, 75 cts.; bushel, $1.40; 2 bushels, $2.50 Bags included; 50 lbs. to the bushel. Small lots by mail at 12 cts. per lb., postpaid.

HONEY FOR SALE.

We have had a good many inquiries during the past year for California sage honey, but could not furnish. We now have one small lot that is amber in color, but of a fine sage flavor, at 9 cts. per lb., in five-gallon cans, f. o. b. Medina, O. Ask for sage sample. Orders will be filled in rotation.

We have a few cases of amber honey of good body and fine flavor left from a large New York shipment. In order to move this quickly we offer it at the low price of 8½ cts., f. o. b. Medina, in case lots of two five-gallon cans to the case. Mention lot 20 when writing for sample.

BEE LECTURES AT PHILADELPHIA.

As has been the custom for several years, the Root Company at the Philadelphia warehouse, 10 Vine St., expect to have some fifty colonies of bees on their roof throughout the season, and will give free lectures every Tuesday and Friday from twelve to one. All interested in bees are welcomed, and veils are furnished free. Free explanations and demonstrations in any line of bee-keeping are given, and all friends from far and near, who find it convenient to do so, are invited to attend as often as they can.

In past seasons amateur and advanced bee-keepers have journeyed quite a distance to hear Mr. Selser's lectures, and it is because of the interest shown that this feature has been arranged again this year. No special invitation required—come on either of the days named at the proper hour and you will be welcomed. For any additional particulars address Wm. A. Selser, 10 Vine Street, Philadelphia, Pa.

Kind Words From Our Customers.

I have a few pets in my father's back yard, which brought me in a good deal of pleasure as well as about $100 in money for the honey product. I enjoy GLEANINGS, and I wish to thank you.
Herkimer, N. Y., March 16. WM. O. RICHARD.

A KIND WORD FROM THE STATE SECRETARY OF THE Y. M. C. A.; IS IT THE COUNTRY PEOPLE AND NOT THE TOWNS WHO ARE KEEPING SOME OF OUR OHIO COUNTIES WET?

My dear Mr. Root:—I have had it on my mind for a good while to send you a letter that would reach you before you left your chickens and the sunny South. The thing that has been chiefly on my mind was simply this: Mrs. Bookwalter and I feel that we can not afford to miss a single one of those splendid "sermonettes" in GLEANINGS. A week ago last Sunday night, after I had been away constantly for several days, traveling over the State among our associations, I picked up GLEANINGS and read aloud that wonderfully helpful little talk, "His Leaf also shall Not Wither." We had been at church in the morning, but we agreed heartily that your sermonette was the most spiritually uplifting thing that we had heard or read for a long time. We simply can not afford to do without GLEANINGS, so I hope you will not cut me off the list. I remember with gratitude the day I was in Medina and you generously added my name to the mailing-list.

I am sure you will be interested to know that in your neighboring county of Lorain, that little city of Elyria is now in the midst of a $100,000 campaign to build a new Y. M. C. A. building. Messrs. Garford, W. N. Gates, Robinson, Sharp, and Allen—probably you know all of them—are the prime movers, through the Chamber of Commerce, in this enterprise. It will mean a great deal to the working men and boys of Elyria, of whom 987 have already signed up for membership in the proposed new association.

Along with this fact you will be interested to know also, if Huber has not already told you, that at a county committee meeting, at which your son was present last Thursday night, it was decided to open up Lorain Co. next for the rural type of association work you know so well in Medina Co. I believe the good Lord is going to use the Y. M. C. A. in Lorain Co. to do one great piece of work that needs so much to be done—namely, drive the saloon for ever out of that county. I was surprised to learn last week that it was not *Lorain*, as I had supposed, that had voted in the saloon in Lorain Co., but the unusual fact that it was *rural Lorain Co.* and the smaller towns that caused the defeat of the dry campaign. I think we can promise that, if county work is given two years in Lorain Co. among those smaller towns, there will be no question about the result when the fight comes up again at that time.

We are all very much interested in your life and activities wherever you may be, and every one who knows you knows that you are always working for the best interests of humanity and the kingdom of God. A. G. BOOKWALTER,
March 29. *State Secretary.*

CANADIAN BEE-KEEPERS

E. Grainger & Co., Deer Park, Toronto, announce to Canadian bee-keepers that they have a reasonably full line of Root bee-supplies on hand for shipment from Toronto. Large shipments will be made direct from the factory, and in many cases a considerable saving may be effected by placing orders with us.

See What Our Customers Say

North Toronto, March 1, 1911.

E. Grainger & Co., Toronto.
Dear Sirs:—The goods we received from you, manufactured by The A. I. Root Co., are most satisfactory. We find the frames fit beautifully; in fact, all the woodwork is so perfect and so clean and nice that we would not think of using any other make now. They are well worth the extra they cost.
A. W. O.

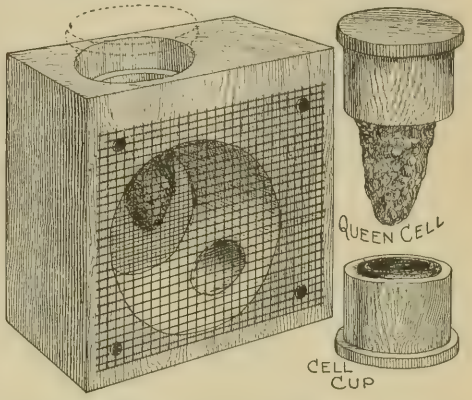
E. Grainger & Co., Toronto. Connaught, Mar. 7, 1911.
Dear Sirs:—Have received shipment of my order to-day. Every thing is in perfect order. Am very well pleased with the goods. D. R.

SEND ALL ORDERS TO

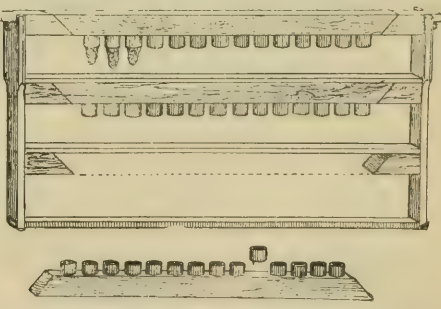
E. Grainger & Co., Deer Park, Toronto, Ont.

The Root QUEEN-REARING OUTFIT

IN THIS outfit are embraced the best points of the best systems in use. It will give satisfaction to the amateur as well as to the expert. The cell-cups are made of wood, with wax cells to use in them. No melted wax is used in their manipulation, as they are attached to the cell-stick by means of a small nail-point.

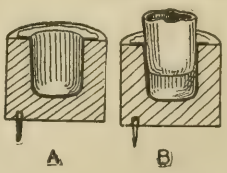


The nursery-cage combines the features of nursery and introducing cages. By their use a queen can be released on the candy plan or caged in the hive, as desired.



It connection with the outfit goes a booklet on queen-rearing. Outfit comprises three cell-bars with 100 wooden cell-cups; 200 wax cells, one frame of cages (24), 10 Miller's introducing-cages; one cell-forming stick; one set grafting-tools, and a book on queen-rearing, $4.50; postage, 55c.

Tools for Queen-breeders



Root cell-cup, with point for attaching to bar, 50c per 100, $4.00 per 1000. Postage 10c per 100.
Same, waxed ready for use, 75c per 100; $6.00 per 1000. Postage 10c per 100.
Queen nursery-cages, 10c each; 80c for 10; $7.00 per 100. Postage, 1c each.
Frame for holding 24 cages, including cages, $2.00. Postage 22c.
Cell-stick, 10c each; $1.00 per doz. Postage 1c each.
Transferring-needle, double-ended and nickel-plated, 25c. Postage 1c each.
Jelly-spoon, nickel-plated, 15c. Postage 1c each.
We can supply, also, fine-pointed lace-scissors with extra-large bows, for clumsy fingers, at 35c each. Postage 1c each.

The A. I. ROOT COMPANY
MEDINA, OHIO

IT PAYS TO USE

DADANT'S FOUNDATION

BEESWAX WANTED

DADANT & SONS
HAMILTON, ILLINOIS



Big Apples are Selling at 10 Cents Each . . . .

There is money in fruit-growing right where you are. Apples are worth twice as much as oranges. If you can not raise apples, there are are other fruits equally profitable.

Start an orchard. Those who planted orchards as advised by Green's Fruit Grower are getting their reward in big profits. You can pay for the orchard by growing small fruit in it.

Green's Fruit Grower

will tell you how and where to plant, how to prune and spray, and how to make your trees productive.

It is the oldest and most popular fruit grower's magazine. January is our 30th ANNIVERSARY NUMBER. We will start your subscription with that number.

Special offer to readers of GLEANINGS IN BEE CULTURE. We will mail new subscribers Green's Fruit Grower one year on trial for 25 cents.

GREEN'S FRUIT GROWER CO.

Box G, Rochester, N. Y.



200 Pages; Nearly 500 Subjects

A NEW Edition of This Popular Book

ADVANCED BEE CULTURE

By W Z. HUTCHINSON

E. R. ROOT, editor of *Gleanings in Bee Culture*, who revised Mr. Hutchinson's book which has just been published, has to say in *Gleanings:*

As a writer on bees Mr. Hutchinson has few equals. For clearness of style and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and the useful from an extended discussion is intuitive. The last edition of "Advanced Bee Culture," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by a master of the art of boiling down discussions.

I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced bee-keeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it in connection with some other work like the "A B C and X Y Z of Bee Culture," or any textbook designed especially for the beginner class.

Nearly 500 Subjects Pertinent to MODERN Bee-keeping are Authoritatively Discussed

ADVANCED BEE CULTURE is a beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that the many fine illustrations are unusually clear in every detail. The book has been bound in attractive and substantial cloth with clover design in natural colors on cover. All together it is a volume whose appearance and unquestionable worth justly entitle it to a place in the library of every bee-keeper. No more important work on this fascinating subject has recently appeared.

$1.50 Buys a $2.00 Value

ADVANCED BEE CULTURE costs $1.00 per copy. GLEANINGS IN BEE CULTURE (semi-monthly) — known and read by bee-keepers throughout the world— price $1.00 for an annual subscription. It is our pleasure, however, to offer this interesting and most useful combination — the book here described and GLEANINGS one year, both for $1.50. It is a value you will very seldom find—really it is a good $2.00 worth for $1.50.

USE THE COUPON

The A. I. Root Co., Medina, O.

The A. I. Root Co., Medina, Ohio.

For the enclosed remittance of $1.50 please send Gleanings to GBC-4-15-11

_____

_____

Send Advanced Bee Culture to

Name _____

Address _____

If Gleanings is to be sent to same party as book, sign only in last 2 blank lines.

Enlist as Local Agent

for the Fast-Working, Fast-Selling

Oliver Typewriter!

The battle lines of the Oliver Typewriter forces are forming for another campaign of conquest. The triumphs of 1910—the most brilliant ever achieved by a great sales organization—have served to inspire to more mighty deeds in the coming year.

The roll-call of the Oliver Sales Organization shows over 15,000 men **under arms**—the most magnificent body of trained salesmen in the world.

This Sales Force, great as it is, cannot cope with the tremendous increase in business which the popularity of the Oliver Typewriter has created.

Resident Agents Wanted in every Town and Village

This advertisement is a call for reinforcements—to enable the Oliver Sales Force to extend its skirmish lines to all sections of the country.

The central idea of our selling system is to have—**everywhere**—a vigilant agent of the Oliver Typewriter constantly **on the ground.** Whether that agent devotes part or all of his time to the sale of the Oliver Typewriter is left to his own discretion.

Teachers, tradesmen, doctors, ministers, lawyers, stenographers, telegraph operators, printers, mechanics—men and women in a multitude of different occupations—can succeed as local agents for the Oliver Typewriter. If you have the will to take up this work, **we will point out the way.**

The OLIVER Typewriter

The Standard Visible Writer

The Oliver Typewriter has been breaking records since the day it was placed on the market. **Efficiency** records, **speed** records, **endurance** records—it has won them in quick succession. It sets the swiftest pace in sales by giving **unparalleled service.**

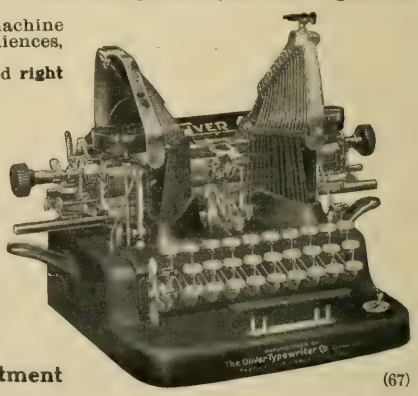
With **several hundred less parts** than other standard typewriters, its **simplicity, strength, ease of operation, versatility and convenience** are correspondingly **increased.**

"17-Cents-a-Day" Plan a Wonderful Aid to Agents

This machine, with all of its advantages, all of its time and labor-saving devices, the Local Agent can buy—**and sell**—for Seventeen-Cents-a-Day.

The Oliver Typewriter No. 5—the newest model—the $100 machine—equipped with a brilliant array of new devices and conveniences, **actually offered for pennies!**

This irresistable offer enables the Local Agent to succeed right from the word "go!"



Write for Inspiring Book, "The Rise of the Local Agent"

Read the life stories of men who rose from the Local Agency ranks to positions of great importance in the Oliver Organization—How one Local Agent is to-day the Typewriter King of Mexico. (Mexican Government reports show that more Oliver Typewriters are imported than all other typewriters combined).

These inspiring stories will open your eyes to the **big opportunities still open** for ambitious men to carry the Oliver flag, fight for new records and reap the rewards of success.

Send a personal letter today while the **Call for Volunteers** is ringing in your ears.

Address Agency Department

(67)

The OLIVER TYPEWRITER CO., 116 Prospect St., Cleveland, O.

Gleanings in Bee Culture

VOL. XXXIX MAY 1, 1911 NO. 9

BUCKWHEAT CAKES

The consumption of buckwheat has fallen off not less than thirty per cent in the last five years.—Daily paper.

BY MINNA IRVING

Who dares to say the buckwheat cake,
All brown and feather-light,
And dripping golden nectar, tempts
No more the appetite?
Oh! not until the sun above
Its azure vault forsakes,
Will sons and daughters of the free
Renounce their buckwheat cakes.

In twenty million homes to-day
The seas of batter rise;
The smoke of countless griddles hot
Ascend the morning skies;
And while the piled-up platters wait,
A tireless army bakes,
For hungry legions, tons and tons
Of toothsome buckwheat cakes.

Though Scotland as the land o' cakes
Is famous far and wide,
Lo! with America she must
The title now divide;
While everybody round the board
A second helping takes,
We hail our native country as
The land of buckwheat cakes.

Among the silver stars that stud
The shield of Liberty,
Columbia should introduce
The buckwheat and the bee.
Bring on the honey from the hive;
Behold! the nation wakes
From Maine to California,
And calls for buckwheat cakes.

By courtesy of *Leslie's Weekly*.
Copyrighted 1911 by Leslie-Judge Company

Order From DES MOINES

THE A. I. ROOT COMPANY Branch at Des Moines had a most auspicious start through our good fortune in taking over the old and well-established supply-business of Jos. Nysewander. Thorough acquaintance with all bee-keepers in this section and with their general requirements has placed this branch in an enviable position for giving satisfactory service. Needless to say, it is our aim to conduct all transactions at this branch in a way that will creditably reflect upon the good reputation that ROOT'S GOODS have gained among bee-keepers in Iowa and throughout the Middle West.

Let us tell you of advantages in dealing in Des Moines:

1911 Supplies and Stock

We are fully prepared to meet the demands of the coming season, which bids fair to be a big one. Our warehouse, completed last fall, gives much greater capacity for stock than we have previously enjoyed. This, with the older building, gives us the advantage of arranging our stock in such a manner that orders can be packed very quickly with no waste of time. Carlots of fresh supplies continually come from our factory to keep our stock complete.

Shipping Facilities

Des Moines is favorably known as a shipping center that has few equals. With our warehouse conveniently located and our facilities for quick and careful packing we can get goods off on the numerous steam or interurban lines in very short order. Through trunk lines, a net work of trolleys running in practically every direction—all these insure not only the saving of time but a desirable saving in freight or express charges as well. No delay in filling even the largest orders at Des Moines is our policy.

Packing

We do not charge for packing, boxing, or delivering to freight or express offices in Des Moines. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B. Des Moines. If no agent at your station, notify us and we will prepay, and bill charges after shipment. Often during the busy season much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what charges will be from Des Moines.

Careful Attention and Prompt Service is Our Aim. We Try to Ship Mail and Express Orders the Day They are Received. Freight Orders are Filled in Order of Receipt. No Order is Too Small or Large for Our Personal Attention.

Root Goods are Standard Goods!

Remember that ROOT'S Bee-keepers' Supplies are recognized all over the world as the STANDARD—standard in dimensions, standard in quality. Every part and place fits exactly in the place it was intended for. All parts are made with the utmost care and accuracy, and can be placed in any other hive of the same style without a hitch in fit. Our lumber is selected with a view to getting the best to be procured. It is carefully sorted and throughly seasoned. And no less care is taken in the choice of any material whatever that goes into a product which, when finished, is to bear the ROOT label.

The Des Moines Branch has the benefit of the experience of a manager who thoroughly understands the requirements of those engaged in this business either for profit or pleasure. He couples with his knowledge the desire to make his service valuable to you upon any occasion. Do not be afraid to make known your wants—come to Des Moines, or write and we will show you every possible consideration.

The A. I. Root Co., Des Moines, Iowa

Iowa Phone 968 Formerly Jos. Nysewander, Bee-Supplies

"Falcon" Foundation

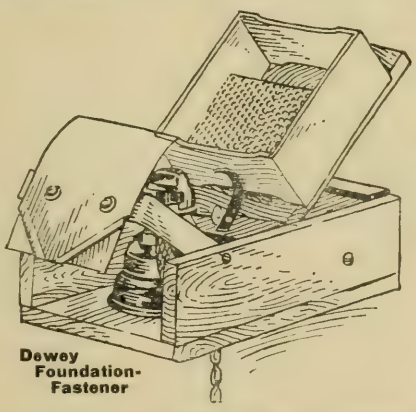
In our hive and bee-keeper's supply plant, foundation manufacture has been a specialty. We were in the business long before the advent of foundation-mills. We manufactured it by the old dipping and press process. "We have grown up with the business." Have had our share in developing it. Numerous experiments and long experience in wax-working have made us masters of the subject. **"Falcon"** foundation is the result—a product unsurpassed by any other make. . . . Write for samples.

Dewey Foundation-fastener

ONE OF MANY

Puyallup, Wash., April 10, 1911.
W. T. Falconer Mfg. Co., Chicago, Ill.
Dear Sirs:—Will you please forward me samples of "Falcon" foundation? . . I have one of your Dewey Foundation-fasteners which I ordered from your New York house, and would not part with same for $10.00 if I could not have another like it. They work as easy and perfect as a clock.
Yours for success, P. A. NORMAN.

Our three new 1911 carload distributing-houses give Dewey Fasteners with orders for three thousand or more "**Falcon**" sections.



Dewey Foundation-Fastener

Kansas City, Mo.
C. C. Clemons Bee Supply Co., 130 Grand Ave.

Chicago, Illinois
W. T. Falconer Mfg. Co., 117 No. Jefferson

Worcester, Mass.
Ross Bros. Co., . 90 Front Street

Write the nearest one to you and they will tell you about the Dewey Foundation-fasteners and the "FALCON" thermometers which they send free with orders.

Order from Your Nearest Dealer

Ross Bros. Co., 90 Front St., Worcester, Mass.
J. J. Wilder, Cordele, Ga.
The Fred W. Muth Co., 51 Walnut St., Cincinnati, Ohio.
Deroy Taylor, Lyons, Wayne Co., N. Y.
Cull & Williams Co., 180 Washington St., Providence, R. I.
Hudson Shaver & Son, Perch River, Jefferson Co., N. Y.
C. C. Clemons Bee Supply Co., 130 Grand Ave., Kansas City, Mo.
A. M. Applegate, Reynoldsville, Penn.
J. R. Rambo, Collingdale (near Phila.), Pa.
Bridat & Mont'ros, Havana, Cuba.
E. Lyons & Son, Kingston, Jamaica.
Edmonson Bros., 10 Dame Street, Dublin, Ireland.

"Falcon" GOODS are sold in Mexico, Germany, Turkey, South and Central Africa, Australia, New Zealand, and everywhere.

W. T. Falconer Mfg. Company

Factory
FALCONER, N. Y.

Branch
117 No. Jefferson St., Chicago, Ills.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy and No. 1 comb honey, 14 to 15; white extracted, 11 to 12. Beeswax, 30.

BLAKE-LEE CO.

4 Chatham Row, Boston, Mass., April 20.

ZANESVILLE.—There is a good demand for honey at the present time. Best grades of white clover bring 18 to 19; extracted, 10 to 11. Producers are offered for beeswax 28 cents in cash or 30 in exchange for bee-supplies.

Zanesville, O., April 19. E. W. PEIRCE.

CHICAGO.—There is practically no change in the prices of honey in the markets from quotations given in April, and the volume of sales is very small. Beeswax continues to be in good demand at 32 cts. per lb.

Chicago, Ill., April 19. R. A. BURNETT & Co.

CINCINNATI.—The market on fancy white comb honey is exhausted. There is no demand for amber or off-grade comb honey. White extracted honey in 60-lb. cans brings 10 cents per lb.; light amber, in barrels, 7½. Beeswax is in fair demand at $34.00 per 100 lbs. The above are our selling prices, not what we are paying.

Cincinnati, O., April 19. C. H. W. WEBER & Co.

KANSAS CITY.—The demand for both comb and extracted honey is light, as are the receipts. We quote No. 1 white comb, 24 sections, $3.25 to $3.35; No. 2 ditto, $3.00; No. 1 amber ditto, $3.00 to $3.25; No. 2 amber ditto, $2.50 to $2.75; white extracted, 8½; amber extracted, 7 to 7½. Beeswax, No. 1, 25 to 30; No. 2, 20 to 25.

C. C. CLEMONS PRO. CO.

Kansas City, Mo., April 20.

LIVERPOOL.—Since we last reported, our market has been quiet. Sales have been restricted, owing to a shortage of stock and also on account of high prices demanded. The principal demand is for honeys of the values of $5.75 to $6.48 per 100 lbs., and brown Haitien would be the most suitable quality to meet this demand. There is, of course, always an inquiry for fine white smooth honey. We quote California, $10.08 to $10.80; Peruvian, $3.84 to $4.80; Jamaican, $6.00 to $6.72; Haitien, $5.52 to $7.20. Beeswax is slow, with sales of Chilean at $38.08 to $39.92 per cwt. Other qualities are nominally worth as follows: African, $32.64 to $34.48; American, $33.88 to $36.28; West Indian, $32.64 to $36.28; Jamaican, $36.88 to $40.92.

TAYLOR & Co.

7 Tithebarn St., Liverpool, Eng., April 6.

Honey Markets continued on page 5.

Now for 1911 Bee-Supplies

We have already received several carloads of that "finest of all Beeware"—Falconer make—anticipating the heavy rush of orders sure to come this Spring. Prepare yourself NOW, Brother, for we are going to have a heavy honey yield this season, and those who order early are the ones who will profit most. Send for our catalog to-day, and see our "MUTH SPECIAL" Dovetailed Hive, and also our "IDEAL METAL" Cover—both DANDIES. We sell you cheaper than the rest; we have the Best. Let us figure on your wants—we will surprise you.

THE FRED W. MUTH CO.

51 Walnut Street "The Busy Bee Men" Cincinnati, Ohio

ALMOST READY

To what stage have your preparations for the coming busy season advanced? Are you almost ready? Have you anticipated a generous honey-flow—the big crop we are all looking for? or have you timidly stocked up on sections, extra supers, foundation and other supplies so essential to successful bee-keeping?

Get Ready Now!

You save absolutely nothing by waiting; and, on the other hand, a little delay may mean a serious loss to you. Just the time when you are going to need that small rush order, other bee-keepers, who have also waited, are going to be in a big hurry too. We never have to remind our friends of our convenient location and well-fitted warehouse in the season of honey-flow. We get orders just as fast as we can possibly attend to them; but this service is not satisfactory, as a rule, to the patron who wants IMMEDIATE shipments. The only way to avoid all danger of delay is to order far enough in advance to get in ahead of the other man's order. Give us a little time to put your goods up in a careful and painstaking way—to make shipments over the cheapest routes—to serve you as we always try to do.

Let us remind you again of our new catalog. This is a book you ought to have. It lists all the approved appliances of modern bee-keeping, and prices them at figures that will save you money. Better not wait longer if you have not received your copy—GET IT TO-DAY!

Remember, if you please, our excellent facilities for prompt and satisfactory shipments. We take care of all orders very promptly—in season or out. Our patrons know that Prompt Shipments and Complete Stocks are Weber recommendations; but we suggest EARLY ORDERS that you may not be disappointed. Even a few hours' time seems terribly long to wait when a few hundred sections are needed. We have experienced these delays—we want to help you guard against them. The ONLY WAY is to ORDER NOW!

Poultry Supplies

A special catalog of these goods, which we will gladly furnish free upon request.

C. H. W. Weber & Co., Cincinnati, O.

2146 Central Avenue

Gleanings in Bee Culture

E. R. ROOT, Editor — A. I. ROOT, Editor Home Dept. — H. H. ROOT, Ass't Editor — J. T. CALVERT, Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, "Stenog," Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, Mrs. H. G. Acklin.

$1.00 per year. When paid in advance: 2 years, $1.50; 3 years, $2.00; 5 years, $3.00.

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HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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DUNEDIN, NEW ZEALAND. Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/7 p.*

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Extracted Honey Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

Honey Markets continued from page 2.

NEW YORK.—We have some demand for fancy and No. 1 white comb honey, and are gradually reducing our stock; lower grades, however, such as No. 2 white, mixed, and buckwheat, are entirely neglected, and almost unsalable at any firm figure. We quote No. 1 and fancy white at from 14 to 15; all other grades, 8 to 11 cts., according to quality. Extracted is in good demand, for white and light amber; but little supply, and firm prices. Beeswax is quiet at 29 to 30.

New York, April 20. HILDRETH & SEGELKEN.

CINCINNATI.—The demand for honey has slackened up considerably during the last month, owing to the approach of warm weather. While there are quantities of extracted honey on the market, the price remains about the same as it was some time back. We are selling the finest honey in 60-pound cans at 10 to 11; amber honey in barrels, 6 to 8, according to the quality and quantity purchased. Comb honey is selling at from $3.75 to $3.85 per case from the store. We are paying 30 cts. cash or 32 in trade for choice bright yellow beeswax.

Cincinnati, April 26. THE FRED W. MUTH CO.

ST. LOUIS.—The stocks of comb as well as of extracted honey are not large, and not by any means burdensome. The demand, however, is very light, and with the approach of the new season buyers are looking for lower prices. We quote fancy white comb honey at 16 to 16½; No. 1, 15 to 15½; choice amber, 14 to 15; dark, 10 to 11; broken and leaking honey sells at a little less. Extracted, white clover, in five-gallon cans, nominal at 8½ to 9 (there is none in the market at present); California light amber, 8¼ to 8½; Southern light amber in five-gallon cans, 8 to 8½; in barrels and half-barrels, 7½. Beeswax is scarce, and in demand at 29 to 29½ for prime quality; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., April 25.

Boston Is the Shipping Center of **New England**

Bee-keepers should bear this in mind when ordering their supplies. . A full line of supplies always in stock. . . . . Send for catalog.

H. H. JEPSON

182 Friend Street . BOSTON, MASS.

Best Quality of Italians

Tested, Selected Queens. Address

L. SIMONI, . . . Livorno (Leghorn), Italy

Successor to Bianconcini

Our Famous RED-CLOVER and GOLDEN QUEENS

Untested, 50c; select untested, 75c; tested, $1.00. Nuclei, $1.00 per frame.

Evansville Bee and Honey Co., . Evansville, Indiana

HONEY-CANS

We can furnish you new 60-pound cans, well made, at a low price. Write about same. Italian queens, $1. Catalog free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK

Apiaries, Glen Cove, L. I.

PATENTS 25 YEARS' PRACTICE

CHAS. J. WILLIAMSON, Rooms 304 to 307, Savings Bank Bldg., 7th and E. Sts., WASHINGTON, D. C.

Patent Practice in Patent Office and Courts. **Patent Counsel of The A. I. Root Co**

DENVER.—Demand for honey lighter than usual for this time of year. We make the following jobbing quotations: No. 1 white comb honey, per case of 24 sections, $3.15; No. 1, light amber, $2.93; No. 2, $2.70. White extracted honey, 9 to 10; light amber, 8¼ to 9. We have no amber to quote. We pay 26 cts. cash, and 28 cts. in trade for yellow beeswax delivered here.

COLORADO HONEY PRODUCERS' ASS'N.

Denver, Col., April 18.

BUFFALO.—There is not a very brisk demand for honey of any kind now, except good white comb, and that is very scarce. There is about enough demand to take all as fast as any arrives. A good many buyers will not buy under grades of comb at any price. There is a demand for No. 2 white and dark comb by cutting the price considerably to the cheap trade. We quote No. 1 to fancy white comb at 16 to 17; No. 2 ditto, 12 to 14; buckwheat, 10 to 12; white extracted, 8 to 9; dark ditto, 7 to 8; tumblers, 85 to 90 cts. per dozen. Beeswax, 28 to 30.

Buffalo, N. Y., April 21. W. C. TOWNSEND.

INDIANAPOLIS.—There is a good and steady demand here for best grades of white-clover comb and extracted honey. Jobbing houses are well supplied, but practically none is now being offered by producers, and it is evident that there will be a shortage before the new crop can arrive. Fancy white comb is being offered at 18 cts.; No. 1, white, 17; extracted, 11, with some slight reductions on quantity lots. It is presumed that producers are being paid about 2 cents less than above quotations. Producers of beeswax are being paid 29 cents cash or 31 in trade.

Indianapolis, April 19. WALTER S. POUDER.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873 CIRCULATION 35,000 72 Pages Semi-monthly

A. L. BOYDEN, Advertising Manager

ADVERTISING RATES

Twenty-five cents per agate line, flat. Fourteen lines to inch.
SPACE RATES. To be used in one issue: One-fourth page, $12.50; one-half page, $25.00; one page, $50.00.
Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover, 50 per cent additional
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.
Column width, 2⅝ inches.
Column length, 8 inches.
Columns to page, 2 (regular magazine page).
Forms close 10th and 25th.
Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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BEES FOR SALE!

I have 100 colonies of bees here at Flint, and there are reasons why I prefer to begin the season with a smaller number.

They are in ten-frame Langstroth hives. The hives are all new, made of soft white pine, and painted with two coats of white paint. Nearly all of the combs are built from wired foundation. The bees are all pure Italians, and mostly of the Superior stock, or Moore strain. Every thing is strictly first class—could not be better.

Prices are as follows: Less than five colonies, $7.00 per colony; five colonies or more, but less than ten, $6.50 per colony; ten or more colonies, $6.00 per colony.

The bees will be shipped by express in May, about fruit-blooming time, and safe arrival in perfect condition guaranteed.

Each purchaser will receive the Bee-keepers' Review free for one year.

W. Z. HUTCHINSON, Flint, Mich.

Queens . . . Queens

200 to 300 per month. Untested, $1.00; tested, $1.25; select tested, $2.00; breeders, $3.00. Nuclei, full colonies, bees by the pound. Have letter from the State certifying my bees are free from foul brood.

Frank M. Keith, 83½ Florence St., Worcester, Mass.

QUEENS!
BY RETURN MAIL

Tested, $1.00; $12.00 per dozen.
Untested, $1.00; $9.00 per doz.
Three-band Italians only; bred for business, and every queen guaranteed. Send for price list.

J. W. K. SHAW & CO.
Loreauville, Iberia Parish, Louisiana

Italian Queens and Bees

Limited number of Select Queens, 75 cts. each; six for $3.75; or $7.00 per dozen. Tested, $1.25 each. One pound of bees with young (laying) Italian queen, $2.00. Bees and queens ready June 1. My circular is free. Send for one. . . . . .

GEO. W. BARNES, Box 340, Norwalk, O.

"Wake Up, Uncle Ed!"

says my little niece when, to please her, I close my eyes and feign sleep. PLAYING 'POSSUM is all right in its place, but is rather expensive pastime for a bee-keeper.

Wake Up, Mr. Beeman!

It's May 1, and if you don't look out the bees will beat you to it. Send PEIRCE that supply order to-day. "Peirce Service" means best goods, best delivery, best treatment—just a little better than "the other fellow" can offer. A catalog is yours for the asking. If you forget the initials (E. W.), just address

PEIRCE, THE BEEMAN
ZANESVILLE, OHIO

Swarming Prevented!

A new method, just published, worthy of investigation by all progressive bee-keepers. Advantages claimed for the plan of treatment. No clipping of queens' wings—no caging of queens—not even necessary to look for queens—no pinching of queen-cells—no shook-swarming—no dividing—no extra expense connected with the plan—plan simple and easy to carry out—satisfactory honey crop—saves time and labor. Send to

DR. H. JONES, PRESTON, MINNESOTA

for his booklet describing his method of treatment. Price 25 cents.

LOCKHART'S - SILVER - GRAY - CARNIOLANS

"LINE BRED" for the past 25 years. They are VERY hardy, gentle, prolific, great workers, and builders of VERY WHITE combs, and use mostly wax in place of propolis. Pure Carniolans ABSOLUTELY. I have no yellow-banded bees. No foul brood here. 200 choice queens for early orders. Tested, $2.00. Select tested, $3 00. Best breeders, $5.00.

F. A. LOCKHART & CO., Lake George, N. Y.

LEWIS BEE-WARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY CO. (Not Inc.)
Successors to YORK HONEY & BEE-SUPPLY COMPANY

148 W. Superior St. Chicago, Ill.
Send for catalog. ENOUGH SAID.

Have You Delayed Getting Your Supplies?

As the years go by, bee-keepers are ordering their goods during the winter months.

A few there are as yet who wait till the last minute, even waiting till the bees swarm and are hanging on the trees, before ordering hives.

Are you one of the last, or are you one of those "looking ahead"?

The A. I. Root Company

Syracuse, N. Y.



Established 1885

We carry an up-to-date . . line of . .

Bee-keepers' Supplies. . . .

Prices the lowest in the West. Write us for our 50-page catalog, ready to mail you. Free for the asking. . We can fill your orders promptly and satisfactorily. Our old customers know what we handle; to new ones we can say that we have

THE ROOT COMPANY'S Make of SUPPLIES

hence there is nothing to fear as to quality. . . . . .

Send us your rush orders and get your goods before swarming time arrives. . . . . .

Beeswax taken in exchange for supplies or cash. . . . . .

John Nebel & Son Supply Co. High Hill, Montg. Co., Mo.

BEE SUPPLIES

We carry a full and complete line of Root's Celebrated Bee-keepers' Supplies. By buying in carload lots we are enabled to sell at factory prices f. o. b. Dallas. . . . . .

We also carry the largest and best assorted stock of the celebrated Texseed Brand Garden and Field Seeds in the South; Incubators and Brooders, and poultry supplies of all kinds.

Send for illustrated catalog.

Texas Seed & Floral Co.

Dallas, Texas

When you have honey or beeswax for sale write us.

COMB-HONEY OUTFIT No. 5

It is a matter of some difficulty for the average beginner to decide exactly what he requires as an outfit for the first start in bee-keeping. To relieve the beginner of all perplexity we list certain outfits which we think will meet his needs. The one we give below is what may be fairly considered the best. Each item has been very carefully selected, and we doubt the wisdom of leaving any article out; but the purchaser may do so without altering the prices on the other items.

1 A B C and X Y Z of Bee Culture (536 p.),	$1.50
1 copy "Facts about Bees"	.10
1 year's subscription to "Gleanings," .	1.00
1 Root Smoker	.65
1 pair cotton bee-gloves (small, med., or large)	.50
1 silk-front bee-veil	.60
1 full col. Italian bees in Danzenbaker hive (Complete with 32 section honey-boxes)	12.00
1 untested Italian queen	1.50
2 Danz. hives complete for comb honey . (Nailed and painted, ready for the bees)	6.80
1 Porter bee-escape and board . . . . (For taking honey from the bees)	.35

Special Offer Delivered at any express office north Ohio River and east Mississippi River **$25.00**

For delivery to points outside of the above free limit, we will make terms on application.

The colony of bees is as near perfect as we can make them. The combs are beautifully straight and well filled with brood. The breeding of the queen is of the very best, so that one has the nucleus of a fine stock of bees. In many cases a return of $10.00 in honey has been secured the first year from just such an outfit as this, and in addition one or two swarms may be secured, which practically doubles the value of the investment. Order at once.

The A. I. Root Co., Medina, Ohio

Bee-keepers who Have

THOROUGHBRED CHICKENS

and want to sell eggs and stock at good prices should use space under the POULTRY heading in the

Classified Pages

In proportion to the cost it is doubtful if any other medium offers as good an opportunity for profitable returns on such offerings as

Gleanings in Bee Culture

Read this from one of our satisfied advertisers:

"I will say that what little advertising we did in GLEANINGS has brought us about all the business we can attend to this season,"

—and others say the same.

Read the POULTRY advertisements yourself. Read Mr. A. I. Root's talks on CHICKENS—advertise in GLEANINGS, and GET results.

The Bees Won't Wait for You

Are you ready for them? We have a complete stock of Root's Goods.

Sections . . . . .
"Root Quality" kind.

Foundation . . .
Weed Process—also "Root Quality.

Hives . . . . . .
Let us quote you on new equipment. Special quotations on complete outfits.

Extractors . . . .
Small machines for the small producer up to the eight-frame power outfits.

Beginners' Outfits .
Do you wish to make a start with bees, as hundreds of others are doing? We will help you decide on your needs.

Beeswax Wanted . .
We also sell berry baskets and crates. . . . . Send for catalog.

M. H. HUNT & SON

Opposite Lake Shore Depot

Lansing, Michigan



"If goods are wanted quick, send to Pouder." . . . Twenty-second Year.

BEE-SUPPLIES

A large and complete stock of the Root Goods offered at the factory schedule of prices. My system of rotating does not permit any accumulation of old stock. My comb foundation is always fresh from the mills; my sections fresh and bright, and hives have all latest improvements. I accept beeswax in payment for goods, or I will pay highest market price for wax in cash. I am in need of more wax at all times.

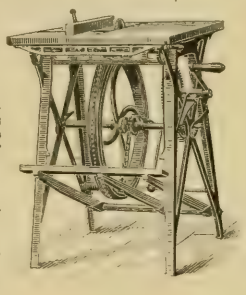
My **Perfection Tight-seal Jars** are acknowledged as being the best for extracted honey, and I assume all responsibility in shipping, guaranteeing safe arrival. I mean exactly what I say.

My new **Paper Honey-jars** are cheap enough for retailers to give away with their honey. No more waiting to exchange jars or crocks when you deliver your honey. My catalog tells all about these things, and is sent free.

WALTER S. POUDER, 859 Massachusetts Avenue, Indianapolis, Indiana

BARNES' Hand and Foot Power MACHINERY

This cut represeuts our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.



Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JNO. BARNES CO., 545 Ruby St., ROCKFORD, . ILLINOIS.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine

J. B. MASON, Manager

THOROUGHBREDS--Eggs for Hatching

Strictly pure-bred stock of R. C. Rhode Island Reds, White Plymouth Rocks, and Spangled Hamburgs. All of my stock is bred for laying as well as show purposes. The Reds and the Rocks are great winter layers, and are large and thrifty. The Hamburg is one of the prettiest chickens ever introduced, and are as good layers as the Leghorns. Fifteen eggs for 75 cents. You can not buy better stock at three times my price.

H. P. FAJEN, - - STOVER, MISSOURI

Nature Education and Recreation

For Boys and Girls:
NATURE AND SCIENCE (of St. Nicholas Magazine), . Per year, $3.00

For Men and Women:
THE GUIDE TO NATURE (monthly, illustrated) . . Per year, 1.00
$4.00

BOTH, ONE YEAR, $3.00; sample of either, 10c.

For Teachers:
"How Nature Study Should be Taught," (203 pgs.) . Postpaid, $1.00

For Everybody:
"The Spirit of Nature Study," (222 pgs., illustrated) . postpaid, $1.00
"Walking; a Fine Art," (164 pgs., illustrated) . . . Postpaid, $1.50
"Three Kingdoms," the handbook of the AA . . . Postpaid, .75

For Plants:
Sachs Nutrient Tablets, a box, post., 10c.

For You (to aid and be aided):
The Agassiz Association (Popular Nature Society).

For Correspondents:
(To write for further information.)

Edward F. Bigelow

Arcadia : : Sound Beach, Connecticut

Controlling Mating of Queen Bees

The April number of the American Bee Journal contains an article by C. O. Smith, outlining a method of controlling the mating of queens. He thinks he has discovered a plan that will be a success. No doubt every reader of Gleanings in Bee Culture will be glad to read what Mr. Smith says on this subject.

"CO-OPERATION AMONG BEE-KEEPERS" is also discussed in this number.

A good concrete honey-house is described and illustrated.

Uniform hives, shipping-cases, and general apiarian fixtures are discussed by Messrs. F. Greiner and Frank Rauchfuss

"WINTER STORES FOR BEES" is a topic handled by G. M. Doolittle.

Dr. Miller answers some 80 questions in the April number.

TRANSFERRING BEES from box hives to movable-frame hives is described by J. J. Wilder, with nine pictures showing just how it is done.

Copies of the American Bee Journal for January, February, and March are just as interesting as this April number. We will send a copy of the April number for 10 cents, or all the numbers for January, February, March, and April for 20 cents. After reading either the one or the four numbers you will want to have the American Bee Journal the rest of the year. The price is $1.00 a year, and the 10 cents or 20 cents sent in reply to this advertisement can be applied on a year's future subscription. That is, if you send 10 cents only 90 cents more will be necessary to pay for a full year beyond the copy you receive; or if you send 20 cents for the four numbers then all that will be necessary will be 80 cents to pay a year beyond April, 1911.

If you have never seen the American Bee Journal, you will be glad that you answered this advertisement and secured either the April number for 10 cents or all the numbers for the first four months of this year for 20 cents.

George W. York & Co., 117 No. Jefferson St., Chicago, Illinois

"Griggs Saves You Freight"

TOLEDO

is the Place all Beemen have Their "I" on Now

THE HONEY-FLOW will soon be upon you. Wake up! you, I am speaking to. Do you hear me talking? . . Why not let me have that order now? I can give you quick service and low freight rates.

HONEY, BEESWAX WANTED.

Cash or in trade.
Send a postal for my catalog.

S. J. Griggs & Co.

25 No. Erie St., Toledo, Ohio

Successors to Griggs Bro's Co.

"Griggs, the King Bee"



THIS MAN

Will consider it a privilege to make you an estimate on a bill of goods if you will send him a list of what you want, with discounts. Goods can be shipped from Fremont, Mich.; Chicago, Ill., or Medina, O., whichever place will cost the less freight; or you can have the estimate to be delivered at your station freight prepaid.

He has the largest and most complete stock in his 25 years as a supply-dealer, and can ship promptly ALL ROOT'S GOODS, AT THEIR PRICES with SEASON'S DISCOUNT.

Bees, Queens, and three-frame Nuclei a specialty; Hilton's Superior Strain—see adv. in back numbers of Gleanings, and testimonials.

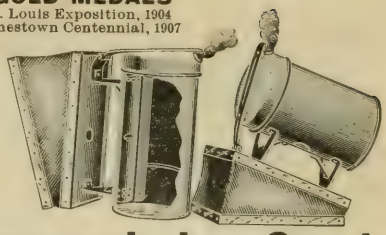
Beeswax wanted for cash or exchange.

Send for 50-page CATALOG to

George E. Hilton

Fremont, Mich,

GOLD MEDALS
St. Louis Exposition, 1904
Jamestown Centennial, 1907



Danzenbaker Smoker

Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT GRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

The **ONE-PIECE** cap **CAN NOT clog.** It is the **COOLEST, CLEANEST, STRONGEST, BEST,** and **LARGEST NET CAPACITY** of all smokers, selling at one dollar ($1.00). We **GUARANTEE SATISFACTION** or **return** the price; only three complaints in **six years.**

Dan-z. 3½x7½-inch Prize Smoker, $1.00; by mail $1.25
With "Gleanings," $1.00 per year, and Prize Smoker, by mail 1.75
Dan-z. 3½x6-inch Victor Smoker, 80c; by mail 1.00
With "Gleanings," one year, 1200 pp., by mail 1.50

We send propolis shields with Danzenbaker Hives and Supers, and sell anything in the Bee-line at factory prices, also select three-banded Italian queens and bees.

Please send address of yourself and B-friends for FREE catalogs and prices on Bee-supplies, Bees, Queens, Hives, Sections, and Smokers. Address

F. Danzenbaker, 68-70 Woodside Lane, Norfolk, Va.

. BEE . SUPPLIES

I carry an up-to-date line of standard Bee-keepers' Supplies. New England bee-keepers have secured their supplies from this house for the past fifty years. I am now prepared to serve you best in every way; standard stock, low prices, and experience in this line is all to your advantage. I have a fresh supply of The A. I. Root Company's goods. Send in your orders now.

Italian BEES and QUEENS

in their Season

Send for Price List of Bees, Queens, and Supplies.

Earl M. Nichols

Successor to W. W. Cary & Son

Lyonsville, Massachusetts

Texas Bee-keepers

REMEMBER

SAN ANTONIO is the Only place in Texas where you can get the winning combination

LEWIS BEEWARE . . AND . . DADANTS' FOUNDATION

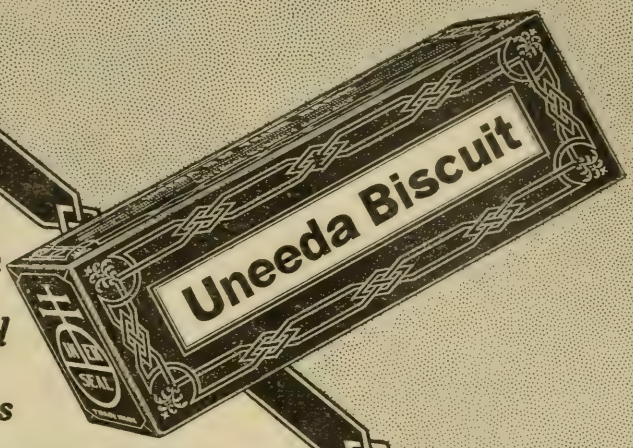
Southwestern Bee Co.

420 So. Flores St., San Antonio

Carload Distributors for

G. B. Lewis Co. . . . Dadant & Sons, . . . American Can Co.

A full supply of bee goods always on hand. Bee-keepers, we buy what you have to sell; we sell what you have to buy. When in San Antonio make our place your headquarters. We shall be glad to make your acquaintance even if you do not want to buy. Come anyway. . DEAL WITH US—IT MEANS SUCCESS INSURANCE!



A Nation of "Rapid Fire" Eaters

The people of the United States are known all over the world as a Nation of dyspeptics. We don't take time to eat properly or to *eat proper food.* Everyone would live longer—be healthier, feel better, do better work, and do it with greater ease if more time were taken in eating and more UNEEDA BISCUIT *eaten.* UNEEDA BISCUIT are the most nutritious of all foods made from flour. UNEEDA BISCUIT are always fresh, clean, crisp and good. UNEEDA BISCUIT are muscle makers and brain builders. In short, the National Soda Crackers are

Uneeda Biscuit

Never sold in bulk

5¢

In the moisture-proof package

NATIONAL BISCUIT COMPANY

BROWN FENCE SAMPLE FREE

Rust Proof - Bull Strong

Fences for horses, cattle, sheep, hogs, chickens, etc. 160 styles.
BARGAIN PRICES.
14 Cents Per Rod Up.
We pay the freight. Lawn Fences and Gates. Free catalog and sample.
The Brown Fence & Wire Co.,
DEPT. 91 CLEVELAND, OHIO

SPRAY FRUITS AND FIELD CROPS

and do whitewashing in most effectual, economical, rapid way. Satisfaction guaranteed. BROWN'S

HAND OR POWER **Auto-Sprays**

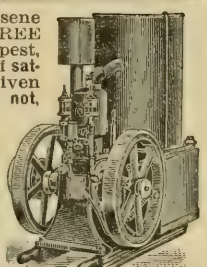
No. 1, shown here, is fitted with Auto-Pop Nozzle—does work of 3 ordinary sprayers. Endorsed by Experiment Stations and 300,000 others. 40 styles and sizes of hand and power sprayers—also prices and valuable spraying guide in our Free Book. Write postal now.



THE E. C. BROWN COMPANY
20 Jay St., Rochester, N. Y.

Use KEROSENE Engine FREE!

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Gasoline Going Up

Automobile owners are burning up so much gasoline that the world's supply is running short. Gasoline is 9c to 15c higher than coal oil. Still going up. **Two** pints of coal oil do work of **three** pints of gasoline. No waste, no evaporation, no explosion from coal oil.

AMAZING "DETROIT"

The "DETROIT" is the **only** engine that handles **coal oil** successfully; uses alcohol, gasoline, and benzine, too. Starts without cranking. Basic patent—only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power, and strength. Mounted on skids. All sizes. 2 to 20 h p., in stock ready to ship. Complete engine tested just before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric-lighting plant. **Prices (stripped), $29.50 up.**

Sent any place on 15 days' Free trial. Don't buy an engine till you investigate amazing, money-saving, power-saving **"DETROIT."** Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, we will allow you **Special Extra-Low Introductory** price. Write!
Detroit Engine Works, 373 Bellevue Ave., Detroit, Mich.



If Your Binder Broke At 7 A.M.

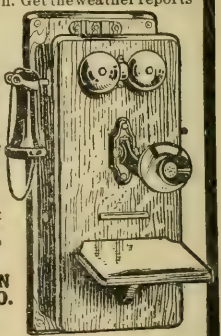
would you have to hitch up—go to town and take a *chance* on the dealer having the part in stock? Or would you call up on the telephone—make *sure* the part is there—and have it back in time for a fair day's work?

That's just a *suggestion* of the *immense* value to you—of a telephone. Think how many hard trips—how much work, time and money you will save with a

Stromberg-Carlson Independent Telephone

Satisfaction Guaranteed or Money Refunded

Call up for latest market reports—sell when prices are high. Get the weather reports and plan accordingly. At night—after work—call up your neighbors for a little chat. And in case of emergency—the telephone is always ready. Let us send you definite information and particulars about our *money-back guarantee*. Our Free Book—"How the Telephone Helps the Farmer"—should be in your hands. Ask for Edition **21** and address nearest office *NOW*.



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Chicago, Ill.
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Type No. 896

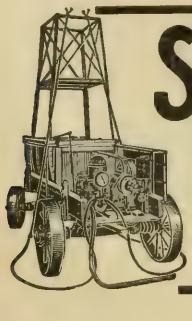
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MAKES and burns its own gas. Produces 100 candle power light—brighter than electricity or acetylene—cheaper than kerosene. No dirt. No grease. No odor. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.

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SPRAY With the LEADER Gasoline High Pressure Machine



Has 3½ Horse-Power, 4-Cycle Engine and Hopper Jacket for Cooling
It supplies 10 nozzles at a pressure of 200 lbs. with safety valve blowing off, and this service can easily be increased without overtaxing the engine.

A Complete Spraying Rig and it will refill the tank, saw wood, grind feed, run your repair shop, shell or clean your grain, run the cream separator or the churn, and is safe, simple and satisfactory.
Also 2-Horse-Power Rigs with Triplex Pumps—Also a full line of Barrel, Knapsack, and Power Potato Sprayers with Mechanical Agitators, etc. Catalogue FREE.

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General Agents: John Deere Plow Co., Kansas City, Omaha, St Louis, Brackett-Shaw & Lunt Co., Boston, Mass. C. P. Rothwell & Co., Martinsburg, W. Va.

A Check for $9,763.00

Is What J. M. Grant

A Big Horn Basin Farmer

received for his 1910 sugar beet crop. This was Mr. Grant's third crop of beets on a farm bought five years ago for $3000. Here is where the Government is spending

Six Million Dollars Irrigating Farms That You Can Homestead

The land is free for 5 years' residence and Government water rights cost $46 an acre in 10 yearly payments. No interest.

162 farms under Government irrigation averaged $26.80 per acre yield in alfalfa in 1910.

Here you can raise sugar beets, potatoes, alfalfa, oats, winter wheat, barley, apples and all small fruits.

OTHER MILLIONS are being spent to irrigate Carey Act Lands. Only 30 days' residence required. Easy payments. Low rate of interest.

Dairying, poultry raising and bee keeping are profitable.

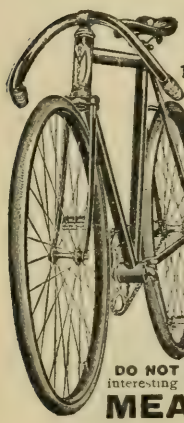
Churches and schools have been established, and the country is being settled by a fine class of people. New districts will soon be opened to entry.

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If you want one of these rich Government prizes, write me today.

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Mondell 320-acre *free* homesteads —northeastern Wyoming. Ask about them. 6505



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and district to ride and exhibit a sample 1911 Model "Ranger" bicycle furnished by us. Our agents everywhere are making money fast. *Write at once for full particulars and special offer.*

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How to Hatch and Rear Them Successfully

A new book that is serving as a reliable and instructive guide to success in the hatching, rearing, feeding, care, and development of young chicks by both natural and artificial means.

The hardest problem that confronts the poultry breeder is found in bringing the chicks from the shell through their several stages of development, to maturity. In the past but very few have been able to accomplish it without heavy losses; but this great handicap is now completely overcome by the aid of this new book, the most valuable and exhaustive treatise of its kind ever published. It is a reliable and comprehensive work which presents, in a clear and concise form, the teachings and experience gained from years of close study and extensive experiments; gives trustworthy information and advice covering every step of poultry keeping from the breeding pen to the bringing of the chicks from the shell through their several stages of development to the market or breeding period. In fact, it is a complete and authoritative text-book and guide of indispensable value to every person who keeps poultry for either pleasure or profit. Consists of 12 chapters profusely illustrated. It extols no schemes—no systems, but is sold on its merits.

"POULTRY HUSBANDRY" (monthly) is often referred to as the standard of poultry journal excellence. Among its contributors are the foremost experts of the day, and each issue is filled with the best of every thing for poultrymen. It is a high-class publication that is manifold in its helpfulness.

SPECIAL OFFER: For a limited time we will send a copy of this new chick book postpaid, and include a three-year subscription to Poultry Husbandry (new or renewal) ALL FOR $1.00. Address

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$7.55 Buys Best 140-Egg Incubator

Double cases all over; best copper tank; nursery, self-regulating. Best 140-chick hot-water brooder, **$4.85.** Both ordered together, **$11.50. Freight prepaid (E. of Rockies).** No machines at any price are better. **Satisfaction guaranteed.** Write for book today or send price now and save time.



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They will not attack or come near woodwork if it is painted with

AVENARIUS CARBOLINEUM
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and will stay away from beehives so protected. Write for circulars.



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Fruit and Vegetable Growing in "The Land of Manatee" on The West Coast of Florida Net $500 to $1500 Per Acre.



Quick transportation and low freight rates to best Eastern and Northern Markets via S. A. L. Ry. insures the highest prices at all seasons. ORANGES, GRAPEFRUIT, CELERY AND OTHER VEGETABLES—reach the highest state of perfection in the "LAND OF MANATEE"

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Cheap lands can be had for a limited time, but prices are advancing as the demand is increasing rapidly. The favorable reports from the satisfied thousands who are now realizing the result of their investment are interesting the whole country.

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are not exceptional—climate is perfect—labor abundant—pure, fresh water, supply unlimited.

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FOR FARM SHOP HOME

ELLIS ENGINE

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WE PAY THE FREIGHT

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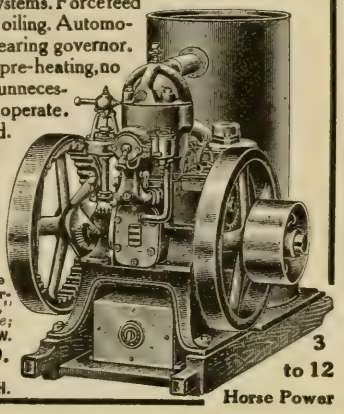
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Astonishing success. More power, gallon for gallon. Hundred less parts. Patent throttle gives three engines for price of one. *Catalog free—tells how.* Double-duty tank revolutionizes cooling systems. Force feed lubricator—perfect oiling. Automobile muffler. Ball bearing governor. Starts instantly. No pre-heating, no crank. Experience unnecessary. Women can operate. Vibration eliminated. Quality high—price low. Comes complete. Always hungry for work—and thrives on it.



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Location and size: Around the corner from the White House. Direct street-car route to palatial Union Station; 100 rooms; 50 baths.

Plans, rates, and features: European, $1.50 per day upward; with bath, $2.50 upward.

American, $3.00 per day upward; with bath, $4.00 upward.

Club breakfast, 20 to 75 cts. Table d'Hote, breakfast, $1.00; Luncheon, 50c; Dinner, $1.00.

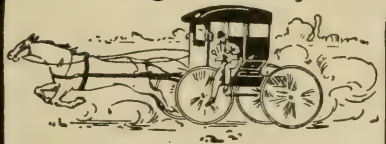
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Statistics prove that more injuries and deaths result every year from horse-drawn vehicles than from automobile and railroad accidents combined. Most occur with top buggies.

You can get out of the *Cozy Cab* quickly and easily—no diagonal bows—nothing to trip over. If the buggy overturns the padding below the side windows protects you.

Try this adjustable *Cozy Cab* for 30 days without paying out a red cent. If this isn't the safest, roomiest and best appearing buggy you ever struck, ship it back and we will pay the freight both ways. Wind, hail, snow, mud and rain cannot reach you when the buggy is closed. It takes only *thirty seconds* to change the open *Cozy Cab* to a closed buggy. Your address on a postal will bring you full information about our remarkable free offer and a handsome free catalog.

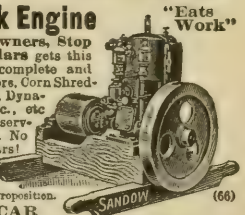
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Wonderful Work Engine "Eats Work"

Farmers and Shop Owners, Stop Sweating! A few dollars gets this grand little work engine, complete and ready to run Cream Separators, Corn Shredders, Grist Mills, Feed Mills, Dynamos, Printing Presses, etc., etc Gives a lifetime of steady service' All Sizes. 2 to 20 h. p. No cranking! No cams! No gears! Only 3 moving parts. Finest construction. Thousands in use. Guaranteed 5 years. Write for Special Introductory Proposition.



(66)

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IRON AGE Garden Tools include a complete line of Wheel Hoes, Hand Drills, Fertilizer Distributors, etc. Prices, $2 50 to $12.00. A boy or girl can operate them. Write to-day for our 75th Anniversary Catalogue showing also potato machinery, orchard and other tools.

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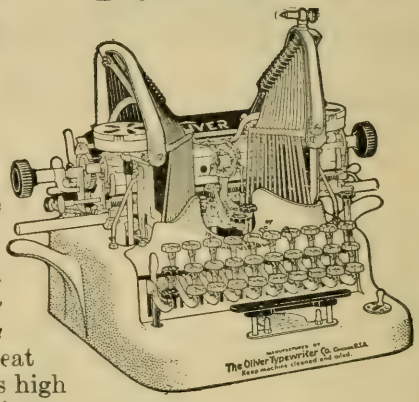
75 YEARS IN BUSINESS

Take Your Oliver Typewriter -Pay Seventeen Cents a Day!

Send Coupon or Letter for Details

A message of vital moment to the vast audience reached by this magazine.

We are selling the Oliver Typewriter—the Standard Visible Writer—the New Model No. 5—the regular $100 machine — for Seventeen Cents a Day! Whether you sit in the councils of great corporations or are perched on a bookkeeper's high stool—*whatever your part in the world's activities*—this offer of the Oliver Typewriter means something worth while to *you*.



Mightiest Machine in World's Workshop

The terrific pace of modern business demands mechanical aids of the highest degree of efficiency. Foremost among all the inventions that speed the day's work—that take the tension from *men* and transfer it to *machines*—is the *Oliver Typewriter*.

The Oliver Typewriter is the mightiest machine in the World's Workshop. It weaves the million threads of the world's daily transactions into the very fabric of business. It works with the smooth precision of an automatic machine. It adapts itself to the diversified needs of ten thousand business conditions.

The OLIVER Typewriter

The Standard Visible Writer

The basic idea upon which its towering supremacy rests is its wonderful Double Type-Bar. What the Selden patent is to the automobile, this principle is to the typewriter, *only we do not license its use on any other writing machine.*

The Doublh Type-Bar gives the Oliver Typewriter its positive DOWNWARD STROKE, the secret of *perfect printing, light touch, easy operation, and perfect alignment.*

Brilliant Exclusive Features

The Oliver is illuminated by scores of brilliant innovations not found on other typewriters. Its remarkable time-saving devices and conveniences include the Vertical and Horizontal Line Ruler, the Disappearing Indicator, the Tabulator, the Back Spacer, the Adjustable Paper Feed, the Double Release, the Automatic Spacer, the Locomotive Base.

Time and again, when our existing models met every demand of the public, we have brought out important *improvements* at great expense, without adding a cent to the price.

100 per cent Efficiency

The Oliver Typewriter has an efficiency of 100 per cent, every day in the week and from one year's end to another.

Its printing mechanism works freely in a framework of solid steel, which gives wonderful stability and the limit of durability.

It operates with the lightest touch and thus prevents fatigue. The swiftest operator can not overtake the speed of an Oliver Typewriter. It writes in beautiful, readable type and, of course, it *writes in sight.*

Every office, whether equipped with one Oliver Typewriter or a battery of Olivers, secures the very maximum of typewriter service at the minimum of cost and labor.

The simplicity, strength and easy operation of the Oliver Typewriter make it most desirable for use in the home.

COUPON

The Oliver Typewriter Company,
116 Prospect St., Cleveland, Ohio.

Gentlemen:—Please send your Art Catalog and details of "*17-Cents-a-Day*" offer on the Oliver Typewriter.

Name.....

Address.....

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Yours for Pennies! Send the Coupon

Having simplified the *typewriter* to the utmost, we have now simplified its *purchase* until you can own it for the trifling sum of Seventeen Cents a Day.

A small cash payment brings you the magnificent new model Oliver No. 5. Then you save Seventeen Cents a Day and pay *monthly* until the machine is *yours.*

No matter what typewriter you are using, you can turn it in as first payment on the Oliver and let *pennies* complete the purchase.

Send coupon or letter for the handsome Catalog and full details of the popular Penny Plan. (66)

The Oliver Typewriter Co.

Sales Department

116 Prospect St. CLEVELAND, OHIO

J. E. HAND

the Veteran Queen-specialist

WILL begin the season of 1911 with greatly improved facilities for rearing the choicest queens. . . Our queens are not only large, vigorous, handsome, and prolific, but by reason of a judicious system of line breeding they have the power to transmit inherent tendencies of a highly desirable nature, such as hardiness, gentleness, and industry, as well as uniformity of marking, which makes them especially valuable as breeders. Every queen is warranted to produce uniformly marked bees of superior honey-gathering qualities. Don't take chances. Get the real thing. Warranted, $1.00; six, $5.00; dozen, $9.00. Tested, $1.25. Breeders, $5.00. Half pound of bees, no queen, $1.00. Three (L) frame nucleus, no queen, $3.25. No selection, therefore no culls, and a square deal for all. Valuable information free for your address.

J. E. Hand, Birmingham, O.

The Aspinwall NON-SWARMING BEE-HIVE

Now a practical and commercial success after 22 years of experimentation.

Will DOUBLE the YIELD of COMB HONEY

Every bee-keeper should satisfy himself as to our claims by ordering at least one sample hive and testing it.

Descriptive circular with prices mailed free. Address the makers.

Aspinwall Manufacturing Co.

600 Sabin St., Jackson, Mich.

Canadian Factory . . . Guelph, Ontario

World's Oldest and Largest Makers of Potato Machinery

Big Apples are Selling at 10 Cents Each . . . .



There is money in fruit-growing right where you are. Apples are worth twice as much as oranges. If you can not raise apples, there are are other fruits equally profitable.

Start an orchard. Those who planted orchards as advised by Green's Fruit Grower are getting their reward in big profits. You can pay for the orchard by growing small fruit in it.

Green's Fruit Grower

will tell you how and where to plant, how to prune and spray, and how to make your trees productive.

It is the oldest and most popular fruit grower's magazine. January is our 30th ANNIVERSARY NUMBER. We will start your subscription with that number.

Special offer to readers of GLEANINGS IN BEE CULTURE. We will mail new subscribers Green's Fruit Grower one year on trial for 25 cents.

GREEN'S FRUIT GROWER CO.

Box G, Rochester, N. Y.

QUEENS

and bees — an improved superior strain of Italians is what QUIRIN RAISES. All yards winter on summer stands with practically no loss. Our stock is hardy, and will ward off brood diseases.

In the spring of 1899 we sent fifty nuclei to J. D. Nixon, Lafarge, Wis., and on July 20th (same year) he wrote us, saying they did just splendid, as at that writing they had already filled their supers, and that he would have to extract them. We have files of testimonials similar to the above.

Prices before July	1	6	12
Select queens	$ 1 00	$ 5 00	$ 9 00
Tested queens	1 50	8 00	15 00
Select tested queens . . .	2 00	10 00	18 00
Breeders	4 00		
Golden five-band breeders .	6 00		
Two-comb nuclei, no queen	2 50	14 00	25 00
Three-comb nuc., no queen	3 50	20 00	35 00
Full colonies on 8 frames .	6 00	30 00	

Add price of whatever grade of queen is wanted with nuclei and colonies; nuclei and colonies, if shipped before June 1st, add ¼, or 25%, extra to above price. No order too large and none too small. Will keep 500 to 1000 queens on hand ready to mail. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

QUIRIN-THE-QUEEN-BREEDER, BELLEVUE, O.

W. H. LAWS

is again offering his splendid stock of favorite Italians the coming season. Queens from this strain can not be surpassed, and are the kind that get bees that make supers hard to lift.

Twenty-one years a commercial queen-breeder, and an advertiser in this journal, he knows what a good queen is, and can prove it to you.

I wish you could see some of the splendid letters coming to my desk now almost daily. Laws queens are in every State in the Union, and the careful breeding of these queens has put many dollars in the pockets of his customers, as I have abundant evidence to show. I am now supplying some queens in April, and shall have plenty in May, and my prices are low, in keeping with quality of my stock.

I have about 75 strictly first-class breeding-queens that are worth many times the price I ask. I will sell at $5.00 each. Other queens, $1.00 each; six for $5.00. Satisfaction guaranteed. Circular free.

Address

W. H. LAWS

Beeville, Bee Co., Texas



Queen-Land

Largest Queen Circular Published

FREE to any address

See March 1 Issue

S. SIMMINS
Heathfield
Sussex - England

1911 Three-banded Italian Queens

We are now ready to fill all orders promptly for our Three-banded Italian Queens; bred strictly for honey-gathering qualities. Untested, $1.00 each, or six for $5.00, or $9.00 a dozen. Tested, $1.25 each, or six for $6.50, or $12 00 a dozen. Select tested, $1.50 each. Breeders, the very best, $3.00 to $5.00 each. We guarantee safe arrival, and will replace all dead queens that are returned to us in the cage we mailed them in.

Send All Orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas

ITALIAN QUEENS

Nuclei, Bees by Pound. Ten-page descriptive list free. Untested, $1.00. Reduced rates July 1. List to select from, clubbing "The Pearce Method of Bee-keeping," price 50 cts., with a guaranteed queen for $1.10. Books by return; queens after June 10. Leaflets, "How to Introduce Queens," 15c; also "Increase," 15c; both for 25c. Send for list.

E. E. MOTT, Glenwood, Mich.

QUEENS! QUEENS!! QUEENS!!!

by which the world's standard is reckoned; queens that will have your hives *filled* with bees when the honey is coming—that's when you want them. A hive of bees containing one of these queens, in *any* apiary, would stand out with that strong superiority and grand personality born only of the best breeding. $2.00 for 1; $10.00 for 6; best breeders, $5.00.

HUBER W. LAWS, WACO, TEXAS

SEND FOR FREE ADEL BEE

and Supply Catalog. You will save money if you buy direct from my factory. I make the finest polished sections on earth. I want to prove it to you. Send me your order for sections, or any thing in bee-supplies. 45,000 brood-frames at $1.50 per 100 as long as they last; size is 9 1-8 in. deep, top-bar 19 1-16 in. long, V-shape or two-groove and wedge, or Simplicity, all loose-hanging frames. 65,000 section-holders at $1.00 per 100 as long as they last. They are nicely dovetailed and are for 4 1-4 by 4 1-4 by 1 1-2, and for 4 by 5 by 1 3-8 sections. Carload section orders a specialty.

Chas. Mondeng, 140 Newton Ave., N., Minneapolis, Minn.

EARLY QUEENS and LATE QUEENS

Bred from pure 3 and 5 banded and Golden Italians. All queens are raised in strong colonies and mated in four-frame nuclei. All orders filled promptly.

Untested, $1.00; six, $4.50; twelve, $8.00
Tested, . 1.50; " 7.50; " 13.50

Breeders, $3.00. Three-frame nuclei, $3.00, with price of queen wanted added. . Discounts for quantity.

A. B. Marchant, . . . Sumatra, Fla.



BEES PAY BIG

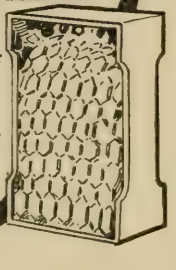
and require little care. All the little honey-gatherers and money-makers demand of you is to provide a home for them. They make the honey and you get the profit. What little work you must do can be made 100 per cent. easier and your profits 100 per cent. bigger if you have the

RIGHT KIND OF SUPPLIES

If you are a bee-keeper or are thinking of going into the bee business you ought to have our beautiful illustrated **New Bee Book**—just off the press. It's a complete guide to profitable bee culture. Tells you how to buy bees, what kind are best, where to locate the hives, how to care for them summer and winter, how to prepare the honey for market—in fact it tells you all you need to know to make bees highly profitable as a business or a side-line.

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We sell everything the bee-keeper needs and can save you money whether you keep few bees or many. Buy direct from headquarters at rock-bottom prices. Get our bee book and save money. Write now for a copy as the edition is limited.



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St. Louis, Mo.
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NEW ENGLAND BEE-KEEPERS!

EVERY THING IN SUPPLIES
NEW GOODS
FACTORY PRICES
SAVE FREIGHT

Cull & Williams Co. . Providence, R. I.

BEE-SUPPLIES

Western Agents
Falconer's Goods
Write for Catalog

C. C. CLEMONS BEE SUPPLY CO.
130 Grand Ave., Kansas City, Mo.

ROOT'S GOODS

For WESTERN PENNNSYLVANIA

Liberal early-order discounts. Gleanings and choice queens GIVEN AWAY. Write at once for circular. . . Time is limited.

GEO. H. REA, - Reynoldsville, Penn.
Successor to Rea Bee & Honey Co.

BEE-KEEPERS

We make the best polished sections. This signifies quality. Send us your orders for sections and get the best. . Catalog free.

August Lotz & Co., Boyd, Wisconsin

We Save You Money!

We Manufacture Dovetailed Hives, Sections, Shipping-cases, Broodframes, Separators, Section-holders, Berry Crates and Boxes.

QUALITY Our hives are made of best grade white pine, cut accurate and smooth to standard measure. Sections are of basswood, polished on both sides. There are no better goods made.

PRICE Our factory is well equipped, and we make goods as cheap as or cheaper than anybody else. We sell first hand, and can save you the middleman's profit. Will quote delivered prices by return mail, if you state your wants. Our prices will surprise you.

SERVICE We carry a complete line of every thing used in the apiary—foundation, smokers, and extractors always on hand. Shipping facilities are as good as can be found anywhere. We want your business; no order is too small for careful attention; none too large for us to handle. We guarantee prompt and satisfactory service. Catalog is free.

Minnesota Bee-Supply Company
Minneapolis, Minn.

A REQUEST for our free booklet carries with it no obligation to open an account. All we ask is the opportunity of explaining clearly why your savings should earn 4% —the rate paid by the savings banks of Ohio for the past 65 years —and why your money will be absolutely safe if sent by mail to this institution, with assets of nearly

ONE MILLION

and under the supervision of the strict laws of the State of Ohio.

The Savings Deposit Bank
Medina, Ohio

Cut and mail this coupon TO-DAY

Send me your free booklet.
NAME
ADDRESS
STATE

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

FOR SALE.—Alfalfa honey, extracted, in 10-lb. cans at 9 cts. per lb. C. C. CLEMONS PRODUCE CO., Kansas City, Mo.

FOR SALE.—Choice light-amber extracted honey—thick, well-ripened, delicious flavor. Price 9 cents per lb. in new 60-lb. cans.
J. P. MOORE, Morgan, Ky.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—Fine qualities of white and light-amber extracted honey. Send samples with lowest prices f. o. b. New York. Also state how packed, and quantity you have. Are always in the market for beeswax. HILDRETH & SEGELKEN, New York.

Real Estate

FOR SALE.—Forty acres of land, 37 acres cleared, new house, new windmill and tanks, 6 acres of peach orchard. Price $2300.
D. COOLEY, Kendall, Mich.

FOR SALE.—Five-acre citrus grove, 166 colonies of bees, complete outfit, honey-house; honey 85 to 90 cents per gallon, N. Y.; large living-house; well; horse; harness; $50 carpenter outfit. $2000 cash.
F. MCCANN, La Gloria, Cuba.

Opportunities

Party has a good five-passenger touring car, fully equipped, used less than two years, to sell at a bargain; cost new $1100; sold a few months ago for $650; can be had now for $400 cash, or will take comb or extracted honey or wax in exchange.
Address Box 18, care of GLEANINGS, Medina, O.

Help Wanted

WANTED.—A healthy active woman to learn the bee business. State wages and experience.
MRS. S. W. FREY, Rt. 35, Sand Lake, Mich.

WANTED.—A strong young man of some experience, to work in apiary. Give reference, and wages wanted. W. D. WRIGHT, Altamont, N. Y.

WANTED.—Man to work with bees the coming season—begin at once. State age, experience, and wages in first letter.
THE ROCKY MOUNTAIN BEE CO., Berthoud, Col.

WANTED.—An experienced man in raising comb honey, to begin work about May 1st. Give references, experience, and wages wanted, in first letter. OGDEN BEE AND HONEY CO., Ogden, Utah.

WANTED.—Competent man of good habits, and handy with machinery, for bee-work; 600 hives with up-to-date appliances; power outfits and auto.
F. B. CAVANAGH, Hebron, Ind.

For Sale

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

FOR SALE.—Bees, honey, and bee-supplies. We are in the market for beeswax and honey.
OGDEN BEE AND HONEY CO., Ogden, Utah.

If you use a quantity of 60-lb. cans, let us quote you a low price.
I. J. STRINGHAM, 105 Park Place, New York.

FOR SALE.—3000 new Hoffman brood-frames, $2.00 per 100; also our 248-lb. honey-queens, ready at 75 cts. to $1.00 each.
CHESTNUT HILL MFG. CO., Biglerville, Pa.

Novice ball-bearing extractor, practically new, price $11.00. Bee-supplies at half-price.
W. J. ROBINSON, 6357 Greene St., Germantown, Philadelphia, Pa.

FOR SALE.—300 cases of second-hand five-gallon cans in good condition; single cases, 35 cts.; 5 cases or more, 30 cts. per case.
J. E. CRANE & SON, Middlebury, Vt.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successor to J. M. Jenkins), Penn, Miss.

HONEY-CANS.—By arrangement with a large manufacturer I can supply new five-gallon square tin cans, boxed, at a price that will save you money. Write for prices, stating how many you can use.
C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—Fifty second-hand eight-frame Dovetailed hives complete; four ten-frame chaff hives; 2500 sections; some queen-excluder zinc; 75 eight-frame moving screens, and 75 boxes of empty 60-lb. cans free from rust. All cheap. Write for description and prices to JOHN C. BULL,
Route 8, Valparaiso, Ind.

FOR SALE.—Root's bee-supplies. If you want a dependable brand of goods of highest quality and reasonable prices, write us. Our sales are larger that all other Ogden concerns combined. We sell four carloads to one of any other concern, which assures you of prompt service and fair treatment. Our warehouse of three floors at Idaho Falls will also soon be in shape to accommodate our Idaho customers. Honey-cans by carload, as well as in small lots. We are exclusive agents for American Can Co. in Utah and Idaho.
SUPERIOR HONEY CO.,
Ogden, Utah, and Idaho Falls, Idaho.

Miscellaneous

Dahlias, 20 kinds, $1.00; other bargains. The best, at fair prices. H. BURT, Taunton, Mass.

FOR SALE.—A 6½ x 8½ view camera with all adjustments and a battery of seven Dallmeyer's lenses; also a 5 x 8 view camera with 24 double plate-holders; a 4 x 5 folding Premo; also a pocket Kodak (smallest), besides tripods, shutters, developing-trays, etc. All to be cleared out at less than half cost. W. H. MESSENGER,
34 Blackford Ave., Port Richmond, N. Y.

Bees and Queens

FOR SALE.—Italian queens, untested, $1.00; 6 for $5.00. E. A. SIMMONS, Greenville, Ala.

FOR SALE.—Fifty colonies in eight-frame hives. S. V. REEVES, Haddonfield, N. J.

Strong colonies of Italian bees in Danz. hives, $7. STRINGHAM, 105 Park Place, New York.

Extra early golden queens, $1.00. No disease. Cheaper in lots. MORGAN & MARSHALL, Hamburg, La.

If you are in the market for bees in car lots we can please you. L. E. WEST, Llano Grande, Tex.

Bees and queens of quality. Supplies. Catalog. STRINGHAM, 105 Park Place, New York City.

Golden queens $1.00; 6 for $5.00; 12 for $9.00; untested. J. B. CASE, Port Orange, Fla.

Golden queens, untested, remainder of season, 75 cts. each. R. O. COX, Rt. 4, Greenville, Ala.

FOR SALE.—Three-frame nuclei on Langstroth frames, with queen, $2.25. W. H. STANLEY, Dixon, Ill.

Golden Italian queens and nuclei. No disease. Write for prices. J. H. WAGNER, Box 305, Beatrice, Neb.

Missouri-bred Italian queens; none better; prices right; write for circular. L. E. ALTWEIN, St. Joseph, Mo.

FOR SALE.—125 colonies of bees, free from foul brood; also 50 empty hives, supers, etc. S. E. TENNANT, Schoharie, N. Y.

FOR SALE.—75 colonies of bees—25 in eight-frame dovetailed hive; the rest in eleven-frame; size of frames, 11½ x 11½. MRS. J. HETTEL, Marine, Ill.

FOR SALE.—Golden Italian queens. Tested, $1.00; select tested, $1.25; untested, 60 cts.; dozen, $7.00. D. T. GASTER, Rt. 2, Randleman, N. C.

Italian queens, Moore's strain, none better. Untested, 90 cts.; 6, $4.50; virgins, three for $1.00. H. A. JETT, Brooksville, Ky.

California Italian queens; fine honey-gatherers; gentle; none better. Select untested, 75 cents; tested, $1.00. LINCOLN MCCARGAR, Los Gatos, Cal.

Italian queens, 75 cts.; tested, $1.00; breeders, $5.00 each; two-frame nucleus with queen, $2.50. E. M. COLLYER, 75 Broadway, Ossining, N. Y.

Bungalow Golden Italians; also non-swarming and educated queens, $3.00 to $100.00. HENRY W. BRITTON, Stoughton, Mass.

Improved red-clover Italian queens bred from the best honey-gatherers obtainable. Untested, $1.00; 6 for $5.50; 12 for $10.00. J. H. GIBBS, Berlin, Md.

FOR SALE.—200 colonies of pure Italian bees in 8 and 10 fr. Dov. hives at $6.00 per colony; in lots of 10, $5.00 per colony. F. A. GRAY, Redwood Falls, Minn.

Golden queens, untested, $1.00; select untested, $1.50; breeders, $5.00 to $10; also Root's bee-supplies. Write for catalog. ROB'T INGHRAM, Sycamore, Pa.

Golden and red-clover Italian queens; superior stock. Write for prices. WM. A. SHUFF, Aldan, Delaware Co., Pa.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction. W. W. DAKIN, Hood River, Ore.

FOR SALE.—A carload of bees in ten-frame Dov'd hives at $3.50 per colony. Hives and bees guaranteed to be in first-class condition; no disease. J. H. ZEINER, Bard, Ark.

FOR SALE.—Westwood red-clover queens and bees; nuclei and full colonies a specialty. HENRY SHAFFER, 2860 Harrison Ave., Station L, Cincinnati, O.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00. J. B. BROCKWELL, Bradley's Store, Va.

Italian queens, good as the best; untested, 75 cts.; tested, $1.00. Shipments begin April 1st for bees by the pound and nucleus. Write for prices. C. B. BANKSTON, Buffalo, Leon Co., Texas.

FOR SALE.—Fifty colonies of Italian bees in eight-frame, lower story of hives full of bees and honey; mostly Hoffman frames, and comparatively new hives; $4.00 each. W. F. HAYS, Edgar, Neb.

Nuclei with queens for last part of May and first part of June delivery. Prices, f. o. b. Pearl City, Ill., $3.50 each; 5 or more, $3.25 each; 10 or more, $3.00 each. On S. L. frames. Place orders now. D. J. BLOCHER, Pearl City, Ill.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white, sheeted lids; each neat, modern, and full of stores—any time. JOS. WALLRATH, Antioch, Cal.

NOTICE.—I am establishing a queen-rearing apiary at Camby, Indiana; and all letters in regard to queens should be sent to this office. Orders for honey, send to Morgan, Ky., as usual. J. P. MOORE.

FOR SALE.—Bees; two bee-yards; comb-honey outfit; $6.00 per colony where they stand—cash only; chaff hives; very well Italianized; close to Rice Lake flats. I have had a good crop every year for 25 years. MRS. S. WILBUR FREY, Sand Lake, Mich.

Golden queens—very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei, and full colonies. Send for circular and price list to GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

We offer, for 1911, yellow Golden queens from the best breeders to be found. Queens sent by return mail. Safe arrival and satisfaction guaranteed. Tested queens, $1.00 each; untested, 75 cts.; 3, $2.00; 10, $6.00. Reference, F. & M. bank. W. S. MCKNIGHT, Newton, Ala.

QUEENS—Scoggins' strain.—Accidentally discovered what I believe to be the greatest honey-gatherers known—a cross of Cyprians and Italians; thoroughly tested eight years for honey. If it is honey you want, buy these queens. Only a few extra-fine ones for sale. Price $1.00 to $5.00 for introduction. J. B. SCOGGINS, Fouke, Ark.

FOR SALE.—Italian queens, bred from the best honey-gathering strain obtainable. Untested, 75 cts.; select, $1.00; tested, $1.25; select tested, $1.50; breeding-queens, $3.00; select breeding-queen, $5.00; nuclei without queen, one-frame, $1.25; two-frame, $2.00; three-frame, $2.75. For queens and nuclei in quantity lots, write for prices. ROBERT B. SPICER, Wharton, N. J.

Poultry

FOR SALE.—Duston White Wyandottes, $2.00; 15 eggs, $1; $5 per 100. ELMER GIMLIN, Taylorville, Ill.

Buttercups for utility and beauty; selected pens; unlike others. H. V. MEEKER, Earl St., Toledo, O.

Barred Rocks, Bradley strain. Stock and eggs for sale. MRS. W. L. BENNETT, Crooksville, O.

Light Brahmas, $1.75; 15 eggs, $1.50.
DR. SMITH, 2300 Central Ave., Kansas City, Kan.

S. C. Buff Leghorn eggs (white): 30, $1.50; crate of 30 dozen, $10.25. H. BARBER, Adrian, Mich.

Barred Plymouth Rock eggs for hatching, $2.00 per 15. K. R. SHELDON, Monmouth, Ill.

Indian Runner duck eggs, $1.00 per 13. Booklet free. AARON FISHER, Box 37, La Park, Pa.

Eggs, circular free. Thousand Leghorns, Rocks, Orpingtons. M. A. BROWN, Rt. 3, Attleboro, Mass.

BUFF AND WHITE ORPINGTON eggs for hatching, $3.00 and $5.00 per 15. Prize-winning stock. Leading strains. WILL ASHLEY, Medina, O.

White and Brown Leghorn chicks; five other breeds. Price right. Catalog free.
D. Y. TAYLOR, Lyons, N. Y.

Beware green eggs. My Ind. R. duck-book tells why. Official Runner record, over 200 eggs.
C. S. VALLENTINE, Ridgewood, N. J.

S. C. White Leghorn, the "business hen." Have a fine laying strain. Eggs, $1.00 per 15. Incubator eggs, $4.00 per 100. F. B. LOOMIS, Rushville, N. Y.

FOR SALE.—S. C. W. Leghorn and Indian Runner duck eggs—$5.00 and $7.00 per 100. Circular free.
C. H. ZURBURG, Topeka, Ill.

Leghorns, S. C. White; our "Egghorn" strain world's greatest layers; 15 eggs, guaranteed, $2.00.
A. SCHWIND, Chatham, N. Y.

White and Buff Rocks, 15 eggs per setting, $1.50; R. C. R. I. Reds, $2.00; Brown Leghorns, $1.00.
D. J. BLOCHER, Pearl City, Ill.

Single-comb Brown Leghorns, $1.00 per 15 eggs; for incubator, $3.75 per 100.
DAVE GLADFIELD, Rt. 34, Peoria, Ill.

White-faced Black Spanish eggs for hatching; 15, $1.00; 50, $3.00; 100, $5.00. Also dealer in bee-keepers' supplies of all kinds. A. W. SWAN, Centralia, Kan.

Partridge Wyandottes and Partridge Rocks—also all leading varieties. Prize-winning stock and eggs—reasonable. Catalog free.
JOHN T. CROUTHAMEL, Franconia, Pa.

S. C. White Leghorns exclusively. Bred to lay. Baby chicks. Eggs for hatching. All breeding males score 94 to 95¾, from 200-egg hens. Cat. free. Keystone Poultry Farm, Box 2500, New Milford, Pa.

Indian-Runner-duck-culture book; full history; 75 cts., money order; fawn and white; 11 eggs, $2.50; 30, $5.00. Catalog, 2 stamps. LEVI S. YODER,
Box 50, Dublin, Pa.

S. C. Rhode Island Reds, pure-bred, vigorous; farm-raised; great laying strain; none better. Eggs, choice, for hatching, $1.00 per 15; $5.00 per 100.
WM. I. FLINNER, Rt. 27, Box 32, Renfrew, Pa.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St, Joseph, Mo.

SICILIAN BUTTERCUPS.—Stock and eggs for sale from original imported blood and from my ribbon-winners at the Appalachian Exposition and other shows. Free circular. MRS. J. S. DUMARESQ,
Cato's Hall, Easton, Md.

Indian Runner ducks from imported stock, fawn and white; very easy to raise and easy to keep. They are beauties too—lay eggs all the year; lay heaviest in winter. Eggs, $1.50 per 13; $7.00 per 100. Let me start you to success.
C. O. YOST, Rt. 4, Winchester, Ind.

Lowest prices; 350 varieties; pheasants; poultry; Phœnixfowl; parrots; all kinds of birds, animals; rabbits; eggs for hatching. Price catalog (300 illustrations) 25 cents; complete work on raising pheasants; wild game; colored plates; 75 cts. Exchanges made. U. S. PHEASANTRY, Poughkeepsie, N. Y.

R. C. R. I. Reds, Buff Wyandottes, S. C. White Leghorns—the kind that lay and pay; winners and bred from winners, Madison Square, Cleveland, Toledo, Jamestown, etc. Eggs for hatching. Mating and special sales list for the asking. Write to-day.
CONSOLIDATED POULTRY YARDS CO., Canton, O.

S. C. R. I. Reds, large and beautiful, rich in color, and rich egg-layers; the winning strain. Eggs from exhibition pens, $2.00 per 15; $10.00 per 100. Eggs from standard pens, $1.00 per 15; $5.00 per 100. I can please you, sure.
C. O. YOST, Rt. 4, Winchester, Ind.

S. C. Rhode Island Reds. I shall have a limited number of settings from my $25.00 pen of S. C. R. I. Reds at $2.00 for 13 eggs. This stock is line bred to lay from the famous Wyckoff and Tompkins strains. Special care taken in shipping eggs.
L. W. BOYDEN, 682 West Liberty St., Medina, Ohio.

Order your copy of "American Standard of Perfection" through GLEANINGS. The new edition of this greatest of all poultry-books is now ready. Beautiful plates show feather-markings, etc., of every standard breed. Price $1.50, postpaid, in cloth; $2.25 in morocco binding.
BUYERS' BUREAU, GLEANINGS IN BEE CULTURE.

CHOICE STOCK.—"It pays to buy the best." Strictly pure-bred White Plymouth Rock and R. C. Rhode Island Reds, bred for laying as well as for show purposes. These two breeds are the best all-the-year-round layers, and are heavy and thrifty—regular mortgage-lifters. Eggs, 15 for $2.00; 30 for $3.50; 100 for $7.50. If you fail to hatch 75 per cent of my eggs I will duplicate the order at half price.
H. P. FAJEN, Stover, Mo.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, $1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school.
W. C, MORRIS, 74 Cortlandt St., New York City.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York City.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1911. Beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in '08-'09 without a single loss. For prices see large ad. QUIRIN-THE-QUEEN-BREEDER,
Bellevue, Ohio.

ENGRAVINGS *for* "GLEANINGS"
MADE BY GRAY PRINTING CO., Fostoria, O.

CANADIAN BEE-KEEPERS

E. Grainger & Co., Deer Park, Toronto, announce to Canadian bee-keepers that they have a reasonably full line of Root bee-supplies on hand for shipment from Toronto. Large shipments will be made direct from the factory, and in many cases a considerable saving may be effected by placing orders with us.

See What Our Customers Say

North Toronto, March 1, 1911.

E. Grainger & Co., Toronto.

Dear Sirs:—The goods we received from you, manufactured by The A. I. Root Co., are most satisfactory. We find the frames fit beautifully; in fact, all the woodwork is so perfect and so clean and nice that we would not think of using any other make now. They are well worth the extra they cost.
A. W. O.

E. Grainger & Co., Toronto. Connaught, Mar. 7, 1911.

Dear Sirs:—Have received shipment of my order to-day. Every thing is in perfect order. Am very well pleased with the goods. D. R.

SEND ALL ORDERS TO

E. Grainger & Co., Deer Park, Toronto, Ont.

SOUTHERN ORCHARDS AND HOMES

Handsome Monthly Journal of Horticulture
36 to 52 Pages—Strictly Southern

Send 25 cents (stamps) for a six-months' trial subscription. This will convince you that it is a journal well worth having.

Southern Orchards and Homes, Houston, Texas

MEXICO AS A BEE COUNTRY

R. A. Hadsell, of Buckeye, Arizona—one of the largest bee-keepers in the world has made five trips to Mexico, investigating that country as a bee-country, and is so infatuated with it that he is closing out his bees in Arizona. He has been to great expense in getting up a finely illustrated pamphlet describing the tropics of Mexico as a Beeman's Paradise, which he will mail free by addressing him.

B. A. HADSELL, ... LITITZ, PA.

FIRELESS COOK BOOK FREE



The Duplex Fireless made of metal, has **Aluminum Lining** and aluminum vessels **Bakes and Roasts.** Is the most practical Fireless Cooker made. Write for special offer.

Box 10 **Durham Mfg. Co.** MUNCIE - IND.

Continued from page 288.

had been planning to take them down to the waterfall, but was not quite ready, and so I kept chasing them back until I could have more time; but they evidently just enjoyed the fun, because it was "forbidden fruit." To see them tip their heads to see if I was around, and then scamper over to the rows of peas, was worth to me all the peas cost, even if they were choice and high-priced ones. By the way, nothing makes ducks or chickens thrive like some sort of green food for which they seem to have a liking, especially if they have to take some *exercise* to get it.

Special Notices by A. I. Root.

CHUFAS, OR EARTH-ALMONDS.

Since what was said on page 260 in regard to chufas for seed, I find I have about half a bushel undisposed of, and they will be distributed among the readers of GLEANINGS as follows: About a dozen tubers will be sent free of charge to any one who has taken GLEANINGS for five years or more, or to any one who pays or has paid for the journal one year in advance. As the seed is scarce this season, ours is not for sale at any price. In addition to the above we will send *two* packets to any one who sends us the name of a new subscriber, and one also to the subscriber. Now is the time to plant them, and they will grow anywhere from Maine to Florida.

A TEMPERANCE SEEDSMAN.

A. T. Cook, of Hyde Park, N. Y., commenced selling garden seeds, as nearly as I can recollect, about the time GLEANINGS was started. As he was a bee-keeper at the time, he and I soon became acquainted. Well, he is *still* selling choice garden seeds and plants, as you may notice by his advertisement on the last cover page of this issue; and I want to remind you of the fact that we have at least *one* temperance seedsman who does not hesitate to come out square against whisky and tobacco, even in his catalog. By the way, I think you want a copy of that catalog, whether you send an order or not. It is a good thing to "have in the family." He and his business are a good illustration of a text I have lately given you, "His leaf also shall not wither." I am just now interested in his "new domestic coffee," because he recommends it as an egg-producer for poultry. As I take it, it is a species of the soy bean.

A RARE OPPORTUNITY.

Here is a fine chance for a man who has or can raise $6000 in cash. This sum will buy a half-interest in a fine bee-ranch on the Appalachicola River, Florida, of which the following are the principal items:

150 acres of land, all under fence.
800 colonies of Italian bees.
1 dwelling of nine rooms, new.
1 dwelling of four rooms, and several out-buildings; a poultry-plant, not in use, with two new incubators and brooders; a horse, buggy, wagon, and farming implements.
150 orange-trees in bearing.
100 pecan-trees in bearing.
150 pear-trees in bearing, and a number of other fruit-trees. The bees are in two yards, 2½ miles apart, in the best section for tupelo honey. A good lot of supplies are on hand and in good condition. If sale can be made soon, the owner will divide this season's crop of honey, which should amount to between $1500 and $2000 as the *purchaser's* part. Adjacent to the place are 3000 acres of land with a sawmill, and abundance of cypress and other gum woods which can be secured at a bargain; and with a good market for the lumber the sawmill would soon pay for the land.

Of course, no one would close a deal of this size without going and looking the proposition over. If you buy, the cost of your trip will be paid out of the price named above. Communicate with A. B. Marchant, Sumatra, Fla., if you mean business.

Convention Notices

The annual meeting of the Pecos Valley Bee-keepers' Association of New Mexico will be held at Roswell, at 9 A.M., June 7, 1911. Business of importance will come before the association. All lovers of the bee are invited to meet with us.

R. B. SLEASE, Pres. H. C. BARRON, Sec.

The semi annual convention of the Seven County Bee and Poultry Keepers' Association will meet at Brookville, Pa., on Wednesday, June 6. Counties comprising this territory are Jefferson, Armstrong, Clarion, Forest, Elk, Clearfield, and Indiana. All bee and poultry keepers are earnestly requested to attend. This meeting will be in the nature of a summer picnic. Come, and bring your friends.

GEO. H. REA.

Bee-keepers in TEXAS

Find the Toepperwein & Mayfield Company Warehouses a Never-failing Source of Supply. . . . . .

Our complete stocks of everything in the big ROOT line of Bee-supplies insure prompt shipments with low freight charges from this convenient center.

Our years of experience are of benefit to you. We know the exact conditions under which you are working; know what to advise you if you seek our assistance; know how to help you secure a big paying crop of honey.

BUY YOUR BEE-SUPPLIES IN SAN ANTONIO!

We are Located Here at Home to Save You Money

Get our new catalog; list your requirements and get our prices. Come and visit us when you can; go through our sample-rooms; see the newest ideas in beedom; enjoy our hospitality. Let us show you how comb foundation is made. Our foundation-mills have a capacity of over 500 lbs. per day, and we want your trade. This is Texas headquarters. Buy here and save money.

Booklets on Bee-keeping

For the benefit of students in bee-keeping who want to make a practical start this year we have arranged to distribute a number of helpful booklets, all nicely printed and illustrated, all free. Send in your name, or the names of a few neighbors or friends, and we will mail copies to them. Much information on outfits for beginners and advanced bee-keepers is given in these booklets. They are all well worth reading.

TOEPPERWEIN & MAYFIELD COMPANY

Cor. Nolan and Cherry Sts., San Antonio, Texas

Do You Find Your Records by Chance, Instinct, or *System?*



TIME lost *hunting for things* would more than keep everything in the best of order.

You can not afford to leave your business papers to chance or instinct. You must have a system—a practical system, built to fit *your* business needs.

Thirty years of working out scientific systems for keeping track of business has given us ability to devise a better system for your business than you could possibly arrange for yourself.

It would be a system that would save you time in filing and finding your records, and in making your figures and data available.

It would save "clerk hire" and "clerk tire."

"Y and E" **Devise Result-Getting Systems**

It would increase the efficiency of your office and working forces.

Our experience has been very wide—over 480 different lines of business, from the smallest to the largest, are now using specially devised "Y and E" systems.

The "Y and E" cabinets are easily the best manufactured today. We have built up the largest filing equipment business in the world on high quality and good devices.

Tell us your problems and we will write or have our representative call. We have the ideas you need. Get in touch with this *service-plus* organization in which making good on filing system problems is a habit of 30 years' standing.

"Y and E" HELP

Ask for these helpful books

"Y and E" "Handbook of Vertical Filing."

"Y and E" Catalogue, "Filing System Supplies."

"Y and E" "Card Ledger Systems."

"Y and E" "Proper Place for Blue Prints."

"Y and E" General Catalogue, "Record Filing Cabinets."

Check this list and hand to stenographer
See that you get them when received

YAWMAN AND ERBE MFG. CO.

435 St. Paul Street, ROCHESTER, N. Y.

Branches: (look us up) New York Boston Philadelphia Washington Pittsburgh Buffalo Cleveland Chicago Los Angeles San Francisco

A few desirable territories are open for enterprising dealers.

P. S. **Write us about special Card Index Systems for Bee Records. No matter what your record filing problem is, "Y and E" Filing System Service will aid you.**

SPECIAL OFFER Solely to GLEANINGS READERS and Their Friends!

Vines, Seeds, and Potatoes Almost Given Away
A Bargain Beyond Compare—Please Tell Your Friends
Plant Any Time in May or First of June

I Offer Every Friend of Gleanings All the following Grand Collection

10 Strong Chinese Cinnamon Vines.
Most Beautiful and Fragrant of all Climbers. (Specially desirable for Bee-keepers.)

10 Hills Early Six Weeks Potatoes.
Earliest and Best Quality Ever Produced.

25 Hills Domestic Coffee Seed.
Best and Most Healthful of all Substitutes.

Grand Flower Seed Collection.
300 Easy-growing Hardy Varieties.

Premium Coupon and Seed Catalog.

☞ **ALL THE ABOVE** Vines, Seeds, and Potatoes safely boxed and mailed for only 30 cts., or two entire collections for 50 cts.; four for $1.00. (☞ The Cinnamon Vines alone are worth double the whole cost.)



☞ 12 Collections and your choice—a valuable American Jeweled Watch (Ladies' or Gents'), or two pairs Superb Nottingham Lace Curtains, for $3.00. **All prepaid by mail.** Safe arrival and satisfaction guaranteed. I give both above premiums for a $6.00 order. Now is your opportunity.

☞ Show this page to your friends and send in a club order. It is easy. Do not delay.

IT ALWAYS PAYS TO MAKE HOME BEAUTIFUL



Dear Friends:—I offer you seed for 10 hills of these remarkable Potatoes because I honestly believe them decidedly the BEST IN THE WORLD. Their incomparable table qualities, extraordinary earliness, enormous productiveness and beauty, make them indispensable to every Home Garden. When raised for market, their easy-growing and easy-selling qualities render them a money-maker beyond compare.

☞ **I WILL GIVE** 20 Gold, Silver, and Nickel Watches for 20 Best Yields of these wonderful Potatoes. Full particulars sent with every order.



CHINESE CINNAMON VINES.

Beautiful, Hardy, Entrancingly Fragrant. Grows in Shade or Sun—Wet or Dry. No Insects Ever Trouble—No Winter Harms. Once Planted will Grow a Lifet'me.



NEW DOMESTIC COFFEE

One of the hardiest, easiest raised, and most productive of all plants. See photo, showing its amazing productiveness. Thousands suffer untold injury from store coffee. Better grow the new kind at one-tenth its cost, and save your health—and money—$10 to $20 or more every year. It is as easily raised as corn or beans, and will ripen in 80 days. ☞ It is one of the VERY BEST egg-producing foods for poultry ever used.

ADDRESS A. T. COOK, SEEDSMAN, HYDE PARK, N. Y.

Gleanings in Bee Culture

VOL. XXXIX MAY 15, 1911 NO. 10

The Rain Song

It isn't raining rain to me,
  It's raining daffodils;
In every dimpled drop I see
  Wild flowers on the hills.
The clouds of gray engulf the day,
  And overwhelm the town;
It isn't raining rain to me,
  It's raining roses down.

It isn't raining rain to me,
  But fields of clover bloom,
Where every bucaneering bee
  May find a bed and room;
A health unto the happy!
  A fig for him who frets!
It isn't raining rain to me,
  It's raining violets. —*Robert Loveman*

Courtesy of *The Farm and Fireside*

Complete Service At Chicago!

CHARACTERISTIC of the **Root Way** is our ready-for-service equipment at the Chicago Branch. In no detail have we neglected to anticipate the patronage of our bee-keeping friends in the territory contiguous to this great distributing center. Let us recount our preparations for your benefit:

1911 SUPPLIES AND STOCK

Abundant room in this branch enables us to carry a very large stock which represents practically every article in the big Root line. All goods listed in former price lists, and still on sale, are here, together with the new and improved lines shown in this 100th, edition of our catalog. Carload lots of fresh supplies continually come from our factory to keep our stock complete. No delay in filling even the largest orders at Chicago, is our policy.

SHIPPING FACILITIES.

With 25 great railroads and 7 express companies ready to distribute our goods in all directions; freight close at hand, with every facility for quick packing and delivery at railroad, express office, or boat, we await your call. Immediate attention is our invariable rule, and we augment our facilities in the busy season with extra employees so that shipments may be quickly cleared on all occasions.

PACKING.

We do not charge for packing, boxing, or delivering to freight or express offices here in Chicago. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B., Chicago. If no, agent at your station notify us and we will prepay, and bill charges after shipment. Often during the busy season much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what charges will be from Chicago.

We Aim to Get All Mail and Express Orders Off the Same Day They are Received. Freight Orders are Filled in Order of receipt. No Order is too Small or Large for Our Personal Attention

OUR LOCATION.—We are pleasantly located at 213-231 Institute Pl., one block north of Chicago Ave., on the 6th floor of the Jeffrey Bldg. Fine elevator service—both passenger and freight. Large, light, well-fitted display rooms, with complete line of supplies, booklets, etc., always on exhibition. You and your friends are always welcome.

HOW TO REACH US.—Telephone, telegraph, write, or call. Take any Northwestern Elevated train; get off at Chicago Ave.; walk one block north on Franklin St. and half block east on Institute Pl., or take any car running north of 5th Ave. and Wells St.; get off at Institute Pl., and walk half a block west to Jeffrey Bldg.

OUR MANAGER at the Chicago branch is an experienced bee-keeper who thoroughly understands the requirements of those engaged in this business, either for profit or pleasure. He has been identified with the **Root Line** for some twenty years, and has both the knowledge and desire to make his services of value to whoever seek his assistance.

THE A. I. ROOT COMPANY,

213-231 Institute Place, Chicago, Illinois.

R. W. BOYDEN, Mgr. :-: **Tel. 1484 North.**

"Falcon" Foundation

In our hive and bee-keeper's supply plant, foundation manufacture has been a specialty. We were in the business long before the advent of foundation-mills. We manufactured it by the old dipping and press process. "We have grown up with the business." Have had our share in developing it. Numerous experiments and long experience in wax-working have made us masters of the subject. **"falcon"** foundation is the result—a product unsurpassed by any other make. . . . Write for samples.

Dewey Foundation-fastener

ONE OF MANY

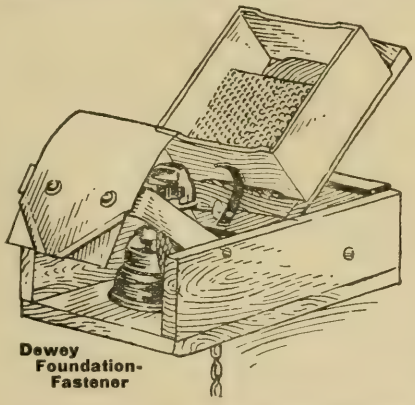
Puyallup, Wash., April 10, 1911.

W. T. Falconer Mfg. Co., Chicago, Ill.

Dear Sirs:—Will you please forward me samples of "Falcon" foundation? . . I have one of your Dewey Foundation-fasteners which I ordered from your New York house, and would not part with same for $10.00 if I could not have another like it. They work as easy and perfect as a clock.

Yours for success, P. A. NORMAN.

Our three new 1911 carload distributing-houses give Dewey Fasteners with orders for three thousand or more "**Falcon**" sections.



Dewey Foundation-Fastener

Kansas City, Mo.

C. C. Clemons Bee Supply Co., 130 Grand Ave.

Chicago, Illinois

W. T. Falconer Mfg. Co., 117 No. Jefferson

Worcester, Mass.

Ross Bros. Co., . 90 Front Street

Write the nearest one to you and they will tell you about the Dewey Foundation-fasteners and the "FALCON" thermometers which they send free with orders.

Order from Your Nearest Dealer

Ross Bros. Co., 90 Front St., Worcester, Mass.
J. J. Wilder, Cordele, Ga.
The Fred W. Muth Co., 51 Walnut St., Cincinnati, Ohio.
Deroy Taylor, Lyons, Wayne Co., N. Y.
Cull & Williams Co., 180 Washington St., Providence, R. I.
Hudson Shaver & Son, Perch River, Jefferson Co., N. Y.
C. C. Clemons Bee Supply Co., 130 Grand Ave., Kansas City, Mo.
A. M. Applegate, Reynoldsville, Penn.
J. R. Rambo, Collingdale (near Phila.), Pa.
Bridat & Mont'ros, Havana, Cuba.
E. Lyons & Son, Kingston, Jamaica.
Edmonson Bros., 10 Dame Street, Dublin, Ireland.

"falcon" GOODS are sold in Mexico, Germany, Turkey, South and Central Africa, Australia, New Zealand, and everywhere.

W. T. Falconer Mfg. Company

Factory
FALCONER, N. Y.

Branch
117 No. Jefferson St., Chicago, Ills.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

CHICAGO.—There is very little honey being sold this month, and the market prices are without material change.

Chicago, Ill., May 8. R. A. BURNETT & Co.

BOSTON.—We quote fancy and No. 1 comb honey, 14 to 15; white extracted, 11 to 12. Beeswax, 30.

BLAKE-LEE CO.

4 Chatham Row, Boston, Mass., May 9.

NEW YORK.—We have nothing new to report in regard to the honey market. Conditions remain about the same. There is a little demand for white honey, but not to any extent. Beeswax, firm at 30.

New York, May 8. HILDRETH & SEGELKEN.

CINCINNATI.—The market on fancy white comb honey is exhausted. There is no demand for amber or off-grade comb honey. White extracted honey in 60-lb. cans brings 10 cts.; light amber in barrels, 7½. Beeswax is in fair demand at $34.00 per 100 lbs. The above are our selling prices, not what we are paying.

Cincinnati, May 6. C. H. W. WEBER & Co.

ZANESVILLE.—A normal demand characterizes the honey market at this time. The supply is rather short. Prices are practically unchanged. The best grades of white comb bring, in a wholesale way, 18 to 19; extracted, 10½ to 11. For good beeswax, producers are being paid 28 cts. in cash, or 30 in exchange for bee-supplies. Wax brings 35 to 45 wholesale, according to quantity.

Zanesville, O., May 8. E. W. PEIRCE.

LIVERPOOL.—Since we last reported, the honey trade has been very slow. The mild weather that has been prevailing has acted as a check, together with the high prices for the present stock on hand. There have been sales of Chilian honey, pile 3, at $5.88, with further sellers at this price; but buyers do not show any interest. The supply of California honey is small, and $8.40 to $10.48 is quoted for the present stock. If the rumor that the crop of this latter quality is large proves to be true, we might expect lower prices. There is practically no Haitien honey on the spot, and the nominal value is $5.52 to $7.20 per cwt., the latter price being for fine white. We quote Jamaican at about $6.00 to $6.72; Peruvian, $3.84 to $4.80. The beeswax market still remains firm, and quotations are as follows: African, $33.64 to $34.48; American, $37.48; West Indian, $33.60 to $36.28; Chilian, $33.88 to $39.92.

TAYLOR & Co.

7 Tithebarn St., Liverpool, Eng., April 28.

Honey Markets continued on page 5.

Now for 1911 Bee-Supplies

We have already received several carloads of that "finest of all Beeware"—Falconer make—anticipating the heavy rush of orders sure to come this Spring. Prepare yourself NOW, Brother, for we are going to have a heavy honey yield this season, and those who order early are the ones who will profit most. Send for our catalog to-day, and see our "MUTH SPECIAL" Dovetailed Hive, and also our "IDEAL METAL" Cover—both DANDIES. We sell you cheaper than the rest; we have the Best. Let us figure on your wants—we will surprise you.

THE FRED W. MUTH CO.

51 Walnut Street "The Busy Bee Men" **Cincinnati, Ohio**

ALL ROADS LEAD TO CINCINNATI

**"Deal with Weber & Co.
at the Service Center."**

The supplies you have on hand are worth many times as much to you as those you must order and wait for when the honey-flow is on. We know how busy you are in making final preparations for the big year we all expect; but try not to overlook the importance of getting your orders for sections, foundation, extra hives, supers, etc., in RIGHT NOW. You will be pleased with our QUICK DELIVERIES and with the quality, and we will give your order our best possible attention, no matter when it comes; but we urge you to get in a good stock of sections and foundation NOW. Let us tell you about these goods.

SECTIONS

We handle the best grade of sections made. If you want a hundred or ten thousand or a hundred thousand, we can fill your order promptly with goods we will guarantee to please. You may judge of the popularity of the sections we sell when we tell you that the manufacturers make upward of twenty-five million of them every season.

FOUNDATION

There is nothing more important to the up-to-date bee-keeper than to have foundation just when he needs it, and of the best quality. We sell nothing but Root's Weed-process Foundation, the recognized standard of the world. The bees appreciate the good points of this foundation, and every bee-keeper knows that it is the best. All grades and sizes constantly on hand. A pound or a ton, just as you like.

There are other items of interest too numerous to mention. We can furnish anything you need in the bee-keepers' supply line, and get it to you so promptly that the goods will reach you just when you need them most. No order is too small for our attention, and none so large that we can not handle it to *your* satisfaction. Send US your hurry orders and allow us to demonstrate what we can do for you. Catalog on request.

Special catalog of poultry supplies free for the asking.

C. H. W. Weber & Co., Cincinnati, O.

2146 Central Avenue

Gleanings in Bee Culture

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AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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Extracted Honey Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

Honey Markets continued from page 2.

INDIANAPOLIS.—There is a good and steady demand here for best grades of white-clover comb and extracted honey. Jobbing houses are well supplied, but practically none is now being offered by producers, and it is evident that there will be a shortage before the new crop can arrive. Fancy white comb is being offered at 18 cts.; No. 1, white, 17; extracted, 11, with some slight reductions on quantity lots. It is presumed that producers are being paid about 2 cents less than above quotations. Producers of beeswax are being paid 29 cents cash or 31 in trade.

Indianapolis, May 9. WALTER S. POUDER.

ST. LOUIS.—The stocks of comb honey are very light at present, and extracted honey is exhausted. No shipments of this year's crop have arrived thus far. There is no urgent demand for either comb or extracted honey. We quote fancy white comb honey at 16 to 16½; No. 1, 15 to 15½; choice amber, 14 to 15; dark, 10 to 11. Broken and leaking honey sells at less. There is no extracted honey on the market now, and consequently no quotations can be given. Choice Southern light amber in barrels would probably sell at 7½; in cans, 8 to 8½. Beeswax is scarce, and in demand at 29 to 30 for prime; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., May 9.

I have decided to drop back to your bee-supplies again. Your prices are right for quality of goods and fair dealing. I know that any one wishing for goods that are right, and places an order for Root's goods, will find satisfaction is nailed in the same box with the goods. Such has been my experience. You never sent me No. 2 goods when the order read No. 1. I do not buy No. 2 goods, but have been stung elsewhere.

Hopkins, Mich., March 20. GEO. TISHHOUSE.

THE NATIONAL BEE-KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey

MEMBERSHIP DUES

One dollar a year.

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VICE-PRESIDENT.—W. D. Wright, Altamont, N. Y.
SECRETARY.—E. B. Tyrrell, Detroit, Mich.
TREASURER AND GENERAL MANAGER.—N. E. France, Platteville, Wis.

Are you a member? If not, why not send the annual dues of $1.00 at once to Treasurer France? Every progressive bee-keeper should be a member of this, the greatest bee-keepers' organization in America.

BEES AND SUPPLIES!

Now is the time you are in a hurry for those bee goods. We have them waiting for you. . Italian queens, $1.00; full colony in a hive, $9.50. ' .

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

The A B C of Bee Culture

A complete treatise on the subject; fully illustrated. A text-book for the beginner and advanced bee-keeper. Cloth-bound, $1.50 postpaid; leather edition, $2.50.

THE A. I. ROOT CO., Medina, Ohio.

The Purity of the

SWEET-CLOVER SEED

Sold by The A. I. Root Co. is Attested to by the U. S. Government

READ THIS LETTER:

Brooksville, Ky., March 13, 1911.

The A. I. Root Co., Medina, Ohio.

Gentlemen:—Some time ago I sent to you for a sample of your white and yellow sweet-clover seed. After receiving the samples I sent them to Washington, D. C. The yellow hulled tested 99.71 per cent of pure seed; the unhulled white tested 99.11 per cent of pure seed. I think that is fine. I inclose you the sample that you sent me, and want you to send me 80 lbs. of the same lot that this sample is out of, or some equally good. Send the seed by freight.

Yours truly, H. A. JETT.

We have a booklet, published for free distribution, which tells THE TRUTH ABOUT SWEET CLOVER. Ask for your copy.

PRICES

In lots of—	1 lb.	10 lb.	25 lb.	100 lb.
Hulled Yellow Annual (*Melilotus Indica*), lb.	17c	15c	14c	13c
Hulled Yellow Biennial (*Melilotus officinalis*).	20c	18c	17c	16c
Hulled White	25c	22c	21c	20c
Unhulled White (*Melilotus alba*) per lb.....	17c	15c	14c	13c

The prices are all subject to market changes.

As to the comparative value of the different varieties, we will say that the white, or *Melilotus alba*, is most common, and therefore the best known. The yellow is desirable because it begins blooming usually from two to four weeks earlier than the white. As to the two varieties of yellow, one of the experiment stations has said there was a distinction without a difference.

The A. I. Root Company, Medina, O.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS

Established 1873 CIRCULATION 35,000 72 Pages Semi-monthly

A. L. BOYDEN, Advertising Manager

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SPACE RATES. To be used in one issue: One-fourth page, $12.50; one-half page, $25.00; one page, $50.00.
Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover, 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.
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Make Big

Poultry Profits

The Fourth Edition of

Profits in Poultry-keeping Solved

gives the complete poultry system and secrets of Edgar Briggs, the most successful poultry expert in America. It tells how to plan, build, and operate a poultry-plant, and market the products: how to get the most eggs; run incubators; make the best feed at 10 to 15 cts. per bushel; raise nearly every chick hatched; prevent diseases; how to make the most money and greatest success from poultry.

Briggs System calls for less equipment, labor, and expenses than other plans, and by it one man can readily care for 2000 layers and 3000 chicks. Three editions of this rapidly sold for $5.00 per copy.

Send postal for Free Booklet, containing some of Mr. Briggs' valuable secrets, or send $1.00 and get the book itself, together with a year's subscription to Poultry Success, the best and most popular journal; 80 to 212 pages monthly; 50 cents per year. Sample free.

The A. D. Hosterman Co., Springfield, Ohio

BRIGGS Desk 136

Ohio's Bee Center

. . IS . .

ZANESVILLE

whence radiate bee-lines to all parts of the State and beyond. It is also the bee-gate into West Virginia and Pennsylvania. Bee-keepers in Ohio, West Virginia, and western Pennsylvania, and even those more distantly located, find in "PEIRCE SERVICE—ROOT QUALITY" the highest degree of satisfaction. There's no red tape nor unnecessary delay at this end of the line, and a hundred railway trains in and out of the city every day insure receipt of orders and delivery of goods with minimum delay. May I send you my catalog?

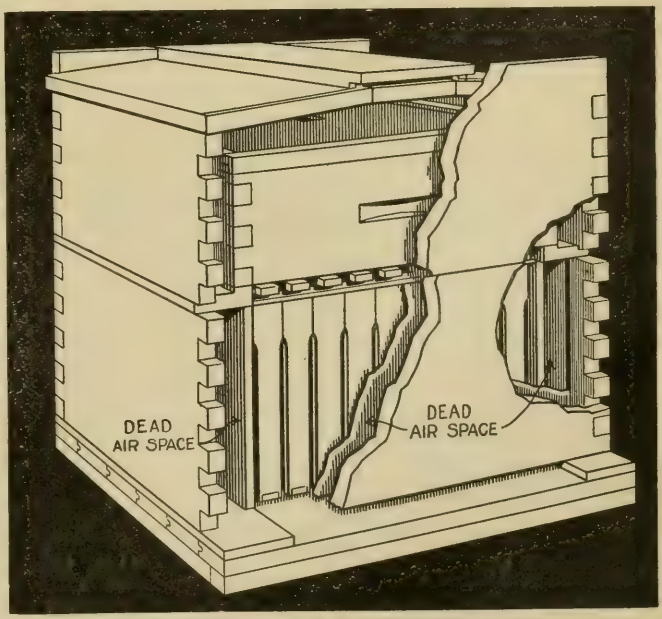
E. W. PEIRCE, Zanesville, Ohio

PROTECTION HIVE

Outer wall, ⅞; inner wall, ¾; clear white pine; Hoffman frames; workmanship the finest; air-spaces or packing, as you prefer. The best hive on the market, and guaranteed to please you, or money refunded. Immediate shipment. Order a sample lot.

Five 10-frame hives with five Dovetail supers, any style, as per cut..	$14.00
Five 10-frame hives, with 5 plain T supers.	12.50
Five 10-frame hives, no supers	11.25

Special circular, showing 12 large illustrations, and 40-page catalog of supplies for the asking.



A. G. WOODMAN COMPANY, GRAND RAPIDS, MICHIGAN

LEWIS BEE-WARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY CO. (Not Inc.)
Successors to YORK HONEY & BEE-SUPPLY COMPANY

148 W. Superior St. Chicago, Ill.
Send for catalog. ENOUGH SAID.

Have You Delayed Getting Your Supplies?

As the years go by, bee-keepers are ordering their goods during the winter months.

A few there are as yet who wait till the last minute, even waiting till the bees swarm and are hanging on the trees, before ordering hives.

Are you one of the last, or are you one of those "looking ahead"?

The A. I. Root Company
Syracuse, N. Y.



Established 1885

We carry an up-to-date . . line of . .

Bee-keepers' Supplies. . . .

Prices the lowest in the West. Write us for our 50-page catalog, ready to mail you. Free for the asking. . We can fill your orders promptly and satisfactorily. Our old customers know what we handle; to new ones we can say that we have

THE ROOT COMPANY'S Make of SUPPLIES

hence there is nothing to fear as to quality. . . . . .

Send us your rush orders and get your goods before swarming time arrives. . . . . .

Beeswax taken in exchange for supplies or cash. . . . . .

John Nebel & Son Supply Co. High Hill, Montg. Co., Mo.

BEE SUPPLIES

We carry a full and complete line of Root's Celebrated Bee-keepers' Supplies. By buying in carload lots we are enabled to sell at factory prices f. o. b. Dallas. . . . . .

We also carry the largest and best assorted stock of the celebrated Texseed Brand Garden and Field Seeds in the South; Incubators and Brooders, and poultry supplies of all kinds.

Send for illustrated catalog. .

Texas Seed & Floral Co.
Dallas, Texas

When you have honey or beeswax for sale write us.

COMB-HONEY OUTFIT No. 5

It is a matter of some difficulty for the average beginner to decide exactly what he requires as an outfit for the first start in bee-keeping. To relieve the beginner of all perplexity we list certain outfits which we think will meet his needs. The one we give below is what may be fairly considered the best. Each item has been very carefully selected, and we doubt the wisdom of leaving any article out; but the purchaser may do so without altering the prices on the other items.

1 A B C and X Y Z of Bee Culture (536 p.),	$1.50
1 copy "Facts about Bees"	.10
1 year's subscription to "Gleanings," .	1.00
1 Root Smoker	.65
1 pair cotton bee-gloves (small, med., or large)	.50
1 silk-front bee-veil	.60
1 full col. Italian bees in Danzenbaker hive (Complete with 32 section honey-boxes)	12.00
1 untested Italian queen	1.50
2 Danz. hives complete for comb honey . (Nailed and painted, ready for the bees)	6.80
1 Porter bee-escape and board . . . . (For taking honey from the bees)	.35

Special Offer Delivered at any express office north Ohio River and east Mississippi River **$25.00**

For delivery to points outside of the above free limit, we will make terms on application.

The colony of bees is as near perfect as we can make them. The combs are beautifully straight and well filled with brood. The breeding of the queen is of the very best, so that one has the nucleus of a fine stock of bees. In many cases a return of $10.00 in honey has been secured the first year from just such an outfit as this, and in addition one or two swarms may be secured, which practically doubles the value of the investment. Order at once.

The A. I. Root Co., Medina, Ohio

Bee-keepers who Have

THOROUGHBRED CHICKENS

and want to sell eggs and stock at good prices should use space under the POULTRY heading in the

Classified Pages

In proportion to the cost it is doubtful if any other medium offers as good an opportunity for profitable returns on such offerings as

Gleanings in Bee Culture

Read this from one of our satisfied advertisers:

"I will say that what little advertising we did in GLEANINGS has brought us about all the business we can attend to this season."

—and others say the same.

Read the POULTRY advertisements yourself. Read Mr. A. I. Root's talks on CHICKENS—advertise in GLEANINGS, and GET results.

The Bees Won't Wait for You

Are you ready for them? We have a complete stock of Root's Goods.

Sections . . . . .
"Root Quality" kind.

Foundation . . .
Weed Process—also "Root Quality.

Hives . . . . . .
Let us quote you on new equipment. Special quotations on complete outfits.

Extractors . . . .
Small machines for the small producer up to the eight-frame power outfits.

Beginners' Outfits .
Do you wish to make a start with bees, as hundreds of others are doing? We will help you decide on your needs.

Beeswax Wanted . .
We also sell berry baskets and crates. . . . . Send for catalog.

M. H. HUNT & SON

Opposite Lake Shore Depot

Lansing, Michigan



"If goods are wanted quick, send to Pouder." . . . Twenty-second Year.

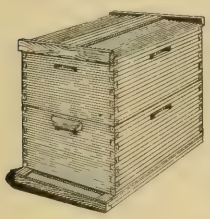
BEE-SUPPLIES

A large and complete stock of the Root Goods offered at the factory schedule of prices. My system of rotating does not permit any accumulation of old stock. My comb foundation is always fresh from the mills; my sections fresh and bright, and hives have all latest improvements. I accept beeswax in payment for goods, or I will pay highest market price for wax in cash. I am in need of more wax at all times.

My **Perfection Tight-seal Jars** are acknowledged as being the best for extracted honey, and I assume all responsibility in shipping, guaranteeing safe arrival. I mean exactly what I say.

My new **Paper Honey-jars** are cheap enough for retailers to give away with their honey. No more waiting to exchange jars or crocks when you deliver your honey. My catalog tells all about these things, and is sent free.

WALTER S. POUDER, 859 Massachusetts Avenue, Indianapolis, Indiana



BEE-HIVES AND SUPPLIES

at factory prices. Satisfaction guaranteed or money refunded. Our G. B. Lewis Co.'s make is best of all. This ad. may not appear again, so just drop me a card to-day for my catalog.

W. H. Freeman, Peebles, Ohio

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine

J. B. MASON, Manager

ROOT'S GOODS

For WESTERN PENNNSYLVANIA

Prompt and satisfactory service.
Save time by ordering here.
Get a catalog at once.

GEO. H. REA, - Reynoldsville, Penn.

Successor to Rea Bee & Honey Co.

Nature Education and Recreation

For Boys and Girls:
NATURE AND SCIENCE (of St. Nicholas Magazine), . Per year, $3.00

For Men and Women:
THE GUIDE TO NATURE (monthly, illustrated) . . Per year, 1.00
$4.00
BOTH, ONE YEAR, $3.00; sample of either, 10c.

For Teachers:
"How Nature Study Should be Taught," (203 pgs.) . Postpaid, $1.00

For Everybody:
"The Spirit of Nature Study," (222 pgs., illustrated) . postpaid, $1.00
"Walking; a Fine Art," (164 pgs., illustrated) . . . Postpaid, $1.50
"Three Kingdoms," the handbook of the AA . . . Postpaid, .75

For Plants:
Sachs Nutrient Tablets, a box, post., 10c.

For You (to aid and be aided):
The Agassiz Association (Popular Nature Society).

For Correspondents:
(To write for further information.)

Edward F. Bigelow

Arcadia : : Sound Beach, Connecticut

Controlling Mating of Queen Bees

The April number of the American Bee Journal contains an article by C. O. Smith, outlining a method of controlling the mating of queens. He thinks he has discovered a plan that will be a success. No doubt every reader of Gleanings in Bee Culture will be glad to read what Mr. Smith says on this subject.

"CO-OPERATION AMONG BEE-KEEPERS" is also discussed in this number.

A good concrete honey-house is described and illustrated.

Uniform hives, shipping-cases, and general apiarian fixtures are discussed by Messrs. F. Greiner and Frank Rauchfuss

"WINTER STORES FOR BEES" is a topic handled by G. M. Doolittle.

Dr. Miller answers some 80 questions in the April number.

TRANSFERRING BEES from box hives to movable-frame hives is described by J. J. Wilder, with nine pictures showing just how it is done.

Copies of the American Bee Journal for January, February, and March are just as interesting as this April number. We will send a copy of the April number for 10 cents, or all the numbers for January, February, March, and April for 20 cents. After reading either the one or the four numbers you will want to have the American Bee Journal the rest of the year. The price is $1.00 a year, and the 10 cents or 20 cents sent in reply to this advertisement can be applied on a year's future subscription. That is, if you send 10 cents only 90 cents more will be necessary to pay for a full year beyond the copy you receive; or if you send 20 cents for the four numbers then all that will be necessary will be 80 cents to pay a year beyond April, 1911.

If you have never seen the American Bee Journal, you will be glad that you answered this advertisement and secured either the April number for 10 cents or all the numbers for the first four months of this year for 20 cents.

George W. York & Co., 117 No. Jefferson St., Chicago, Illinois

"Griggs Saves You Freight"

TOLEDO

is the Place all Beemen have Their "I" on Now

THE HONEY-FLOW will soon be upon you. Wake up! you, I am speaking to. Do you hear me talking? . . Why not let me have that order now? I can give you quick service and low freight rates.

HONEY, BEESWAX WANTED.

Cash or in trade.
Send a postal for my catalog.

S. J. Griggs & Co.

25 No. Erie St., Toledo, Ohio

Successors to Griggs Bro's Co.

"Griggs, the King Bee"



THIS MAN

Will consider it a privilege to make you an estimate on a bill of goods if you will send him a list of what you want, with discounts. Goods can be shipped from Fremont, Mich.; Chicago, Ill., or Medina, O., whichever place will cost the less freight; or you can have the estimate to be delivered at your station freight prepaid.

He has the largest and most complete stock in his 25 years as a supply-dealer, and can ship promptly ALL ROOT'S GOODS, AT THEIR PRICES with SEASON'S DISCOUNT.

Bees, Queens, and three-frame Nuclei a specialty; Hilton's Superior Strain—see adv. in back numbers of Gleanings, and testimonials.

Beeswax wanted for cash or exchange.

Send for 50-page CATALOG to

George E. Hilton

Fremont, Mich,

GOLD MEDALS
St. Louis Exposition, 1904
Jamestown Centennial, 1907



Danzenbaker Smoker

Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT GRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

The **ONE-PIECE** cap **CAN NOT clog.** It is the **COOLEST, CLEANEST, STRONGEST, BEST,** and **LARGEST NET CAPACITY** of all smokers, selling at one dollar ($1.00). We **GUARANTEE SATISFACTION** or **return** the price; only three complaints in **six years.**

Dan-z. 3½x7½-inch Prize Smoker, $1.00; by mail $1.25
With "Gleanings," $1.00 per year, and Prize Smoker, by mail 1.75
Dan-z. 3½x6-inch Victor Smoker, 80c; by mail 1.00
With "Gleanings," one year, 1200 pp., by mail 1.50

We send propolis shields with Danzenbaker Hives and Supers, and sell anything in the Bee-line at factory prices, also select three-banded Italian queens and bees.

Please send address of yourself and B-friends for FREE catalogs and prices on Bee-supplies, Bees, Queens, Hives, Sections, and Smokers. Address

F. Danzenbaker, 68-70 Woodside Lane, Norfolk, Va.

. BEE . SUPPLIES

I carry an up-to-date line of standard Bee-keepers' Supplies. New England bee-keepers have secured their supplies from this house for the past fifty years. I am now prepared to serve you best in every way; standard stock, low prices, and experience in this line is all to your advantage. I have a fresh supply of The A. I. Root Company's goods. Send in your orders now.

Italian BEES and QUEENS

in their Season

Send for Price List of Bees, Queens, and Supplies.

Earl M. Nichols

Successor to W. W. Cary & Son

Lyonsville, Massachusetts

It Pays Well to Use Foundation
It Pays Better to Use . . . .

DADANT'S FOUNDATION

It has been proven BEST by TEST by many leading bee-keepers.

We have AGENTS near you.

Why use any other make?

Drop us a line and we will tell you where you can get our goods near you, and save time and freight.

BEE-SUPPLIES OF ALL KINDS

DADANT & SONS, Hamilton, Ill.



Big Apples are Selling at 10 Cents Each . . . .

There is money in fruit-growing right where you are. Apples are worth twice as much as oranges. If you can not raise apples, there are are other fruits equally profitable.

Start an orchard. Those who planted orchards as advised by Green's Fruit Grower are getting their reward in big profits. You can pay for the orchard by growing small fruit in it.

Green's Fruit Grower

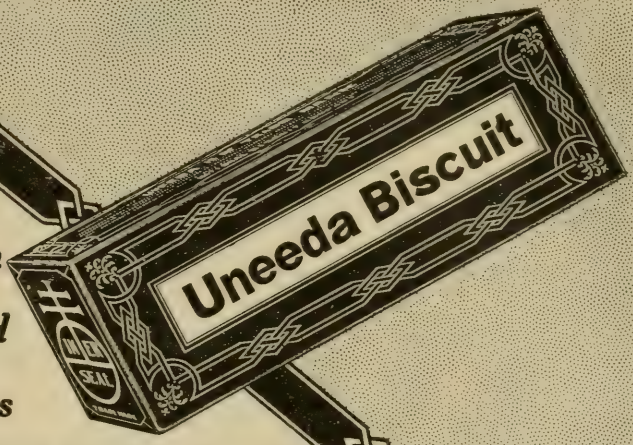
will tell you how and where to plant, how to prune and spray, and how to make your trees productive.

It is the oldest and most popular fruit grower's magazine. January is our 30th ANNIVERSARY NUMBER. We will start your subscription with that number.

Special offer to readers of GLEANINGS IN BEE CULTURE. We will mail new subscribers Green's Fruit Grower one year on trial for 25 cents.

GREEN'S FRUIT GROWER CO.

Box G, Rochester, N. Y.



A Nation of "Rapid Fire" Eaters

The people of the United States are known all over the world as a Nation of dyspeptics. We don't take time to eat properly or to *eat proper food.* Everyone would live longer—be healthier, feel better, do better work, and do it with greater ease if more time were taken in eating and more UNEEDA BISCUIT *eaten.* UNEEDA BISCUIT are the most nutritious of all foods made from flour. UNEEDA BISCUIT are always fresh, clean, crisp and good. UNEEDA BISCUIT are muscle makers and brain builders. In short, the National Soda Crackers are

Uneeda Biscuit

Never sold in bulk

5¢

In the moisture-proof package

NATIONAL BISCUIT COMPANY

Over 1,000 Gallons

Per Hour



Fairbanks-Morse Eclipse Pumper

$50.00

F. O. B. Factory

Engine and Pump Jack Complete

Free Catalog No. MH1517

Fairbanks, Morse & Co.

Chicago Cleveland Cincinnati

HOTEL VICTORIA
Chicago

In the heart of wholesale, retail, and theatrical district.

Fireproof construction.

$1.00 and Up per Day

Remodeled and refurnished at an expense of over $150,000.

OPPOSITE LA SALLE DEPOT,
Cor. Clark & Van Buren Sts.

ELMER C. PUFFER,
Managing Director.

MANATEE FLORIDA

West Coast Where Fortunes Are Made

GROWING

ORANGES, GRAPEFRUIT, VEGETABLES

¶ Offers biggest returns for the smallest investment. Yields $500 to $1500 per acre net. Two and three crops per year—highest prices secured in the best markets of the East and North—low freight rates and quick transportation via the S. A. L. Ry.

LAND IS CHEAP NOW

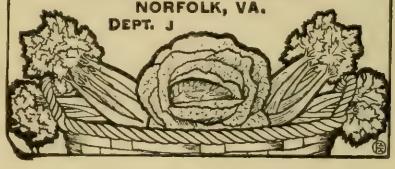
but prices are advancing—thousands of new settlers are taking advantage of the exceptional opportunities. Ideal, healthy climate, year round—plenty of high-class labor—abundant supply of pure water.

MAKE YOUR PLANS TO-DAY

to own a small farm tn this "Garden Spot." Perfect independence is assured.

¶ Instructive booklet describing this wonderful country in detail mailed free on request. Address:

J. W. WHITE, GEN'L INDUSTRIAL AGT.
SEABOARD AIR LINE RALWAY,
NORFOLK, VA.
DEPT. J



BROWN FENCE

Rust Proof - Bull Strong

Fences for horses, cattle, sheep, hogs, chickens, etc. 160 styles.

BARGAIN PRICES.
14 Cents Per Rod Up.

We pay the freight. Lawn Fences and Gates. Free catalog and sample.

The Brown Fence & Wire Co.,
DEPT. 91 CLEVELAND, OHIO

Keep Ants Away

They will not attack or come near woodwork if it is painted with

AVENARIUS CARBOLINEUM
REGISTERED

and will stay away from beehives so protected. Write for circulars.

Carbolineum Wood Preserv'g Co
Dept. 103, Milwaukee, Wis.

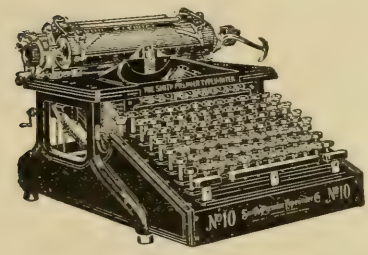
MEXICO AS A BEE COUNTRY

R. A. Hadsell, of Buckeye, Arizona—one of the largest beekeepers in the world has made five trips to Mexico, investigating that country as a bee-country, and is so infatuated with it that he is closing out his bees in Arizona. He has been to great expense in getting up a finely illustrated pamphlet describing the tropics of Mexico as a Beeman's Paradise, which he will mail free by addressing him.

B. A. HADSELL, ... LITITZ, PA.

Smith Premier Typewriter

MODEL 10 VISIBLE



has just been awarded the

Grand Prix

at the

Brussels International Exposition

The Smith Premier Typewriter Co., Inc.
919 Huron Road, Cleveland, O.

SPRAY FRUITS AND FIELD CROPS and do whitewashing in most effectual, economical, rapid way. Satisfaction guaranteed. BROWN'S **HAND OR POWER Auto-Sprays**

No. 1, shown here, is fitted with Auto-Pop Nozzle—does work of 3 ordinary sprayers. Endorsed by Experiment Stations and 300,000 others. 40 styles and sizes of hand and power sprayers—also prices and valuable spraying guide in our Free Book. Write postal now.

THE E. C. BROWN COMPANY
20 Jay St., Rochester, N. Y.





THE "BEST" LIGHT

Gives 500 candle power. Casts no shadow. Costs 2 cents per week. Makes and burns its own gas. Over 200 styles. Every lamp warranted. No dirt. No odor. No grease. Agents wanted. Write for catalog, now.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.



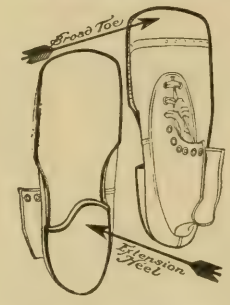
SPRAY with the **Empire King.**

He who attempts to grow fruits without a Sprayer is handicapped. Blight and bugs, rot and rust, mold and mildew, all conspire to damage the crop, and in all cases succeed if the farmer does not spray. This is the only hand pump having automatic agitator and brush for cleaning strainer. Valuable book of instruction free. FIELD FORCE PUMP CO., 8811TH ST., ELMIRA, N. Y.



The

Coward Shoe



Support for Children's Ankles

Corrective support for weak ankles in this Special Coward Shoe. Extension heel and snug waist hold ankle and arch muscles in place; broad toe throws weight of body on ball of foot. Weak arch and "flat-foot" are helped by this Coward Shoe.

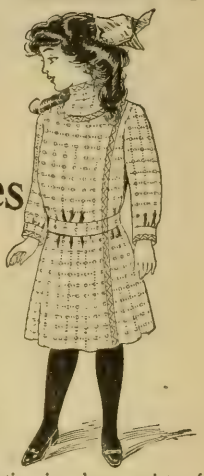
For Children, Women and Men
Send for Catalog **Mail Orders Filled**

SOLD NOWHERE ELSE

JAMES S. COWARD
264-274 Greenwich St., near Warren St.
NEW YORK

Dress the Youngsters

with the famous, finest quality, longest wearing and very fetching



Pacific percales

(Fifty Years the Standard!)

and your children will look so stylish and up-to-date they'll be models of tidy appearance. The cost won't be much — 10c and up a yard — but the long wear will surprise you. Pacific Percales have been for fifty years the preferred percales. The patterns are a revelation, in a large variety of dainty creations as well as in the quiet tones and in white and black.

Ask your dealer to show you Pacific Percales and look for this trade mark on each piece — the guarantee of most stylish designs and longest wear — unfadable — wash easy as a cotton sheet and do up to the Queen's taste.

If your dealer doesn't carry Pacific Percales, write us for free samples and list of retailers who will supply you.

PACIFIC MILLS - BOSTON, MASS.

Root's Section-Honey Boxes!

THERE have been very few years when the outlook for a bumper honey crop has been brighter than it is now—at the opening of the season of 1911. Every indication points to an almost unprecedented honey-flow, and the bee-keeper who is not making most complete preparations to reap the harvest will not be very well satisfied with himself when the surplus has all been taken off this fall, or when he knows a big flow is on and he has no sections to put on his hives.

Of course the section problem is the most important one to the comb-honey man, and it MUST be solved right. Therefore why take risks? Why run the slightest chance of getting sections of uncertain quality, or experimenting at a price you can not afford to pay. We are the largest manufacturers of Section-honey Boxes in the world—naturally we have the finest equipment for section-making and cut up the best lumber. We are in close touch with every phase of bee-keeping—with every department of the honey trade—therefore we know the service sections are required to give, and we make ROOT'S SECTION-HONEY BOXES to meet these requirements. Years of experience and satisfied section patrons throughout the world ought to count, and you, Mr. BEE-KEEPER, if you will buy ROOT'S SECTIONS will understand why.

Price List of Sections

4¼x4¼ Beeway Sections—2 inch, 1⅛, 1⅞, 1¾, or 7 to foot wide.

We send 1⅞ style 2 beeway when your order does not specify style or width wanted.

No.	A	B	Weight
100	$ 80	$ 70	7 lbs.
250	1 60	1 40	18 "
500	2 75	2 50	35 "
1000	5 50	5 00	70 "

Plain or No-beeway Sections — 4¼x4¼x1½, 1⅝, or 1⅜; 4x5x1⅜ or 1½; or 3⅝x5x1½.

We send 4¼x1½ plain, or what will fit other items in your order, if you do not specify.

No.	A	B	Weight
100	$ 80	$ 70	6 lbs.
250	1 60	1 40	15 "
500	2 75	2 50	30 "
1000	5 25	4 75	60 "

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Hardy Golden and Three-banded Italians. Hustlers for honey, and are gentle. No disease. Untested queens, $1.00 each, $5.00 for six; tested, $1.50 each, $8.00 for six; select tested, $2.00. One-frame nucleus, $2 00; two-frame, $3.00; three-frame, $4.25; ½ lb. bees, $1.75 (add price of queen wanted); full colonies, $7.00.

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By Return Mail after June 1 to 5 or Money Refunded

Bred from my superior breeder for business; gentle; no better hustlers; bees just roll honey in; three-banded; northern bred; hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored, long-tongued, red-clover strains. Untested, $1.00; six, $5.00; dozen, $9.00. Select untested, $1.25; six, $6.00; dozen, $11.00. Circular free. Satisfaction guaranteed. Isaac F. Miller, of Reynoldsville, Pa., a queen-specialist, is my apiarist and manager, who has been before you quite a number of years. J. S. MILLER, Rt 2, Brookville, Pa.

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Pedigreed Golden Queens

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I have 112 colonies all in Danz. hives with the exception of ten, which are in Danz. divisible hives, and these will go into the regular Danz. body in the spring. The regular Danz. body, with the right management, is the best combination in the world for comb honey. I let the big-hive men laugh, but when we go to market, their product is no competition to mine. The dealers say to them, "If yours is as good as Hall's bring it in and we will take it." And it is all in the form and management of the HIVE.

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In the spring of 1899 we sent fifty nuclei to J. D. Nixon, Lafarge, Wis., and on July 20th (same year) he wrote us, saying they did just splendid, as at that writing they had already filled their supers, and that he would have to extract them. We have files of testimonials similar to the above.

Prices before July	1	6	12
Select queens	$ 1 00	$ 5 00	$ 9 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	10 00	18 00
Breeders	4 00		
Golden five-band breeders	6 00		
Two-comb nuclei, no queen	2 50	14 00	25 00
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Full colonies on 8 frames	6 00	30 00	

Add price of whatever grade of queen is wanted with nuclei and colonies; nuclei and colonies, if shipped before June 1st, add ¼, or 25%, extra to above price. No order too large and none too small. Will keep 500 to 1000 queens on hand ready to mail. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

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W. H. LAWS

is again offering his splendid stock of favorite Italians the coming season. Queens from this strain can not be surpassed, and are the kind that get bees that make supers hard to lift.

Twenty-one years a commercial queen-breeder, and an advertiser in this journal, he knows what a good queen is, and can prove it to you.

I wish you could see some of the splendid letters coming to my desk now almost daily. Laws queens are in every State in the Union, and the careful breeding of these queens has put many dollars in the pockets of his customers, as I have abundant evidence to show. I am now supplying some queens in April, and shall have plenty in May, and my prices are low, in keeping with quality of my stock.

I have about 75 strictly first-class breeding-queens that are worth many times the price I ask. I will sell at $5.00 each. Other queens, $1.00 each; six for $5.00. Satisfaction guaranteed. Circular free.

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1911 Three-banded Italian Queens

We are now ready to fill all orders promptly for our Three-banded Italian Queens; bred strictly for honey-gathering qualities. Untested, $1.00 each, or six for $5.00, or $9 00 a dozen. Tested, $1.25 each, or six for $6.50, or $12 00 a dozen. Select tested, $1 50 each. Breeders, the very best, $3.00 to $5.00 each. We guarantee safe arrival, and will replace all dead queens that are returned to us in the cage we mailed them in.

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Queens . . . Queens

200 to 300 per month. Untested, $1.00; tested, $1.25; select tested, $2.00; breeders, $3.00. Nuclei, full colonies, bees by the pound. Have letter from the State certifying my bees are free from foul brood.

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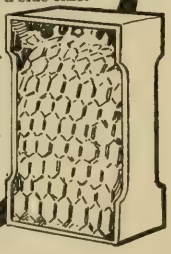
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SOUTHERN BEE-KEEPERS.—When your honey is ready for market, write us. Will buy outright or handle on commission. Send samples with full particulars. Are paying 30 cts. per pound, net, f. o. b. New York for choice yellow beeswax.
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Party has a good five-passenger touring car, fully equipped, used less than two years, to sell at a bargain; cost new $1100; sold a few months ago for $650; can be had now for $400 cash, or will take comb or extracted honey or wax in exchange.
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FOR SALE.—In Antrim Co., Mich., 32¾ acres, bee and fruit farm; good honey location; home market for fruit and honey. Will sell 90 colonies of bees with farm. H. E. BROWN, Rt. 4, Charlevoix, Mich.

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PERLE IRISH, Lawton Station, N. Y.

FOR SALE.—Good improved farm of 20 acres, suitable for apiary, poultry, fruit, truck, or general farming; main clover and Spanish-needle belt; ½ mile of city of 8000; with or without bees.
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FOR SALE.—A 6½ x 8½ view camera with all adjustments and a battery of seven Dallmeyer's lenses; also a 5 x 8 view camera with 24 double plateholders; a 4 x 5 folding Premo; also a pocket Kodak (smallest), besides tripods, shutters, developing-trays, etc. All to be cleared out at less than half cost.
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If you use a quantity of 60-lb. cans, let us quote you a low price.
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Strong colonies of Italian bees in Danz. hives, $7. STRINGHAM, 105 Park Place, New York.

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Golden queens, untested, remainder of season, 75 cts. each. R. O. COX, Rt. 4, Greenville, Ala.

I am now doing business at the old stand. J. P. MOORE, Queen-breeder, Morgan, Ky.

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Missouri-bred Italian queens; none better; prices right; write for circular. L. E. ALTWEIN, St. Joseph, Mo.

FOR SALE.—125 colonies of bees, free from foul brood; also 50 empty hives, supers, etc. S. E. TENNANT, Schoharie, N. Y.

WANTED.—Cheap bees in box hives or by pound. Will exchange serviceable automobile runabout or cash. F. B. CAVANAGH, Hebron, Ind.

Famous Doolittle strain of Italian queens now ready at $1.00 each; 6 for $5.00. A. G. SOARES, Brawley, Imperial Valley, Cal.

California Italian queens; fine honey-gatherers; gentle; none better. Select untested, 75 cents; tested, $1.00. LINCOLN MCCARGAR, Los Gatos, Cal.

Italian queens, 75 cts.; tested, $1.00; breeders, $5.00 each; two-frame nucleus with queen, $2.50. E. M. COLLYER, 75 Broadway, Ossining, N. Y.

Bungalow Golden Italians; also non-swarming and educated queens, $3.00 to $100.00. HENRY W. BRITTON, Stoughton, Mass.

Improved red-clover Italian queens bred from the best honey-gatherers obtainable. Untested, $1.00; 6 for $5.50; 12 for $10.00. J. H. GIBBS, Berlin, Md.

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Golden and red-clover Italian queens; superior stock. Write for prices. WM. A. SHUFF, Aldan, Delaware Co., Pa.

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Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white, sheeted lids; each neat, modern, and full of stores—any time. JOS. WALLRATH, Antioch, Cal.

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FOR SALE.—Italian queens, bred from the best honey-gathering strain obtainable. Untested, 75 cts.; select, $1.00; tested, $1.25; select tested, $1.50; breeding-queens, $3.00; select breeding-queen, $5.00; nuclei without queen, one-frame, $1.25; two-frame, $2.00; three-frame, $2.75. For queens and nuclei in quantity lots, write for prices. ROBERT B. SPICER, Wharton, N. J.

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FOR SALE or exchange for high-class poultry, bee-supplies, honey, or eggs; 3000 Cuthbert red-raspberry plants at $1.50 per 100; $12.00 per 1000; $35.00 the lot; 600 Golden Queen ditto, $2.00 per 100; $10.00 for the lot. C. C. DOORLY, Sound View, Ct.

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WANTED.—An experienced man in raising comb honey, to begin work about May 1st. Give references, experience, and wages wanted, in first letter. OGDEN BEE AND HONEY CO., Ogden, Utah.

WANTED.—Competent man of good habits, and handy with machinery, for bee-work; 600 hives with up-to-date appliances; power outfits and auto.
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Wild mallard duck eggs, $1.50 per 12.
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Buttercups for utility and beauty; selected pens; unlike others. H. V. MEEKER, Earl St., Toledo, O.

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White and Brown Leghorn chicks; five other breeds. Price right. Catalog free.
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Indian Runner duck eggs from my noted laying stock. Write for illustrated catalog, mentioning GLEANINGS. KENT JENNINGS, Rt. 3, Mt. Gilead, O.

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Partridge Wyandottes and Partridge Rocks—also all leading varieties. Prize-winning stock and eggs—reasonable. Catalog free.
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GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
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SICILIAN BUTTERCUPS.—Stock and eggs for sale from original imported blood and from my ribbon-winners at the Appalachian Exposition and other shows. Free circular. MRS. J. S. DUMARESQ,
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Order your copy of "American Standard of Perfection" through GLEANINGS. The new edition of this greatest of all poultry-books is now ready. Beautiful plates show feather-markings, etc., of every standard breed. Price $1.50, postpaid, in cloth; $2.25 in morocco binding.
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Bee-keepers' Directory

Nutmeg Italian queens, after June 1, $1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school.
W. C. MORRIS, 74 Cortlandt St., New York City.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York City.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1911. Beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in '08-'09 without a single loss. For prices see large ad. QUIRIN-THE-QUEEN-BREEDER,
Bellevue, Ohio.

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Special Notices

By Our Business Manager

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No. 0121, 2¼ x 10-inch heavy hex. brood mill. An old-style Dunham machine without cam adjustment: in rather poor condition. Price $8.00.

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No. 0132, 2 x 10 round cell Pelham mill. This is nearly new, but it does not make a natural-shaped cell. Price $9.00.

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No. 0147, 2½x6 hexagonal thin-super mill, in extra good condition. Price $15.00.

CANADIAN BEE-KEEPERS

E. Grainger & Co., Deer Park, Toronto, announce to Canadian bee-keepers that they have a reasonably full line of Root bee-supplies on hand for shipment from Toronto. Large shipments will be made direct from the factory, and in many cases a considerable saving may be effected by placing orders with us.

See What Our Customers Say

North Toronto, March 1, 1911.

E. Grainger & Co., Toronto.

Dear Sirs:—The goods we received from you, manufactured by The A. I. Root Co., are most satisfactory. We find the frames fit beautifully; in fact, all the woodwork is so perfect and so clean and nice that we would not think of using any other make now. They are well worth the extra they cost.

A. W. O.

E. Grainger & Co., Toronto. Connaught, Mar. 7, 1911.

Dear Sirs:—Have received shipment of my order to-day. Every thing is in perfect order. Am very well pleased with the goods.

D. R.

SEND ALL ORDERS TO

E. Grainger & Co., Deer Park, Toronto, Ont.

Special Notices by A. I. Root.

YOUR SEED CORN—LOOK OUT FOR IT.

As I have mentioned elsewhere, the seed corn all over the North seems to be unusually slow in germinating power. If you are obliged to buy seed corn, purchase it in the ear if possible, and then test *every ear*. Even in the best of seed corn there will be occasionally an ear that will not germinate at all; and the corn from one single ear of this kind, getting into your field, will take several dollars right out of your pocket. The boys and girls can do the testing, and will, no doubt, like the fun of it. I am rejoiced to know that our schools are taking this matter up. It is not only a saving in dollars and cents, but it is starting children in wisdom's ways while they are young, and easily enlisted and impressed.

THE AUTOBIOGRAPHY OF AN ITALIAN QUEEN-BEE.

The above is the title of a very pretty book by T. Chalmers Potter. The author of the book supposes that a queen bee born in Sunny Italy is able to give us the history of her life and of her being sent by mail over here to America. Of course the book is poetical, and the writer draws on his imagination in several places to supply the "missing links." As a rule his statements are scientifically correct—that is, so far as we have explored the natural history of the honey-bee. I notice only one place where I would take exception. On page 62 he says the queen commenced laying within four or five hours after her meeting the drone. I would have put it two or three *days*. But Ernest reminds me that, as a queen often makes two or more trips, the author of the book caught sight of her when she was coming from the hive for the last time, and, finding eggs in four or five hours, he took it for granted that it was as the book states.

This book is very interesting, and the suggestions thrown in in regard to the life-history of the honey-bee and other insects are quite entertaining. It is very nicely bound, and can be mailed from this office for 75 cents.

"THE BUSINESS HEN."

The above is the title of a new edition of a book by our old and tried friends of the *Rural New-Yorker:* and in the whole round of poultry-books that are now being sent out almost daily I do not know of any safer counselor than this new book, "The Business Hen." While it considers almost every thing that has lately been coming out in regard to the care of poultry, it seems to have rare tact in separating the wheat from the chaff. As an illustration, I thought I had got on to a plan for securing more pullets than roosters; but during the past winter I have been much disappointed to find it did not work so well as heretofore. Here is what the new book says in regard to the matter:

CONTROLLING SEX.

No one, so far as the writer knows, has yet solved the mystery of controlling the sex in breeding poultry. Many theories have been advanced, the chief of which is the one that the shape of the egg may be used as an indication of the sex. For instance, long eggs will be more likely to produce cockerels, and round ones pullets. The claim that mating young males and old hens will result in producing more pullets, and that old males mated to pullets will produce more cockerels, has been tried repeatedly without establishing the claim. It has been claimed that the season of hatching influences or determines the sex, the general belief being that the early hatches appear to contain a larger proportion of pullets than do the late hatches. All these and other theories of sex control have abundant verification in specific instances where they have proved true, but in as many other instances the reverse has been true.

I do not find any price mentioned for this excellent poultry-book; but my impression is that it is sent free to every one who sends $1.00 for the *Rural New-Yorker*. You want the book any way, especially if you have been striving to separate truth from error in regard to the many things that come up with chickens.

REMEDIES FOR AND PREVENTIVES AGAINST MOSQUITOES (ALSO SOMETHING ABOUT CITRONELLA).

The above is the title of a fifteen-page pamphlet, Farmers' Bulletin No. 414, from the Bureau of Entomology, Washington, D. C. I had to smile when, on the very first page, I saw that "oil of citronella" was mentioned as one of the best remedies—that is, for driving them away. Now, do not imagine from my talk that I found mosquitoes worse in Florida than in some other places. Neither mosquitoes nor gnats ever troubled me there half as much as in Northern Michigan at certain times. By the way, is any thing more exasperating than to have mosquitoes or gnats get in their work when your hand and head and brain are all occupied with something that can not be dropped? Suppose, for instance, you are trying to fix an automobile, with hands covered with black grease, so you can not touch a mosquito, and then have her, at just the critical moment, come around with her characteristic "z-z-z-z"? It has sometimes seemed to me as if

Satan's imps were coming in the shape of mosquitoes or gnats to provoke me to think bad words, even if I do not say them. Oil of citronella is a wonderful preventive or remedy. If you have some complicated or intricate work that requires a steady hand, and nothing in your way, just pour a drop of citronella in the palm of one hand, then rub the hands together, then pass them over your face and eyes, around your neck, and over your wrists. Just one drop will do the work. Mosquitoes, gnats, sand flies, and every other insect will start for a job somewhere else, and you can go on with your work without hindrance. Spirits of camphor, oil of cedar, peppermint, lemon juice, pennyroyal, etc., answer the same purpose to a certain extent. This bulletin recommends a mixture of all of them. Of course, these things are only preventives, and only temporary ones at that; for the perfume that drives the insects away is soon gone. If mixed with vaseline, however, citronella is much more lasting. Mrs. Root objects to the perfume; but I find it rather pleasant than otherwise. Burning something like a smudge answers much the same purpose; and burning pyrethrum powder is still more effective. If burned in a close room the mosquitoes will be so stupefied as to fall on the floor, when they can be swept up and destroyed. Burning sulphur answers the same purpose, but, of course, you will have to vacate the room. The principal part of the bulletin, however, is devoted to the abolition of breeding-places. Everybody should know, if he does not already, that standing water is what causes mosquitoes. Half a beer-bottle, we are told, if left where it will catch rain water, will breed mosquitoes by the hundreds if not thousands. So it seems that beer-bottles are bad things to have around, even after they are broken up and thrown away. Where water *must* stand exposed (your rain-water barrel or cistern, for instance), it can be covered with fine wire cloth, or a very little kerosene can be kept on the surface. A spoonful thrown into a rain-water barrel once a week will not only kill the "wigglers," but it will keep the mosquitoes away. We hear a good deal about eucalyptus and other plants that keep mosquitoes away. The bulletin has this to say in regard to it: "Observations made by scientific men in different parts of the world negative their value."

If you want the bulletin, apply to the Department of Agriculture, Washington, D. C.

Just after dictating the above, another bulletin was put in my hands, just issued by the Department of Agriculture, entitled "More Facts about Malaria." This bulletin should be in the hands of every person or family where malaria exists. Let me make a few extracts:

The disease known as malaria, or fever and ague, or chills and fever, or marsh fever, and the varieties called intermittent fever, remittent fever, and pernicious fever, are caused by parasites in the blood which feed upon the red blood-cells.

And again:

Malarial fever is, then, an infectious disease, which is carried from the sick to the healthy by anopheline mosquitoes, and only in this way can it be contracted.

The astonishing part of the last clause of the above sentence, declaring that malaria and kindred fevers come about only through the agency of mosquitoes, is new to me. Here is another statement:

It has always been known that malaria is most prevalent in the vicinity of marshes, and it was formerly supposed that the air or exhalations from these marshes produced the disease. Parasites of malaria have not been found in the water or air of marshes, nor in decaying vegetation, nor in the soil, although they have been diligently searched for. Attempts to produce infection by these agencies have always failed The mosquitoes which carry these parasites, however, breed in marshes or in marshy pools and streams.

Issuing from these breeding-places, they enter nearby houses, and feed upon the inmates, mostly at night, biting first one person and then others, and living for weeks or months.

If the above is true, it is of the utmost importance that this information be widely disseminated. As I have had personal experience in years past with ague, chills and fever, intermittent fever, and last, but not least, with malarial fever, I ought to know something about it.

This pamphlet, like the other, lays tremendous stress on the importance of preventing any possibility of breeding mosquitoes in standing water until we are able to banish the pest. It also recommends quinine, to be used freely where laborers are obliged to work in malarious districts.

Address as above, and ask for Farmers' Bulletin No. 450.

PUBLICATIONS ON

BEE CULTURE

Please use coupon below, checking the numbers of items wanted.

The pamphlets and booklets listed below are of more than ordinary interest:

1 **My First Season's Experience with the Honey-bee.** By the "Spectator," of the *Outlook*, of New York. A ten-page leaflet detailing the experiences of this well-known writer. You will read the leaflet through before you lay it down. Free.

2 **The Bee-keeper and Fruit-grower.** A 15-page booklet giving actual facts regarding the value of bees to fruit, and showing how bee-keeping may be doubly profitable to the fruit-grower. Fruit-growers are realizing as never before the necessity of having honey-bees in close proximity to their blossoming fruit. Free.

3 **Bee-keeping for Sedentary Folk.** A 24-page leaflet reciting the actual experiences of an amateur bee-keeper, showing what equipment is best, points derived, etc. Free.

4 **Catalog of Bee-keepers' Supplies.** Our complete catalog will be mailed free to any address on request.

5 **Transferring Bees.** A 14-page booklet giving instructions and illustrating appliances. No need to keep your bees in old out-of-date hives when they can easily be transferred into new hives and earn profits for you. Price 10 cts.

6 **Bee-hunting.** Gives information necessary to enable one who is active and intelligent to engage in bee-hunting with success. It is well gotten up and worth the price, which is 25 cts.

7 **Spring Management of Bees.** A 14-page booklet detailing the experiences of some successful bee-keepers, and giving instructions on this ofttimes perplexing matter. Price 10 cts.

8 **Habits of the Honey-bee.** By Dr. E. F. Phillips. A somewhat scientific handling of the habits and anatomy of the bee. Price 10 cts.

9 **How to Keep Bees.** A book of 228 pages detailing in a most interesting manner the experience of a beginner in such a way as to help other beginners. Price $1.00 postpaid.

10 **The A B C of Bee Culture.** A complete encyclopedia of bees, of 576 pages, fully illustrated, $1.50 postpaid; half leather, $2.

11 **Gleanings in Bee Culture.** A 64-page illustrated semi-monthly magazine, the leading exponent of bee culture in this country. Ten cents per issue, but to new subscribers we will furnish it six months for 25 cts.

The coupon below may be used as an order sheet by properly checking the numbers of items wanted and adding your signature, and remittance, if required.

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The Townsend Bee Book

or How to Make a Start with Bees

By E. D. Townsend, Remus, Mich.

Mr. Townsend is one of the most progressive, most successful, and one of the most extensive bee-keepers in the United States. If any man knows how to give instructions that will lead to success in the pursuit of bee-keeping and production of honey, Mr. Townsend is that man. While the book is written especially for beginners, it has so much of value in it for the veteran that old timers will find profit in reading it, as well as those who are just making a start.

Table of Contents of The Townsend Bee Book:

CHAPTER I—How I Became a Successful Manager of Bees on a Large Scale
CHAPTER II—What Hive to Adopt
CHAPTER III—How to Buy Bees
CHAPTER IV—Folding Sections and Putting in Foundation
CHAPTER V—What to Do just Preceding the Honey-flow
CHAPTER VI—Strong vs. Medium Colonies at the Opening of the Harvest
CHAPTER VII—How to Take Care of Swarms
CHAPTER VIII—Management Previous to the Honey-flow to Prevent Swarms
CHAPTER IX—The Honey-flow
CHAPTER X—Spring Management
CHAPTER XI—Making Up Winter Losses

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5-15

A BRIGHT OUTLOOK

TEXAS beemen are feeling pretty good these days, and the outlook for a bumper honey crop is most pleasing. Every thing in readiness at your apiary?

Better not delay ordering foundation, extra hives, smokers—every thing you will be sure to need—and better have a generous stock, because it does not pay to run short when the honey-flow is at its height.

We Wish to Buy

We wish to buy your honey and beeswax, and supply you with honey-cans. We also desire, as usual, to buy all the first-class white honey we can obtain. We are now paying for first-class white bulk comb honey, properly put up, f. o. b. the bee-keeper's railroad shipping-point—

9½c per lb. for 2–60. 10½c per lb. for 10–6.
10c per lb. for 10–12. 11c per lb. for 20–3.

If you wish to sell us some, kindly send sample, stating how much you have and how it is put up, and we will send you shipping instructions.

We have on hand an immense stock of honey-cans and Root's Bee-keepers' supplies. We also manufacture comb foundation by the "Weed New Process," and lead in foundation sales in the Southwest with this superior product. Can work your wax into comb foundation at a reasonable rate—every pound guaranteed. We pay for average clean beeswax 28c cash; 30c in trade delivered here.

Wholesale Prices on . . Honey-shipping Cases

We are a little bit overstocked with cases for shipping comb honey, and want to clear at wholesale rates to our regular patrons. The cases offered below are of the latest design and made to ship comb-honey sections any distance with safety. We will quite gladly give further particulars upon request.

Quantity we have—	Size—	Price per 100—
300	10-inch, 4-row at	$12.50
200	12-inch, 2-row at	8.25
100	10-inch, 2-row at	7.75
150	16 inch, 2-row at	9.25
200	8-inch, 3-row at	8.50
350	6¼-inch, 3-row at	8.25
400	7⅛-inch, 4-row at	12.00
200	7⅛-inch, 3-row at	8.50
100	8-inch, 3-row at	8.50

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200 Pages; Nearly 500 Subjects

A NEW Edition of This Popular Book

ADVANCED BEE CULTURE

By W Z. HUTCHINSON

E. R. ROOT, editor of *Gleanings in Bee Culture*, who revised Mr. Hutchinson's book which has just been published, has to say in *Gleanings:*

As a writer on bees Mr. Hutchinson has few equals. For clearness of style and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and the useful from an extended discussion is intuitive. The last edition of "Advanced Bee Culture," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by a master of the art of boiling down discussions.

I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced bee-keeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it in connection with some other work like the "A B C and X Y Z of Bee Culture," or any textbook designed especially for the beginner class.

Nearly 500 Subjects Pertinent to MODERN Bee-keeping are Authoritatively Discussed

ADVANCED BEE CULTURE is a beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that the many fine illustrations are unusually clear in every detail. The book has been bound in attractive and substantial cloth with clover design in natural colors on cover. All together it is a volume whose appearance and unquestionable worth justly entitle it to a place in the library of every bee-keeper. No more important work on this fascinating subject has recently appeared.

$1.50 Buys a $2.00 Value

ADVANCED BEE CULTURE costs $1.00 per copy. GLEANINGS IN BEE CULTURE (semi-monthly) — known and read by bee-keepers throughout the world — price $1.00 for an annual subscription. It is our pleasure, however, to offer this interesting and most useful combination — the book here described and GLEANINGS one year, both for $1.50. It is a value you will very seldom find—really it is a good $2.00 worth for $1.50.

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Oliver Typewriter!

The battle lines of the Oliver Typewriter forces are forming for another campaign of conquest. The triumphs of 1910—the most brilliant ever achieved by a great sales organization—have served to inspire to more mighty deeds in the coming year.

The roll-call of the Oliver Sales Organization shows over 15,000 men **under arms**—the most magnificent body of trained salesmen in the world.

This Sales Force, great as it is, cannot cope with the tremendous increase in business which the popularity of the Oliver Typewriter has created.

Resident Agents Wanted in every Town and Village

This advertisement is a call for reinforcements—to enable the Oliver Sales Force to extend its skirmish lines to all sections of the country.

The central idea of our selling system is to have—**everywhere**—a vigilant agent of the Oliver Typewriter constantly **on the ground**. Whether that agent devotes part or all of his time to the sale of the Oliver Typewriter is left to his own discretion.

Teachers, tradesmen, doctors, ministers, lawyers, stenographers, telegraph operators, printers, mechanics—men and women in a multitude of different occupations—can succeed as local agents for the Oliver Typewriter. If you have the will to take up this work, **we will point out the way.**

The OLIVER Typewriter

The Standard Visible Writer

The Oliver Typewriter has been breaking records since the day it was placed on the market. **Efficiency records, speed records, endurance records**—it has won them in quick succession. It sets the swiftest pace in sales by giving unparalleled service.

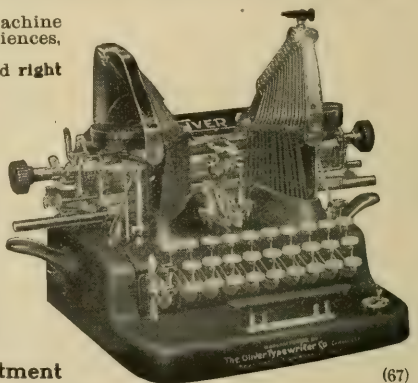
With **several hundred less parts** than other standard typewriters, its **simplicity, strength, ease of operation, versatility and convenience** are correspondingly increased.

"17-Cents-a-Day" Plan a Wonderful Aid to Agents

This machine, with all of its advantages, all of its time and labor-saving devices, the Local Agent can buy—**and sell**—for Seventeen-Cents-a-Day.

The Oliver Typewriter No. 5—the newest model—the $100 machine—equipped with a brilliant array of new devices and conveniences, actually offered for **pennies!**

This irresistable offer enables the Local Agent to succeed **right from the word "go!"**



Write for Inspiring Book, "The Rise of the Local Agent"

Read the life stories of men who rose from the Local Agency ranks to positions of great importance in the Oliver Organization—How one Local Agent is to-day the Typewriter King of Mexico. (Mexican Government reports show that more Oliver Typewriters are imported than all other typewriters combined).

These inspiring stories will open your eyes to the **big opportunities still open** for ambitious men to carry the Oliver flag, fight for new records and reap the rewards of success.

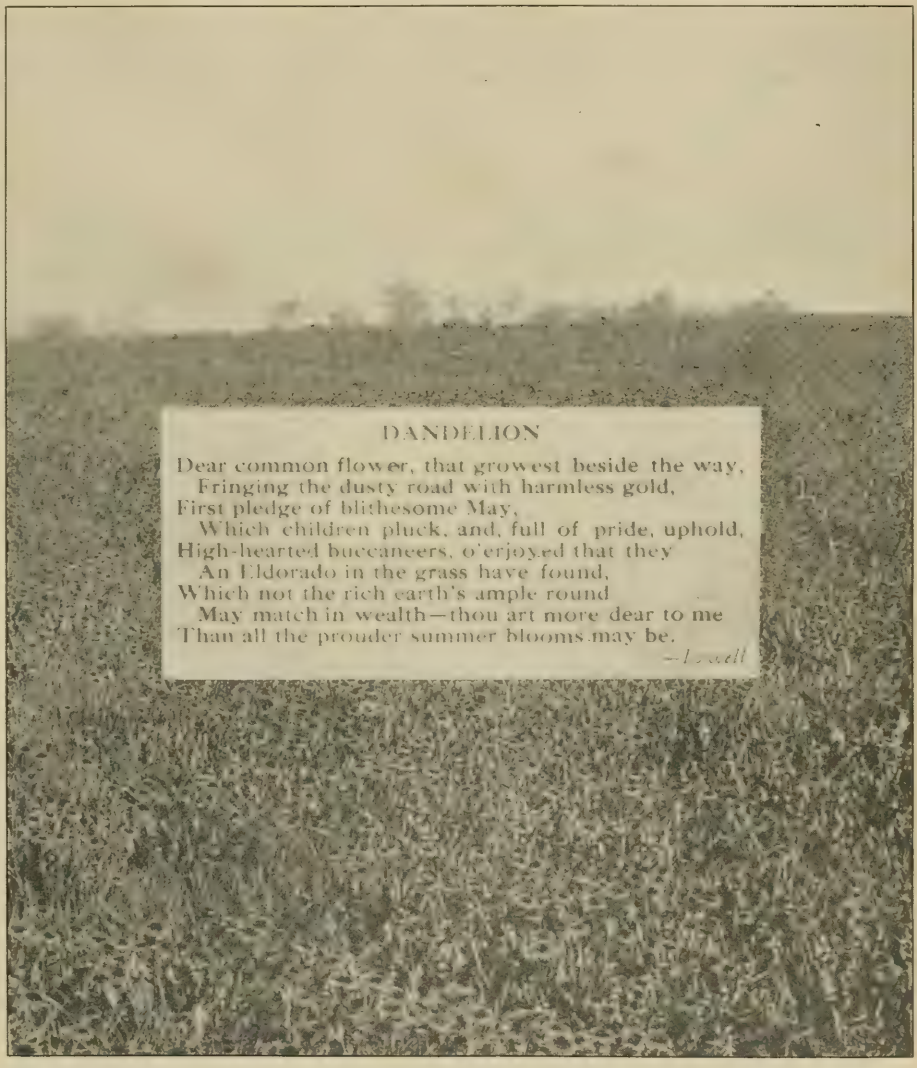
Send a personal letter today while the **Call for Volunteers** is ringing in your ears.

Address Agency Department (67)

The OLIVER TYPEWRITER CO., 116 Prospect St., Cleveland, O.

Gleanings in Bee Culture

VOL. XXXIX JUNE 1, 1911 NO. 11



DANDELION

Dear common flower, that growest beside the way,
Fringing the dusty road with harmless gold,
First pledge of blithesome May,
Which children pluck, and, full of pride, uphold,
High-hearted buccaneers, o'erjoyed that they
An Eldorado in the grass have found,
Which not the rich earth's ample round
May match in wealth—thou art more dear to me
Than all the prouder summer blooms may be.

—*Lowell*

Order From DES MOINES

THE A. I. ROOT COMPANY Branch at Des Moines had a most auspicious start through our good fortune in taking over the old and well-established supply-business of Jos. Nysewander. Thorough acquaintance with all bee-keepers in this section and with their general requirements has placed this branch in an enviable position for giving satisfactory service. Needless to say, it is our aim to conduct all transactions at this branch in a way that will creditably reflect upon the good reputation that ROOT'S GOODS have gained among bee-keepers in Iowa and throughout the Middle West.

Let us tell you of advantages in dealing in Des Moines:

1911 Supplies and Stock

We are fully prepared to meet the demands of the coming season, which bids fair to be a big one. Our warehouse, completed last fall, gives much greater capacity for stock than we have previously enjoyed. This, with the older building, gives us the advantage of arranging our stock in such a manner that orders can be packed very quickly with no waste of time. Carlots of fresh supplies continually come from our factory to keep our stock complete.

Shipping Facilities

Des Moines is favorably known as a shipping center that has few equals. With our warehouse conveniently located and our facilities for quick and careful packing we can get goods off on the numerous steam or interurban lines in very short order. Through trunk lines, a net work of trolleys running in practically every direction—all these insure not only the saving of time but a desirable saving in freight or express charges as well. No delay in filling even the largest orders at Des Moines is our policy.

Packing

We do not charge for packing, boxing, or delivering to freight or express offices in Des Moines. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B. Des Moines. If no agent at your station, notify us and we will prepay, and bill charges after shipment. Often during the busy season much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what charges will be from Des Moines.

Careful Attention and Prompt Service is Our Aim. We Try to Ship Mail and Express Orders the Day They are Received. Freight Orders are Filled in Order of Receipt. No Order is Too Small or Large for Our Personal Attention.

Root Goods are Standard Goods!

Remember that ROOT'S Bee-keepers' Supplies are recognized all over the world as the STANDARD—standard in dimensions, standard in quality. Every part and place fits exactly in the place it was intended for. All parts are made with the utmost care and accuracy, and can be placed in any other hive of the same style without a hitch in fit. Our lumber is selected with a view to getting the best to be procured. It is carefully sorted and throughly seasoned. And no less care is taken in the choice of any material whatever that goes into a product which, when finished, is to bear the ROOT label.

The Des Moines Branch has the benefit of the experience of a manager who thoroughly understands the requirements of those engaged in this business either for profit or pleasure. He couples with his knowledge the desire to make his service valuable to you upon any occasion. Do not be afraid to make known your wants—come to Des Moines, or write and we will show you every possible consideration.

The A. I. Root Co., Des Moines, Iowa

Iowa Phone 968 **Formerly Jos. Nysewander, Bee-Supplies**

"Falcon" Foundation

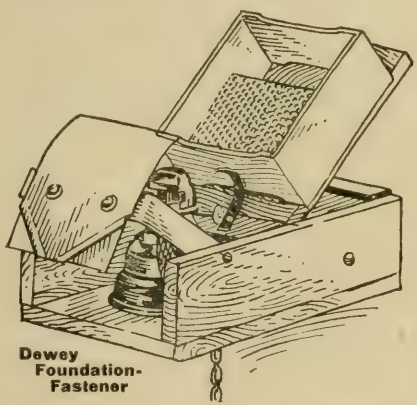
In our hive and bee-keeper's supply plant, foundation manufacture has been a specialty. We were in the business long before the advent of foundation-mills. We manufactured it by the old dipping and press process. "We have grown up with the business." Have had our share in developing it. Numerous experiments and long experience in wax-working have made us masters of the subject. **"falcon"** foundation is the result—a product unsurpassed by any other make. . . . . Write for samples.

Dewey Foundation-fastener

ONE OF MANY

Puyallup, Wash., April 10, 1911.
W. T. Falconer Mfg. Co., Chicago, Ill.
Dear Sirs:—Will you please forward me samples of "Falcon" foundation? . . I have one of your Dewey Foundation-fasteners which I ordered from your New York house, and would not part with same for $10.00 if I could not have another like it. They work as easy and perfect as a clock.
Yours for success, P. A. NORMAN.

Our three new 1911 carload distributing-houses give Dewey Fasteners with orders for three thousand or more "**Falcon**" sections.



Dewey Foundation-Fastener

Kansas City, Mo.
C. C. Clemons Bee Supply Co., 130 Grand Ave.

Chicago, Illinois
W. T. Falconer Mfg. Co., 117 No. Jefferson

Worcester, Mass.
Ross Bros. Co., . 90 Front Street

Write the nearest one to you and they will tell you about the Dewey Foundation-fasteners and the "FALCON" thermometers which they send free with orders.

Order from Your Nearest Dealer

Ross Bros. Co., 90 Front St., Worcester, Mass.
J. J. Wilder, Cordele, Ga.
The Fred W. Muth Co., 51 Walnut St., Cincinnati, Ohio.
Deroy Taylor, Lyons, Wayne Co., N. Y.
Cull & Williams Co., 180 Washington St., Providence, R. I.
Hudson Shaver & Son, Perch River, Jefferson Co., N. Y.
C. C. Clemons Bee Supply Co., 130 Grand Ave., Kansas City, Mo.
A. M. Applegate, Reynoldsville, Penn.
J. R. Rambo, Collingdale (near Phila.), Pa.
Bridat & Mont'ros, Havana, Cuba.
E. Lyons & Son, Kingston, Jamaica.
Edmonson Bros., 10 Dame Street, Dublin, Ireland.

"falcon" GOODS are sold in Mexico, Germany, Turkey, South and Central Africa, Australia, New Zealand, and everywhere.

W. T. Falconer Mfg. Company

Factory
FALCONER, N. Y.

Branch
117 No. Jefferson St., Chicago, Ills.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

NO. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

NO. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

NO. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

CHICAGO.—There is very little honey being sold this month, and the market prices are without material change.

Chicago, May 23. R. A. BURNETT & CO.

NEW YORK.—Regarding the honey market, we have nothing new to report, conditions remaining about the same all along the line. We have no new crop yet from the South, but expect it within two or three weeks. Beeswax is quiet at 29 to 31.

New York, May 20. HILDRETH & SEGELKEN.

INDIANAPOLIS.—Local supply in stores is almost exhausted. Indications are favorable for a good demand for best grades of new crop when it arrives here. There can be no established scale of prices till crop reports come in. Beeswax is in excellent demand, and producers are being paid 29 cts. cash or 31 in trade.

Indianapolis, May 19. WALTER S. POUDER.

ZANESVILLE.—A normal demand characterizes the honey market at this time. The supply is rather short. Prices are practically unchanged. The best grades of white comb bring, in a wholesale way, 18 to 19; extracted, 10½ to 11. For good beeswax, producers are being paid 28 cts. in cash, or 30 in exchange for bee-supplies. Wax brings 35 to 45 wholesale, according to quantity.

Zanesville, O., May 18. E. W. PEIRCE.

LOS ANGELES.—There has been but very little change in the prospects for the 1911 honey crop during the past week. The weather continues cool and foggy. This condition is bad for the orange-blossom crop, as it prevents the bees from taking advantage of the flow. On the other hand, it may prove beneficial to the districts in the interior by permitting the continued growth of the honey-plants, and may be the cause of a larger sage crop later on. There is a keen demand for the white orange honey that is now beginning to come to market, and which will be ready for shipment in carload lots by June 15. Buyers are now in the field, bidding basis 7¼ cents for the crop of white orange honey. Some sales have been made on this basis. We quote the market at 7¼. It will not be a large crop; and, judging from the demand, we believe it will be out of first hands in another week or ten days. The crop of alfalfa honey promises to be as good as if not better than that of last year. Some sales have already been made on a basis of 6 to 6⅛. Producers generally are asking higher prices; but we believe that bids on that basis would be accepted for shipment during the latter part of May or first part of June. Light-amber sage for July shipment is quoted at 6⅛ to 6¼.

HAMILTON & MENDERSON.

Los Angeles, Cal., May 15.

Now for 1911 Bee-Supplies

We have already received several carloads of that "finest of all Beeware"—Falconer make—anticipating the heavy rush of orders sure to come this Spring. Prepare yourself NOW, Brother, for we are going to have a heavy honey yield this season, and those who order early are the ones who will profit most. Send for our catalog to-day, and see our "MUTH SPECIAL" Dovetailed Hive, and also our "IDEAL METAL" Cover—both DANDIES. We sell you cheaper than the rest; we have the Best. Let us figure on your wants—we will surprise you.

THE FRED W. MUTH CO.

51 Walnut Street "The Busy Bee Men" Cincinnati, Ohio

ALL ROADS LEAD TO CINCINNATI

**"Deal with Weber & Co.
at the Service Center."**

The supplies you have on hand are worth many times as much to you as those you must order and wait for when the honey-flow is on. We know how busy you are in making final preparations for the big year we all expect; but try not to overlook the importance of getting your orders for sections, foundation, extra hives, supers, etc., in RIGHT NOW. You will be pleased with our QUICK DELIVERIES and with the quality, and we will give your order our best possible attention, no matter when it comes; but we urge you to get in a good stock of sections and foundation NOW. Let us tell you about these goods.

SECTIONS

We handle the best grade of sections made. If you want a hundred or ten thousand or a hundred thousand, we can fill your order promptly with goods we will guarantee to please. You may judge of the popularity of the sections we sell when we tell you that the manufacturers make upward of twenty-five million of them every season.

FOUNDATION

There is nothing more important to the up-to-date bee-keeper than to have foundation just when he needs it, and of the best quality. We sell nothing but Root's Weed-process Foundation, the recognized standard of the world. The bees appreciate the good points of this foundation, and every bee-keeper knows that it is the best. All grades and sizes constantly on hand. A pound or a ton, just as you like.

There are other items of interest too numerous to mention. We can furnish anything you need in the bee-keepers' supply line, and get it to you so promptly that the goods will reach you just when you need them most. No order is too small for our attention, and none so large that we can not handle it to *your* satisfaction. Send US your hurry orders and allow us to demonstrate what we can do for you. Catalog on request.

Special catalog of poultry supplies free for the asking.

C. H. W. Weber & Co., Cincinnati, O.

2146 Central Avenue

Gleanings in Bee Culture

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Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, Mrs. H. G. Acklin.

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Extracted Honey Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

DENVER.—The demand for honey is lighter than usual for this time of year. We make ihe following jobbing quotations: No. 1 white comb honey, per case of 24 sections, $3.15; No. 1 light amber, $2.93; No. 2, $2.70; white extracted honey, 9 to 10; light amber, 8¼ to 9. We have no amber to quote. We pay 26 cts. cash or 28 cts. in trade for yellow beeswax delivered here.

COLORADO HONEY-PRODUCERS' ASSOCIATION.
Denver, Col., May 18.

CINCINNATI.—The public is waiting for new honey, and consequently the demand for that which is on the market is very slow. Comb honey is all cleaned up, and we are looking forward to a good demand for new honey. It will be on the market within the next two weeks. We are still selling the dark-amber honey in barrels from 6 to 7 cents, according to quality and quantity purchased; table honey, 8 to 10 in 60-lb. cans, two in a crate. We are paying for strictly choice bright yellow beeswax, 30 cts., or 32 in trade.

Cincinnati, May 23. THE FRED W. MUTH CO.

BEE-KEEPERS

We make the best polished sections. This signifies quality. Send us your orders for sections and get the best. . Catalog free.

August Lotz & Co., **Boyd, Wisconsin**

FOR SALE—Bees and Queens Reared From Imported Mothers
Gentle SIMMINS' PEDIGREE STRAIN Sure
Hardy W. S. Honey Getters
American Apiculture and Farming Co., ST. LOUIS

Goldens that are Goldens

It has taken 20 years to perfect this race of "My Goldens," and they will winter anywhere, produce as much honey, and almost stingless. Try them and you will be satisfied. . . Untested, $1.00; twelve, $10.00. Tested, $3.00. Send for price list and circular. . . NO CHEAP GOODS.

GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

SEND FOR FREE ADEL BEE

and Supply Catalog. You will save money if you buy direct from my factory. I make the finest polished sections on earth. I want to prove it to you. Send me your order for sections, or any thing in bee-supplies. 45,000 brood-frames at $1.50 per 100 as long as they last; size is 9 1-8 in. deep, top-bar 19 1-16 in. long, V-shape or two-groove and wedge, or Simplicity, all loose-hanging frames. 65,000 section-holders at $1.00 per 100 as long as they last. They are nicely dovetailed and are for 4 1-4 by 4 1-4 by 1 1-2, and for 4 by 5 by 1 3-8 sections. Carload section orders a specialty.

Chas. Mondeng, 140 Newton Ave., N., Minneapolis, Minn.

BEES AND SUPPLIES!

Now is the time you are in a hurry for those bee goods. We have them waiting for you. . Italian queens, $1.00; full colony in a hive, $9.50. ' .

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

PATENTS

25 YEARS' PRACTICE

CHAS. J. WILLIAMSON, Rooms 304 to 307, Savings Bank Bldg., 7th and E. Sts., WASHINGTON, D. C.

Patent Practice in Patent Office and Courts.

Patent Counsel of The A. I. Root Co

We Save You Money!

We Manufacture Dovetailed Hives, Sections, Shipping-cases, Brood-frames, Separators, Section-holders, Berry Crates and Boxes.

QUALITY Our hives are made of best grade white pine, cut accurate and smooth to standard measure. Sections are of basswood, polished on both sides. There are no better goods made.

PRICE Our factory is well equipped, and we make goods as cheap as or cheaper than anybody else. We sell first hand, and can save you the middleman's profit. Will quote delivered prices by return mail, if you state your wants. Our prices will surprise you.

SERVICE We carry a complete line of every thing used in the apiary—foundation, smokers, and extractors always on hand. Shipping facilities are as good as can be found anywhere. We want your business; no order is too small for careful attention; none too large for us to handle. We guarantee prompt and satisfactory service. Catalog is free.

Minnesota Bee-Supply Company

Minneapolis, Minn.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873 CIRCULATION 35,000. 62 pages Semi-monthly

A. L. BOYDEN, Advertising Manager

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Twenty-five cents per agate line, flat. Fourteen lines to inch.
SPACE RATES. To be used in one issue: One-fourth page, $12.50; one-half page, $25.00; one page, $50.00.
Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover, 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount if paid in 10 days, 2 per cent.
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No medical or objectionable advertising accepted.
Column width, 2⅝i nches.
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Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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BEES PAY BIG

and require little care. All the little honey-gatherers and money-makers demand of you is to provide a home for them. They make the honey and you get the profit. What little work you must do can be made 100 per cent. easier and your profits 100 per cent. bigger if you have the

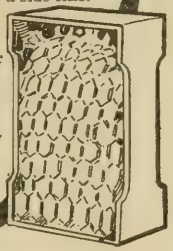
RIGHT KIND OF SUPPLIES

If you are a bee-keeper or are thinking of going into the bee business you ought to have our beautiful illustrated **New Bee Book**—just off the press. It's a complete guide to profitable bee culture. Tells you how to buy bees, what kind are best, where to locate the hives, how to care for them summer and winter, how to prepare the honey for market—in fact it tells you **all** you need to know to make bees highly profitable as a business or a side-line.

SEND FOR THIS FREE BOOK

We sell everything the bee-keeper needs and can save you money whether you keep few bees or many. Buy direct from headquarters at rock-bottom prices. Get our bee book and save money. Write now for a copy as the edition is limited.

Blanke Mfg. & Supply Co.,
Blanke Building
St. Louis, Mo.
Successors to Blanke & Hauk Supply Co.



Ohio's Bee Center

. . IS . .

ZANESVILLE

whence radiate bee-lines to all parts of the State and beyond. It is also the bee-gate into West Virginia and Pennsylvania. Bee-keepers in Ohio, West Virginia, and western Pennsylvania, and even those more distantly located, find in "PEIRCE SERVICE—ROOT QUALITY" the highest degree of satisfaction. There's no red tape or unnecessary delay at this end of the line, and a hundred railway trains in and out of the city every day insure receipt of orders and delivery of goods with minimum delay. May I send you my catalog?

E. W. PEIRCE, Zanesville, Ohio

QUEENS

Bees by the Pound and Full Colonies.

Hardy Golden and Three-banded Italians. Hustlers for honey, and are gentle. No disease.

Untested queens, $1.00 each, $5.00 for six; tested, $1.50 each, $8.00 for six; select tested, $2.00. One-frame nucleus, $2.00; two-frame, $3.00; three-frame, $4.25; ½ lb. bees, $1.75 (add price of queen wanted); full colonies, $7.00.

VIRGIL SIRES
516 North 8th St., North Yakima, Wash.

1911 Three-banded Italian Queens

We are now ready to fill all orders promptly for our Three-banded Italian Queens; bred strictly for honey-gathering qualities. Untested, $1.00 each, or six for $5.00, or $9.00 a dozen. Tested, $1.25 each, or six for $6.50, or $12.00 a dozen. Select tested, $1.50 each. Breeders, the very best, $3.00 to $5.00 each. We guarantee safe arrival, and will replace all dead queens that are returned to us in the cage we mailed them in.

Send All Orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas

If YOU Want Them YELLOW Try the GENTLE



Strain of Swarthmore Pedigreed GOLDEN Queens, Swarthmore, Pa.

Protection Veil. . . .

Postpaid, all cotton, 50c; silk face, 60c; all silk, 90c; with B or ballast cord, 10c per veil extra. Flexible-rim bee-hat, 30c; Oil duck gloves, long sleeves, 35c. ... ...

The heavy ballast cord (B) is a new feature to keep the veil from blowing in on the face. The cord A runs around the lower edge of veil, holding it down snugly on shoulders away from the neck, making a tight fit so bees do not get under. Cord C is a short one with loops in ends with cord A running through them, making it adjustable.

A. G. Woodman Co., Grand Rapids, Mich.



LEWIS BEE-WARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY CO. (Not Inc.)
Successors to YORK HONEY & BEE-SUPPLY COMPANY

148 W. Superior St. Chicago, Ill.
Send for catalog. ENOUGH SAID.

Have You Delayed Getting Your Supplies?

As the years go by, bee-keepers are ordering their goods during the winter months.

A few there are as yet who wait till the last minute, even waiting till the bees swarm and are hanging on the trees, before ordering hives.

Are you one of the last, or are you one of those "looking ahead"?

The A. I. Root Company

Syracuse, N. Y.

Established 1885



We carry an up-to-date . . line of . .

Bee-keepers' Supplies. . . .

Prices the lowest in the West. Write us for our 50-page catalog, ready to mail you. Free for the asking. . We can fill your orders promptly and satisfactorily. Our old customers know what we handle; to new ones we can say that we have

THE ROOT COMPANY'S Make of SUPPLIES

hence there is nothing to fear as to quality. . . . . .

Send us your rush orders and get your goods before swarming time arrives. . . . . .

Beeswax taken in exchange for supplies or cash. . . . . .

John Nebel & Son Supply Co. High Hill, Montg. Co., Mo.

BEE SUPPLIES

We carry a full and complete line of Root's Celebrated Bee-keepers' Supplies. By buying in carload lots we are enabled to sell at factory prices f. o. b. Dallas. . . . . .

We also carry the largest and best assorted stock of the celebrated Texseed Brand Garden and Field Seeds in the South; Incubators and Brooders, and poultry supplies of all kinds.

Send for illustrated catalog. .

Texas Seed & Floral Co.

Dallas, Texas

When you have honey or beeswax for sale write us.

COMB-HONEY OUTFIT No. 5

It is a matter of some difficulty for the average beginner to decide exactly what he requires as an outfit for the first start in bee-keeping. To relieve the beginner of all perplexity we list certain outfits which we think will meet his needs. The one we give below is what may be fairly considered the best. Each item has been very carefully selected, and we doubt the wisdom of leaving any article out; but the purchaser may do so without altering the prices on the other items.

1 A B C and X Y Z of Bee Culture (536 p.),	$1.50
1 copy "Facts about Bees"	.10
1 year's subscription to "Gleanings," .	1.00
1 Root Smoker	.65
1 pair cotton bee-gloves (small, med., or large)	.50
1 silk-front bee-veil	.60
1 full col. Italian bees in Danzenbaker hive (Complete with 32 section honey-boxes)	12.00
1 untested Italian queen	1.50
2 Danz. hives complete for comb honey . (Nailed and painted, ready for the bees)	6.80
1 Porter bee-escape and board . . . . (For taking honey from the bees)	.35

Special Offer Delivered at any express office north Ohio River and east Mississippi River **$25.00**

For delivery to points outside of the above free limit, we will make terms on application.

The colony of bees is as near perfect as we can make them. The combs are beautifully straight and well filled with brood. The breeding of the queen is of the very best, so that one has the nucleus of a fine stock of bees. In many cases a return of $10.00 in honey has been secured the first year from just such an outfit as this, and in addition one or two swarms may be secured, which practically doubles the value of the investment. Order at once.

The A. I. Root Co., Medina, Ohio

Bee-keepers who Have

THOROUGHBRED CHICKENS

and want to sell eggs and stock at good prices should use space under the POULTRY heading in the

Classified Pages

In proportion to the cost it is doubtful if any other medium offers as good an opportunity for profitable returns on such offerings as

Gleanings in Bee Culture

Read this from one of our satisfied advertisers:

> "I will say that what little advertising we did in GLEANINGS has brought us about all the business we can attend to this season,"

—and others say the same.

Read the POULTRY advertisements yourself. Read Mr. A. I. Root's talks on CHICKENS—advertise in GLEANINGS, and GET results.

The Bees Won't Wait for You

Are you ready for them? We have a complete stock of Root's Goods.

Sections . . . . .
"Root Quality" kind.

Foundation . . .
Weed Process—also "Root Quality.

Hives . . . . . .
Let us quote you on new equipment. Special quotations on complete outfits.

Extractors . . . .
Small machines for the small producer up to the eight-frame power outfits.

Beginners' Outfits .
Do you wish to make a start with bees, as hundreds of others are doing? We will help you decide on your needs.

Beeswax Wanted . .
We also sell berry baskets and crates. . . . . Send for catalog.

M. H. HUNT & SON

Opposite Lake Shore Depot

Lansing, Michigan



"If goods are wanted quick, send to Pouder." . . . Twenty-second Year.

BEE-SUPPLIES

A large and complete stock of the Root Goods offered at the factory schedule of prices. My system of rotating does not permit any accumulation of old stock. My comb foundation is always fresh from the mills; my sections fresh and bright, and hives have all latest improvements. I accept beeswax in payment for goods, or I will pay highest market price for wax in cash. I am in need of more wax at all times.

My **Perfection Tight-seal Jars** are acknowledged as being the best for extracted honey, and I assume all responsibility in shipping, guaranteeing safe arrival. I mean exactly what I say.

My new **Paper Honey-jars** are cheap enough for retailers to give away with their honey. No more waiting to exchange jars or crocks when you deliver your honey. My catalog tells all about these things, and is sent free.

WALTER S. POUDER, 859 Massachusetts Avenue, Indianapolis, Indiana

Boston Is the Shipping Center of **New England**

Bee-keepers should bear this in mind when ordering their supplies. . A full line of supplies always in stock. . . . . Send for catalog.

H. H. JEPSON

182 Friend Street . BOSTON, MASS.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine

J. B. MASON, Manager

ROOT'S GOODS

For WESTERN PENNNSYLVANIA

Prompt and satisfactory service.
Save time by ordering here.
Get a catalog at once.

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Successor to Rea Bee & Honey Co.

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Sachs Nutrient Tablets, a box, post., 10c.

For You (to aid and be aided):
The Agassiz Association (Popular Nature Society).

For Correspondents:
(To write for further information.)

Edward F. Bigelow

Arcadia : : Sound Beach, Connecticut

Why not Rear Your Own Queens

Doolittle's "Scientific Queen-Rearing" and the American Bee Journal a Year . Both for only $1.00

Every Bee-keeper Should Have Both Book and Bee Paper



DOOLITTLE'S "Scientific Queen-Rearing" book contains 126 pages, and is bound in leatherette with round corners. It tells in the clearest way possible just how the famous queen-breeder, Mr. G. M. Doolittle, rears the best of queen-bees in perfect accord with Nature's way. It is for both amateur and veteran in bee-keeping. As all know, Mr. Doolittle has spent some 40 years in rearing queens and producing honey. He has no superior as a queen-breeder. You can learn to rear fine queens by following his directions.

You will not regret having this book, which also gives his management of the bees for the production of honey.

The book and the American Bee Journal for only $1.00 is certainly a *big bargain* for you. Sample copy of the Bee Journal free.



George W. York & Co., 117 No. Jefferson Street, Chicago, Illinois

"Griggs Saves You Freight"

TOLEDO

is the Place all Beemen have Their "I" on Now

THE HONEY-FLOW will soon be upon you. Wake up! you, I am speaking to. Do you hear me talking? . . Why not let me have that order now? I can give you quick service and low freight rates.

HONEY, BEESWAX WANTED.

Cash or in trade.
Send a postal for my catalog.

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Successors to Griggs Bro's Co.

"Griggs, the King Bee"



THIS MAN

Will consider it a privilege to make you an estimate on a bill of goods if you will send him a list of what you want, with discounts. Goods can be shipped from Fremont, Mich.; Chicago, Ill., or Medina, O., whichever place will cost the less freight; or you can have the estimate to be delivered at your station freight prepaid.

He has the largest and most complete stock in his 25 years as a supply-dealer, and can ship promptly ALL ROOT'S GOODS, AT THEIR PRICES with SEASON'S DISCOUNT.

Bees, Queens, and three-frame Nuclei a specialty; Hilton's Superior Strain—see adv. in back numbers of Gleanings, and testimonials.

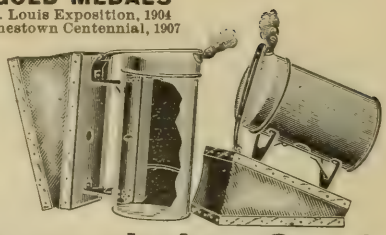
Beeswax wanted for cash or exchange.

Send for 50-page CATALOG to

George E. Hilton

Fremont, Mich,

GOLD MEDALS
St. Louis Exposition, 1904
Jamestown Centennial, 1907



Danzenbaker Smoker

Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT CRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

The **ONE-PIECE** cap **CAN NOT clog.** It is the **COOLEST, CLEANEST, STRONGEST, BEST,** and **LARGEST NET CAPACITY** of all smokers, selling at one dollar ($1.00). We **GUARANTEE SATISFACTION** or **return** the price; only three complaints in **six years.**

Dan-z. 3½x7½-inch Prize Smoker, $1.00; by mail $1.25
With "Gleanings," $1.00 per year, and Prize Smoker, by mail 1.75
Dan-z. 3½x6-inch Victor Smoker, 80c; by mail 1.00
With "Gleanings," one year, 1200 pp., by mail 1.50

We send propolis shields with Danzenbaker Hives and Supers, and sell anything in the Bee-line at factory prices, also select three-banded Italian queens and bees.

Please send address of yourself and B-friends for FREE catalogs and prices on Bee-supplies, Bees, Queens, Hives, Sections, and Smokers. Address

F. Danzenbaker, 68-70 Woodside Lane, Norfolk, Va.

. BEE . SUPPLIES

I carry an up-to-date line of standard Bee-keepers' Supplies. New England bee-keepers have secured their supplies from this house for the past fifty years. I am now prepared to serve you best in every way; standard stock, low prices, and experience in this line is all to your advantage. I have a fresh supply of The A. I. Root Company's goods. Send in your orders now.

Italian BEES and QUEENS

in their Season

Send for Price List of Bees, Queens, and Supplies.

Earl M. Nichols

Successor to W. W. Cary & Son

Lyonsville, Massachusetts

Lewis Beeware Always Near You

16 Carload Distributing Houses West of the Mississippi.
6 Carload Distributing Houses East of the Mississippi.
4 Carload Distributing Houses in the South.

A fine stock of Lewis Hives, Frames, Sections, Shipping-cases, etc., now ready for you at any point named below.

Distributing Houses for Lewis Beeware---Send to the Nearest One as Noted Below

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" Grand Junction, Grand Junction Fruit-Growers' Association.
" Delta: Delta County Fruit-Growers' Association.
" Rocky Ford: A. Lehman.
" Montrose: Robert Halley.
" DeBeque: Producers' Association.
FRANCE—Paris: Raymond Gariel.
GEORGIA—Cordele: J. J. Wilder.
ILLINOIS—Chicago: Arnd Honey & Bee Supply Co., 148 West Superior St.
" Hamilton: Chas. Dadant & Son.
INDIANA—Indianapolis: C. M. Scott & Co., 1004 East Washington St.
IDAHO—Lorenzo: Alma Olson Bee Co.
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It Pays Better to Use . . . .

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It has been proven BEST by TEST by many leading bee-keepers.

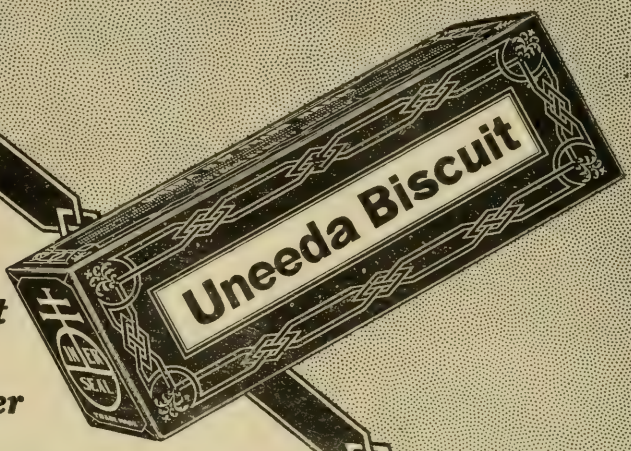
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Why use any other make?

Drop us a line and we will tell you where you can get our goods near you, and save time and freight.

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DADANT & SONS, Hamilton, Ill.



The Perfect Soda Cracker

Uneeda Biscuit are the perfect soda crackers. The flour used must meet a perfect test. The very purity of the water is made doubly sure. Even the air in the mixing and bake rooms is filtered. The temperature and humidity of the atmosphere is accurately regulated to a uniform degree. The sponge is kneaded by polished paddles. The baking is done in the cleanest of modern ovens. Then Uneeda Biscuit are packed fresh in the purple and white package that keeps them crisp and good from oven to table. Is it any wonder that

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In the moisture-proof package

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THE "BEST" LIGHT



One burner will give as much light as ten ordinary oil lamps; six 16 candle power electric bulbs—six 16 candle power gas jets or 5 acetylene gas jets. Costs 2 cts. per week. Produces a pure, white, steady, safe light. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog.

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ELECTRIC Steel Wheels



Fit all running gears. Get a new wagon just by buying wheels. Unbreakable, almost everlasting. All heights and tire widths. Also new Electric Handy Wagons. Write for book on "How to Make Old Wagons New." Free.

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SPRAY FRUITS AND FIELD CROPS

and do whitewashing in most effectual, economical, rapid way. Satisfaction guaranteed. BROWN'S

HAND OR POWER Auto-Sprays



No. 1, shown here, is fitted with Auto-Pop Nozzle—does work of 3 ordinary sprayers. Endorsed by Experiment Stations and 300,000 others. 40 styles and sizes of hand and power sprayers—also prices and valuable spraying guide in our Free Book. Write postal now.

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MAKE GARDENING EASY



It's a pleasure to make garden the **IRON AGE WAY**—no back-breaking and grubbing with an old-fashioned hoe if you have our No. 19C Wheel Cultivator and Plow. In five minutes you can do work that would require an hour the old way—that isn't all, you do better work and insure bigger crops. Cost $3.25. Has four attachments.

IRON AGE Garden Tools

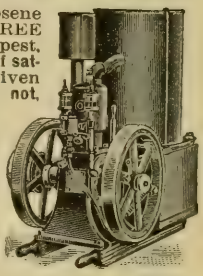
include a complete line of Wheel Hoes, Hand Drills, Fertilizer Distributors, etc. Prices, $2.50 to $12.00. A boy or girl can operate them. Write to-day for our 75th Anniversary Catalogue showing also potato machinery, orchard and other tools.

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Box 1204
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75 YEARS IN BUSINESS

Use KEROSENE Engine FREE!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing.



Gasoline Going Up

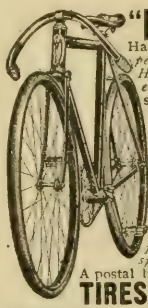
Automobile owners are burning up so much gasoline that the world's supply is running short. Gasoline is 9c to 15c higher than coal oil. Still going up. **Two** pints of coal oil do work of **three** pints of gasolene. No waste, no evaporation, no explosion from coal oil.

AMAZING "DETROIT"

The "DETROIT" is the **only** engine that handles **coal oil** successfully; uses alcohol, gasoline, and benzine, too. Starts without cranking. Basic patent—only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power, and strength. Mounted on skids. All sizes, 2 to 20 h. p., in stock ready to ship. Complete engine tested just before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric-lighting plant. **Prices (stripped), $29.50 up.**

Sent any place on 15 days' Free trial. Don't buy an engine till you investigate amazing, money-saving, power-saving **"DETROIT."** Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, we will allow you **Special Extra-Low Introductory** price. Write!

Detroit Engine Works, 373 Bellevue Ave., Detroit, Mich.



"RANGER" BICYCLES

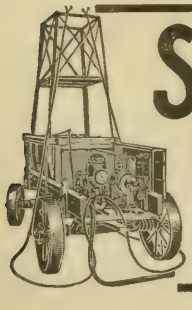
Have *imported roller chains, sprockets* and *pedals; New Departure Coaster-Brakes* and *Hubs; Puncture Proof Tires; highest grade equipment* and many advanced features possessed by no other wheels. *Guaranteed 5 yrs.*

FACTORY PRICES direct to you are less than others ask for cheap wheels. Other reliable models from $12 up. **A few good second-hand machines $3 to $8.**

10 DAYS' FREE TRIAL We ship on approval, *freight prepaid*, anywhere in U. S., *without a cent in advance.* **DO NOT BUY** a bicycle or a pair of tires from *anyone* at *any price* until you get our big new catalog and *special prices* and *a marvelous new offer*. A postal brings everything. *Write it now.*

TIRES Coaster Brake Rear Wheels, lamps, parts, and sundries *half usual prices.* **Rider Agents** everywhere are coining money selling our bicycles, tires and sundries. **Write today.**

MEAD CYCLE CO., Dept. C-113, CHICAGO



SPRAY With the LEADER Gasoline High Pressure Machine

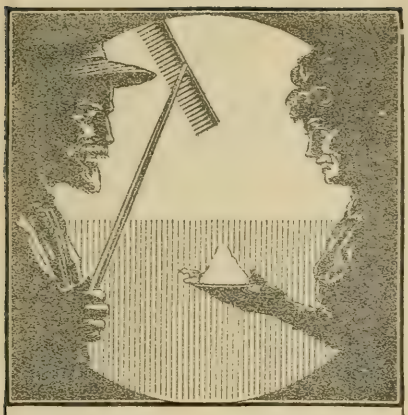
Has 3½ Horse-Power, 4-Cycle Engine and Hopper Jacket for Cooling

It supplies 10 nozzles at a pressure of 200 lbs. with safety valve blowing off, and this service can easily be increased without overtaxing the engine.

A Complete Spraying Rig and it will refill the tank, saw wood, grind feed, run your repair shop, shell or clean your grain, run the cream separator or the churn, and is safe, simple and satisfactory. Also 2-Horse-Power Rigs with Triplex Pumps—Also a full line of Barrel, Knapsack, and Power Potato Sprayers with Mechanical Agitators, etc. Catalogue FREE.

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88-11th St., ELMIRA, N. Y.

General Agents: **John Deere Plow Co.**, Kansas City, Omaha, St Louis, **Brackett-Shaw & Lunt Co.**, Boston, Mass. **C. P. Rothwell & Co.**, Martinsburg, W. Va.



The best long-term investment that you can possibly make for the home is a

Triple Motion White Mountain Ice Cream Freezer

It will return you dividends of delight and satisfaction throughout the year—and for a lifetime. But especially in summer, when heat intensifies the craving for frozen sweets.

Easiest to operate—quickest in action. Three motions—the can revolving, while two dashers work in opposite directions—reduce the freezing time to a minimum. Far easier to make ice cream with a Triple Motion White Mountain Freezer than to make a pie or a pudding—and the cost is less.

Write to us today—"Please send your recipe book 'Frozen Dainties'" and we will send you this splendid housekeeping aid—free.

The White Mountain Freezer Co.

Dept. AQ
Nashua, N. H.

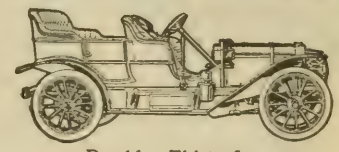


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Here is the Car

WRITE FOR

Special Price



Rambler Thirty-four
Original Price $2250
Special Price Upon Request

SPECIAL OFFER FOR THIS MONTH

Here is a car which originally sold for $2250. It was taken in exchange from a satisfied Rambler owner who has purchased one of the 1911 models.

Many Rambler owners buy a new car each year in order to enjoy the very latest improvements.

This car may be just what you need and a **special price** will be made to you if you will write at once, giving full name and address.

Remember, you get the same guarantee of service and satisfaction that goes with the new Rambler.

The car is in first-class shape, having been taken apart, worn parts replaced and the entire car rebuilt, readjusted and repainted.

You take no chance when you buy a Rambler.

Look up the rating of this Company in Dun and Bradstreet's.

Send today for our Special Price

CLIP THIS COUPON HERE

The Thomas B. Jeffery Company
Main Office and Factory, Kenosha, Wisconsin

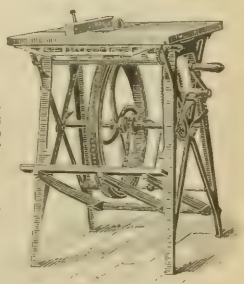
Send me Special Price on Model 34, also the Used Car Booklet.

Name.....

Address.....

BARNES' Hand and Foot Power MACHINERY

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

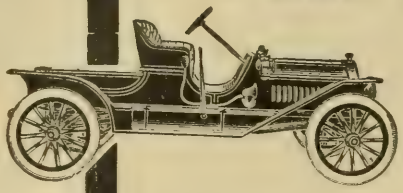


Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JNO. BARNES CO.,
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THE BEE-KEEPER'S OWN CAR



Here is a car that is built for the up-to-date rural specialist — the man whose time and comfort are worth money to him.

In every part of the country its ability to take its owner anywhere, over any road, in any weather, is making it an invaluable investment to thousands.

SCHACHT MODEL E DELIVERY

There is no question that the Schacht is the staunchest, speediest under-one-thousand-dollar car on the market. Write today for our catalog and complete specifications.

We will make a special price on this car to bee-owners if purchased within the next thirty days.

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Don't Buy Nitrates
Fertilize With
FARMOGERM

High-Bred Nitrogen-Gathering Bacteria

Why buy expensive nitrate fertilizers when you can save most of the money and all of the time and work of spreading, and get much better results? Put the bacteria in your soil that will draw nitrogen from the air and convert it into all the nitrates the crop can use and store still more in the soil for future crops of any kind. Farmogerm contains the right bacteria in the right condition. That's why it will produce a bumper crop of any legume.



Price, $2.00 an Acre. Garden Size, 50c.

Ready for use. Just mix with water, moisten seed or spray. Bacteria guaranteed to be right. **Put up for use with Alfalfa, Peas, Beans,** all garden and field varieties, all the Clovers, Vetch, Sweet Peas and all legumes. Gives better results than nitrate of soda at fraction of cost and labor.

LET US PROVE IT.

Write for FREE BOOK MN which gives full particulars. When you order a bottle, mention crop you wish to try it on. Get our letters from users and our reports from high authorities. All in this book.

Earp-Thomas Farmogerm Co. Bloomfield, N. J.

Serpentine Crêpe

FOR ALL THE FAMILY ALL THE YEAR!



You would dress in the height of fashion if you could. **And you may!** Select the famous Serpentine Crêpe for Spring and Summer street and outing dresses, gowns, lounging robes, shirtwaists, kimonos, wrappers, children's dresses, etc. It's the **recognized** cotton crêpe of highest quality; the designs are artistic masterpieces in exquisite color combinations that captivate fastidious women, while white, black, gray and all the rich and effective tints make Serpentine Crêpe of greatest use for all the family, all the time. The crinkle is permanent. It will neither wear out, wash out, nor stretch out.

The longest wear and greatest crêpe value are fully guaranteed by this Pacific Mills trade mark on every piece of the genuine. Look for it and refuse the imitations, for beauty and economy's sake.

If your dealer doesn't carry the genuine trade marked Serpentine Crêpe, write us for free samples of fabric and list of dealers who will supply you.

PACIFIC MILLS - BOSTON, MASS.

D&C LAKE LINES

THE COAST LINE TO MACKINAC

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CLEVELAND
BUFFALO
NIAGARA FALLS



D&C LAKE LINES

TOLEDO
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THE LUXURY OF A LAKE TRIP

Where will you spend your summer vacation? Why not enjoy the charms of our Inland Seas, the most pleasant and economical outing in America?

WHERE YOU CAN GO

All the important ports on the Great Lakes are reached regularly by the excellent service of the D. & C. Lake Lines. The ten large steamers of this fleet are of modern steel construction and have all the qualities of speed, safety and comfort.

Daily service is operated between Detroit and Cleveland, Detroit and Buffalo; four trips weekly between Toledo, Detroit, Mackinac Island and way ports; daily service between Toledo, Cleveland and Put-in-Bay.

A Cleveland to Mackinac special steamer will be operated two trips weekly from June 15th to September 10th, stopping only at Detroit every trip and Goderich, Ont. every other trip.

Special Day Trips Between Detroit and Cleveland, During July and August

RAILROAD TICKETS AVAILABLE:—Tickets reading via any rail line between Detroit and Buffalo and Detroit and Cleveland will be honored for transportation on D. & C. Line Steamers in either direction.

Send 2 cent stamp for Illustrated Pamphlet and Great Lakes Map.

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Detroit & Cleveland Navigation Company



IDEAL FOLDING BATHTUB

Pat. Pending. For houses without tubs, campers, sportsmen, country houses, use in any room, light, lasts years. Write for low introductory offer. **N. Y. E. Bath Mfg. Co., 103 Chambers St., N. Y.**

Keep Ants Away

They will not attack or come near woodwork if it is painted with

AVENARIUS CARBOLINEUM
REGISTERED

and will stay away from beehives so protected. Write for circulars.

Carbolineum Wood Preserv'g Co
Dept. 103, Milwaukee, Wis.



Swarming Prevented!

A new method, just published, worthy of investigation by all progressive bee-keepers. Advantages claimed for the plan of treatment. No clipping of queens' wings—no caging of queens—not even necessary to look for queens—no pinching of queen-cells—no shook-swarming—no dividing—no extra expense connected with the plan—plan simple and easy to carry out—satisfactory honey crop—saves time and labor. Send to

DR. H. JONES, PRESTON, MINNESOTA

for his booklet describing his method of treatment. Price 25 cents.

FIRELESS COOK BOOK FREE



The Duplex Fireless made of metal, has **Aluminum Lining** and aluminum vessels **Bakes and Roasts.** Is the most practical Fireless Cooker made. Write for special offer.

Box 10 **Durham Mfg. Co.** MUNCIE - IND.



THE HARLEY-DAVIDSON WAY

THINK of mounting a motorcycle on the spur of the moment, and covering a distance that under ordinary conditions with a horse and wagon would approximately take 50 minutes, and doing it IN 15 MINUTES, less than the time it would take to harness up the horse, and all at a cost of 1-10 to 1-5 cent per mile. That's the always reliable gait of the

HARLEY - DAVIDSON MOTORCYCLE
"The King of the Country Road"

Then consider the amount of your time and money saved, in transportation, running and repair expense, and you must admit that it truly is the cheapest investment of all your farm equipment, thus putting the motorcycle far ahead of all means of transportation on the farm to-day

SEND FOR BOOKLET
"The Silent Gray Fellow"

HARLEY-DAVIDSON MOTOR COMPANY
751 L Street
MILWAUKEE, WIS.

MOTOR HARLEY-DAVIDSON CYCLES

Bees have honey in the WINTER because they store away a part of what they make in the SUMMER. Follow this example. Save money during life's harvest time; then you'll have money when life's December comes.

You can bank by mail with safety.

We have never heard of a dollar being lost in the mail by any of our depositors.

Write to-day for booklet explaining our convenient banking-by-mail system.

The Savings Deposit Bank Company. . . Medina, Ohio

A. T. SPITZER, Pres. E. R. ROOT, Vice-pres.
E. B. SPITZER, Cashier

J. E. HAND

the Veteran Queen-specialist

WILL begin the season of 1911 with greatly improved facilities for rearing the choicest queens. . . Our queens are not only large, vigorous, handsome, and prolific, but by reason of a judicious system of line breeding they have the power to transmit inherent tendencies of a highly desirable nature, such as hardiness, gentleness, and industry, as well as uniformity of marking, which makes them especially valuable as breeders. Every queen is warranted to produce uniformly marked bees of superior honey-gathering qualities. Don't take chances. Get the real thing. Warranted, $1.00; six, $5.00; dozen, $9.00. Tested, $1.25. Breeders, $5.00. Half pound of bees, no queen, $1.00. Three (L) frame nucleus, no queen, $3.25. No selection, therefore no culls, and a square deal for all. Valuable information free for your address.

J. E. Hand, Birmingham, O.

CARNIOLAN QUEENS

By crossing the most desirable strains I am improving this race of bees each year. Have tried queens from nearly all the queen-raisers that advertise in *Leipziger Bienen-Zeitung* and other foreign publications. These improved Carniolans are hardy, and gentle to handle, and not inclined to swarm unless crowded. Don't take my word for it; buy half a dozen and see how you like them.

Prices:

	Before July 1.			After July 1.		
	1	6	12	1	6	12
Untested ..	$1.00	$5.50	$10.00	$ .75	$4.25	$8.00
Tested	1.25	6.75	12.75	1.00	5.50	10.00

Wm. Kernan
Route 2, Dushore, Pennsylvania

QUEENS

and bees — an improved superior strain of Italians is what QUIRIN RAISES. All yards winter on summer stands with practically no loss. Our stock is hardy, and will ward off brood diseases.

In the spring of 1899 we sent fifty nuclei to J. D. Nixon, Lafarge, Wis., and on July 20th (same year) he wrote us, saying they did just splendid, as at that writing they had already filled their supers, and that he would have to extract them. We have files of testimonials similar to the above.

Prices before July	1	6	12
Select queens	$ 1 00	$ 5 00	$ 9 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	10 00	18 00
Breeders	4 00		
Golden five-band breeders	6 00		
Two-comb nuclei, no queen	2 50	14 00	25 00
Three-comb nuc., no queen	3 50	20 00	35 00
Full colonies on 8 frames	6 00	30 00	

Add price of whatever grade of queen is wanted with nuclei and colonies; nuclei and colonies, if shipped before June 1st, add ¼, or 25%, extra to above price. No order too large and none too small. Will keep 500 to 1000 queens on hand ready to mail. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

QUIRIN-THE-QUEEN-BREEDER, BELLEVUE, O.

W. H. LAWS

is again offering his splendid stock of favorite Italians the coming season. Queens from this strain can not be surpassed, and are the kind that get bees that make supers hard to lift.

Twenty-one years a commercial queen-breeder, and an advertiser in this journal, he knows what a good queen is, and can prove it to you.

I wish you could see some of the splendid letters coming to my desk now almost daily. Laws queens are in every State in the Union, and the careful breeding of these queens has put many dollars in the pockets of his customers, as I have abundant evidence to show. I am now supplying some queens in April, and shall have plenty in May, and my prices are low, in keeping with quality of my stock.

I have about 75 strictly first-class breeding-queens that are worth many times the price I ask. I will sell at $5.00 each. Other queens, $1.00 each; six for $5 00. Satisfaction guaranteed. Circular free.

Address

W. H. LAWS

Beeville, Bee Co., Texas

Miller's Strain Red-clover Italian Queens

By Return Mail after June 1 to 5 or Money Refunded

Bred from my superior breeder for business; gentle; no better hustlers; bees just roll honey in; three-banded; northern bred; hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored, long-tongued, red-clover strains. Untested, $1.00; six, $5 00; dozen, $9.00. Select untested, $1.25; six, $6.00; dozen, $11.00. Circular free. Satisfaction guaranteed. Isaac F. Miller, of Reynoldsville, Pa., a queen-specialist, is my apiarist and manager, who has been before you quite a number of years. **J. S. MILLER, Rt 2, Brookville, Pa**

Queens . . . Queens

200 to 300 per month. Untested, $1.00; tested, $1.25; select tested, $2.00; breeders, $3.00. Nuclei, full colonies, bees by the pound. Have letter from the State certifying my bees are free from foul brood.

Frank M. Keith, 83½ Florence St., Worcester, Mass.

NEW ENGLAND BEE-KEEPERS!

EVERY THING IN SUPPLIES
NEW GOODS
FACTORY PRICES
SAVE FREIGHT

Cull & Williams Co. . Providence, R. I.

ITALIAN QUEENS

Nuclei, Bees by Pound. Ten-page descriptive list free. Untested, $1.00. Reduced rates July 1. List to select from, clubbing "The Pearce Method of Bee-keeping," price 50 cts., with a guaranteed queen for $1.10. Books by return; queens after June 10. Leaflets, "How to Introduce Queens," 15c; also "Increase," 15c; both for 25c. Send for list.

E. E. MOTT, Glenwood, Mich.

Our Famous RED-CLOVER and GOLDEN QUEENS

Untested, 50c; select untested, 75c; tested, $1.00. Nuclei, $1.00 per frame.

Evansville Bee and Honey Co., . Evansville, Indiana

EARLY QUEENS and LATE QUEENS

Bred from pure 3 and 5 banded and Golden Italians. All queens are raised in strong colonies and mated in four-frame nuclei. All orders filled promptly.

Untested, $1.00; six, $4.50; twelve, $8.00
Tested, . 1.50; " 7.50; " 13.50

Breeders, $3.00. Three-frame nuclei, $3.00, with price of queen wanted added. . Discounts for quantity. Send all money orders to Appalachicola, Fla.

A. B. Marchant, . . Sumatra, Fla.

LOCKHART'S - SILVER - GRAY - CARNIOLANS

"LINE BRED" for the past 25 years. They are VERY hardy, gentle, prolific, great workers, and builders of VERY WHITE combs, and use mostly wax in place of propolis. Pure Carniolans ABSOLUTELY. I have no yellow-banded bees. No foul brood here. 200 choice queens for early orders. Tested, $2.00. Select tested, $3 00. Best breeders. $5.00.

F. A. LOCKHART & CO., Lake George, N. Y.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

FOR SALE.—Choice extracted orange honey, 10 cts. per lb. W. E. LITTLE,
Rubidoux and Grand Ave., Riverside, Cal.

FOR SALE.—Choice light-amber extracted honey—thick, well-ripened, delicious flavor. Price 9 cents per lb. in new 60-lb. cans.
J. P. MOORE, Morgan, Ky.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 199 S. Water St., Chicago.

SOUTHERN BEE-KEEPERS.—When your honey is ready for market, write us. Will buy outright or handle on commission. Send samples with full particulars. Are paying 30 cts. per pound, net, f. o. b. New York for choice yellow beeswax.
HILDRETH & SEGELKEN, New York.

Real Estate

FOR SALE.—In Antrim Co., Mich., 32¾ acres, bee and fruit farm; good honey location; home market for fruit and honey. Will sell 90 colonies of bees with farm. H. E. BROWN, Rt. 4, Charlevoix, Mich.

Help Wanted

WANTED.—An experienced man in raising comb honey, to begin work about May 1st. Give references, experience, and wages wanted, in first letter. OGDEN BEE AND HONEY CO., Ogden, Utah.

Position Wanted

WANTED.—Position by professional apiculturist with three years' experience; has a first-class diploma. NIC. PAPIDAS, 648 Bolivar Road, Cleveland, O.

WANTED.—Position by a young Hollander with large experience in the bee, poultry, and orchard business. Is ready to help you this season at once; knows the whole Holland trade, and can sell your crop to his old customers. First-class references. State wages in first letter. L. J. DE BALBIAN.
care of Van den Berg, Rt. 3, South Boston, Va.

Wants and Exchanges

WANTED.—Copies of GLEANINGS for Feb. 1, 1911. Subscribers having a copy of GLEANINGS to spare, of the issue mentioned, will please so advise us. Numbers which are not in good condition are not wanted. THE A. I. ROOT CO., Medina, O.

For Sale

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

FOR SALE.—Bees and bee-supplies. Send for free catalog. LESLIE CLARK, Rensselaer, Ind.

FOR SALE.—Barnes combined circular saw, used but very little, $25.00.
R. E. HAMMOND, Heath Springs, S. C.

A. I. Root supplies; all new stock; fire destroyed mailing-list. Send a card for catalog.
W. E. TRIBBETT, Staunton, Va.

I solicit your orders for Root's peerless goods. Catalog on request.
L. W. CROVATT, Box 134, Savannah, Ga.

WANTED.—A second-hand two-frame Novice extractor, no matter how old-fashioned.
W. W. LATHROP, 11½ Wash. Ave., Warren, O.

FOR SALE.—Bees, honey, and bee-supplies. We are in the market for beeswax and honey.
OGDEN BEE AND HONEY CO., Ogden, Utah.

FOR SALE.—Good one-cylinder automobile. Wanted—bees, shook swarms, hives, comb and extracting-supers, or cash. F. B. CAVANAGH, Hebron, Ind.

FOR SALE.—300 cases of second-hand five-gallon cans in good condition; single cases, 35 cts.; 5 cases or more, 30 cts. per case.
J. E. CRANE & SON, Middlebury, Vt.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successor to J. M. Jenkins), Penn, Miss.

FOR SALE.—Root's bee-supplies and American honey-cans. Four more caloads just unloaded. For quick shipments at low prices order from
SUPERIOR HONEY CO.,
Ogden, Utah, and Idaho Falls, Ida.

HONEY-CANS.—By arrangement with a large manufacturer I can supply new five-gallon square tin cans, boxed, at a price that will save you money. Write for prices, stating how many you can use.
C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—100 Dovetailed painted supers, holders, and fences complete, for ten-frame hives and 4¼ sections, good as new; 25 or lot, 40 cts. each; 200 for 4 x 5 sections and eight-frame hives (not dovetailed nor painted) 30 cents each. Correspondence solicited. A. W. SMITH, Birmingham, Mich.

FOR SALE.—Fifty 12-frame Dovetailed Simplicity L. hives, complete, nailed, and painted two coats; wired frames; one two-frame Cowan extractor; also 100 standard Ottman hives with section-holders and separators, $1.00 each.
A. E. WOODWARD, Voorheesville, N. Y.

Opportunities

We have a good five-passenger Reo touring-car, fully equipped, used less than two years, to sell at a bargain; cost new $1100; sold only a few months ago for $650; can be had now for $400 cash, or will take comb or extracted honey or wax in exchange.
THE A. I. ROOT CO., Medina, O.

Bees and Queens

FOR SALE.—Italian queens, untested, $1.00; 6 for $5.00. E. A. SIMMONS, Greenville, Ala.

Italian queens, 75 cts.; tested, $1.00; breeders, $5.00. W. T. HELLYER, St. Louis, Mo.

Queens (hybrid) from New Hampshire, 50 cents. W. B. BURLINGAME, Exeter, N. H.

Bees and queens of quality. Supplies. Catalog. STRINGHAM, 105 Park Place, New York City.

Golden queens $1.00; 6 for $5.00; 12 for $9.00; untested. J. B. CASE, Port Orange, Fla.

Golden queens, untested, remainder of season, 75 cts. each. R. O. COX, Rt. 4, Greenville, Ala.

I am now doing business at the old stand. J. P. MOORE, Queen-breeder, Morgan, Ky.

Golden Italian queens and nuclei. No disease. Write for prices. J. H. WAGNER, Box 305, Beatrice, Neb.

Missouri-bred Italian queens; none better; prices right; write for circular. L. E. ALTWEIN, St. Joseph, Mo.

FOR SALE.—125 colonies of bees, free from foul brood; also 50 empty hives, supers, etc. S. E. TENNANT, Schoharie, N. Y.

Famous Doolittle strain of Italian queens now ready at $1.00 each; 6 for $5.00. A. G. SOARES, Brawley, Imperial Valley, Cal.

Italian queens, 75 cts.; tested, $1.00; breeders, $5.00 each; two-frame nucleus with queen, $2.50. E. M. COLLYER, 75 Broadway, Ossining, N. Y.

Bungalow Golden Italians; also non-swarming and educated queens, $3.00 to $100.00. HENRY W. BRITTON, Stoughton, Mass.

FOR SALE.—150 colonies of Italian bees free from disease (equipped for producing extracted honey), at a bargain. B. WALKER, Clyde, Ill.

Improved red-clover Italian queens bred from the best honey-gatherers obtainable. Untested, $1.00; 6 for $5.50; 12 for $10.00. J. H. GIBBS, Berlin, Md.

Golden and red-clover Italian queens; superior stock. Write for prices. WM. A. SHUFF, Aldan, Delaware Co., Pa.

Golden queens, untested, $1.00; select untested, $1.50; breeders, $5.00 to $10; also Root's bee-supplies. Write for catalog. ROB'T INGHRAM, Sycamore, Pa.

FOR SALE.—20 hives of Italian bees; never had any disease. E. P. STOVER, Cornwall Landing, N. Y.

WANTED.—Prices on 500 untested Italian queens in lots of 100, to be delivered each week, beginning June 15. R. M. SPENCER, Nordhoff, Cal.

FOR SALE.—Golden Italian queens. Tested, $1.00; select tested, $1.25; untested, 60 cts.; dozen, $7.00. D. T. GASTER, Rt. 2, Randleman, N. C.

Italian queens, hustlers, 75 cents; after July 10, 60 cents; tested, $1.25. MRS. J. W. BACON, Waterloo, N. Y.

FOR SALE.—Westwood red-clover queens and bees; nuclei and full colonies a specialty. HENRY SHAFFER, 2860 Harrison Ave., Station L, Cincinnati, O.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00. J. B. BROCKWELL, Bradley's Store, Va.

Italian queens, good as the best; untested, 75 cts.; tested, $1.00. Shipments begin April 1st for bees by the pound and nucleus. Write for prices. C. B. BANKSTON, Buffalo, Leon Co., Texas.

WANTED.—To buy Italian bees near Minneapolis or Excelsior; must be cheap for cash, and guaranteed free from disease. C. D. SIEHL, 3008 Aldrich Ave. S., Minneapolis, Minn.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction. W. W. DAKIN, Hood River, Ore.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white, sheeted lids; each neat, modern, and full of stores—any time. Jos. WALLRATH, Antioch, Cal.

Golden queens—very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei, and full colonies. Send for circular and price list to GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

QUEENS READY TO DELIVER.—A limited number of 1911 Italian queens, bred for the following points: Prolificness, hardiness, gentleness, color, and cleanness in comb-building; $1.00 each. THE QUEEN-BREEDER for Palm Fruit Co., Wasco, Cal.

FOR SALE.—Fine three-banded red-clover Italian queens, every queen a breeder. They are reared from the very best honey-gathering strains; also fine golden queens; untested, 75 cts.; $7.00 per doz.; tested, $1.25. H. B. MURRAY, Liberty, Randolph Co., N. C.

FOR SALE.—Italian queens, bred from the best honey-gathering strain obtainable. Untested, 75 cts.; select, $1.00; tested, $1.25; select tested, $1.50; breeding-queens, $3.00; select breeding-queen, $5.00; nuclei without queen, one-frame, $1.25; two-frame, $2.00; three-frame, $2.75. For queens and nuclei in quantity lots, write for prices. ROBERT B. SPICER, Wharton, N. J.

Poultry

Indian Runner duck eggs, $1.00 per 13. Booklet free. AARON FISHER, Box 37, La Park, Pa.

Indian Runner duck eggs from my noted laying stock. Write for illustrated catalog, mentioning GLEANINGS. KENT JENNINGS, Rt. 3, Mt. Gilead, O.

Indian-Runner-duck-culture book; full history; 75 cts., money order; fawn and white; 11 eggs, $2.50; 30, $5.00. Catalog, 2 stamps. LEVI S. YODER, Box 50, Dublin, Pa.

FOR SALE.—S. C. W. Leghorn and Indian Runner duck eggs—$5.00 and $7.00 per 100. Circular free.
C. H. ZURBURG, Topeka, Ill.

Indian Runner ducks from imported stock, fawn and white; very easy to raise and easy to keep. They are beauties too—lay eggs all the year; lay heaviest in winter. Eggs, $1.50 per 13; $7.00 per 100. Let me start you to success.
C. O. YOST. Rt. 4, Winchester, Ind.

Day and month old chicks; also cockerels.
DEROY TAYLOR, Lyons, N. Y.

Barred Plymouth Rock eggs for hatching, $2.00 per 15. K. R. SHELDON, Monmouth, Ill.

FOR SALE.—Duston White Wyandottes, $2.00; 15 eggs, $1; $5 per 100. ELMER GIMLIN, Taylorville, Ill.

Buttercups for utility and beauty; selected pens; unlike others. H. V. MEEKER, Earl St., Toledo, O.

White-faced Black Spanish eggs for hatching; 15, $1.00; 50, $3.00; 100, $5.00. Also dealer in bee-keepers' supplies of all kinds. A. W. SWAN, Centralia, Kan.

Partridge Wyandottes and Partridge Rocks—also all leading varieties. Prize-winning stock and eggs—reasonable. Catalog free.
JOHN T. CROUTHAMEL, Franconia, Pa.

S. C. White Leghorns exclusively. Bred to lay. Baby chicks. Eggs for hatching. All breeding males score 94 to 95¾, from 200-egg hens. Cat. free. Keystone Poultry Farm, Box 2500, New Milford, Pa.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St. Joseph, Mo.

S. C. R. I. Reds, large and beautiful, rich in color, and rich egg-layers; the winning strain. Eggs from exhibition pens, $2.00 per 15; $10.00 per 100. Eggs from standard pens, $1.00 per 15; $5.00 per 100. I can please you, sure.
C. O. YOST, Rt. 4, Winchester, Ind.

Order your copy of "American Standard of Perfection" through GLEANINGS. The new edition of this greatest of all poultry-books is now ready. Beautiful plates show feather-markings, etc., of every standard breed. Price $1.50, postpaid, in cloth; $2.25 in morocco binding.
BUYERS' BUREAU, GLEANINGS IN BEE CULTURE.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, $1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school.
W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1911; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices see large advertisement.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

ENGRAVINGS for "GLEANINGS"
MADE BY GRAY PRINTING CO., Fostoria, O.

State Fair Premium List.

SPOKANE INTERSTATE FAIR, SPOKANE, WASH., OCT. 2—8, 1911.

Exhibitors are supposed to be familiar with all the rules and regulations of the Spokane Interstate Fair, and must carefully comply with them.

If any exhibits are sent in not accompanied by exhibitors, all charges must be prepaid, and the Secretary and Superintendent must be advised of shipment made and full instructions given as to disposal of exhibit at the close of the fair.

All exhibits not donated must be removed before noon of the day following the closing of the fair.

In this division no premiums will be paid unless there is competition, and no premiums will be awarded where the exhibits are not individually worthy.

The judge will in no case give a first premium to a second-grade product, even though there are only two exhibits.

All exhibits must have been produced in the apiary of the exhibitor during the year 1911.

CLASS 1—HONEY—$75.00.

	1	2
Display of comb honey	$10.00	$5.00
Display of extracted honey	10.00	5.00
Specimen of white comb honey	5.00	2.50
Specimen of amber comb honey	5.00	2.50
Exhibit of comb honey in extracting-frame	5.00	2.50
Specimen of extracted honey	5.00	2.50
Specimen of beeswax (10 pounds or more)	5.00	2.50
Design in beeswax	5.00	2.50

SPECIAL.

The Spokane Seed Co. of Spokane offer one improved Cornell smoker to the exhibitor making the most attractive display in above classes.

CLASS 2—BEES—$90.00.

	1	2
Single-comb nucleus golden Italian bees	$8.00	$4.00
Single-comb nucleus dark Italian bees	8.00	4.00
Single-comb nucleus black bees	8.00	4.00
Single-comb nucleus Carniolan bees	8.00	4.00
Single-comb nucleus Caucasian bees	8.00	4.00
Greatest variety bees displayed in single-comb nuclei	10.00	5.00
Most attractive display of bees in observation hive	10.00	5.00

ROBT. H. COSGROVE, Sec'y, Spokane.
L. C. BARRETT, Supt.,
906 First Avenue, Spokane, Wash.

Special Notices

By Our Business Manager

SWEET-CLOVER SEED.

We are still prepared to furnish sweet-clover seed of the various kinds we have been advertising at the prices last quoted. We are also arranging for seed of this season's crop, and shall be pleased to hear from those who are prepared to gather seed to sell, especially the yellow biennial and the white hulled seed.

SECOND-HAND CANS.

We still have a good supply of good second-hand cans free from rust on the inside, and fairly bright outside. They would make an excellent container for dark or off grades of honey. We do not recommend any thing short of new cans for choice white honey. These cans are a bargain at $3.00 for 10 boxes of 2 cans each; $25.00 per 100 boxes; 50 boxes at 100 rate.

BUCKWHEAT SEED.

The time for sowing buckwheat is at hand. If you are not provided with seed, remember we have it to furnish in two varieties—silverhull at 40 cts. per peck; 75 cts. per half-bushel; $1.40 per bushel; $2.50 for two bushels, bag included, not prepaid. Japanese, 35 cts. per peck; half-bushel, 65 cts.; bushel, $1.25; two bushels. $2.25, bag included. Either kind by mail, postpaid, at 12 cts. per lb.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation-machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0117, 2x10 round-cell medium-brood mill in good condition. Price $14.00.

No. 0121, 2¼ x 10-inch heavy hex. brood mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price $8.00.

No. 0126, 2½x10 hexagonal light-brood mill in good condition. Price $15.00.

No. 0129, 2x10 round-cell medium-brood mill, old-style frame, in good condition. Price $14.00.

No. 0132, 2 x 10 round-cell Pelham mill. This is nearly new, but it does not make a natural-shaped cell. Price $9.00.

No. 0133, 2x10 round-cell medium-brood Dunham mill in poor condition. Price $8.00.

No. 0135, 2 x 10 round-cell medium-brood mill in old-style frame, fair condition. Price $12.00.

No. 0137, 2x10 round-cell medium-brood mill, old style, poor condition. Price $10.00.

No. 0138, 2½ x 6 hexagonal extra thin-super mill, in very good shape. Price $14.00.

No. 0139, 2½x6 hexagonal thin-super mill, in very good condition. Price $14.00.

No. 0140, 2½x6 hexagonal thin-super mill, in very good condition. Price $14.00.

No. 0141, 2½x6 hexagonal extra thin-super mill, in extra good condition, Price $15.00.

No. 0142, 2½x6 hexagonal thin-super mill, in fair condition. Price $12.00.

No. 0144, 2½x10 hexagonal medium-brood mill, in fair condition. Price $15.00.

No. 0145, 2½x10 hexagonal light-brood mill, in fair condition. Price $15.00.

No. 0146, 2½x10 hexagonal medium-brood mill, in very good shape. Price $17.00.

No. 0147, 2½x6 hexagonal thin-super mill, in extra good condition. Price $15.00.

Special Notices

By A. I. Root

APPLES TEN CENTS APIECE.

To-day, May 24, nice apples are selling at retail in the streets of Medina for ten cents apiece. Of course, they are fine specimens, but no better than can be grown right here in this county, and they can be kept in cold storage through May, June, and even into July. If we can get the boys of our nation as much interested in apples as they now are in studying and growing corn just now, the price of apples will go down, or else the boys will get rich in growing apples.

CHUFAS, OR EARTH-ALMONDS.

Doubtless some of the friends will be disappointed at the poor germination of the packet of tubers we have been sending out. The fact is, the tubers seem to lose their germinating power very rapidly when we have dry warm weather; and in order to get a good stand in your garden or wherever you put them, I would suggest that you take the seed that we send out and spread the little tubers out on some good rich soil about an inch apart. Now sift some good soil over them. Keep the little plot of ground watered and shaded if where the sun is very hot, and in about a week you will see the minute shoots coming through the soil. Now, as they are very easily transplanted, especially at this stage, put them out in good rich ground in rows about three feet apart, and about eighteen inches apart in the row. They need about that amount of room on good ground if they have made much of a start. We still have about half of our seed left. If put out as above during this month of June I think you will get a good crop before frost comes. A packet will be sent to any subscriber by notifying us on a postal card that he would like to try them. I still prefer them to any other nut in the market.

THE GRAND TRAVERSE REGION OF NORTHERN MICHIGAN, AND ITS SUMMER RESORTS.

When we left Florida the last of April the weather was getting to be so warm, especially as we had a long and severe drouth, Mrs. Root and I began to look forward to the cool breezes of Ohio; but when a rather brisk snowstorm welcomed us at our Medina home we began to think it was cool *enough*. Just now, however, May 23, we have been having such a period of *hot* weather that I myself was beginning to look forward to a trip still further north to that dear old original "cabin in the woods;" and I propose to start on my trip the first of June. It may interest our readers to know that, on and after that day, the Pere Marquette Railroad makes a very low rate from Toledo to Traverse City and return for only $7.50. This price is only about half the usual rate of travel; and it not only gives you stop-off privileges, but you need not return till Oct. 31 unless you prefer. If I am correct, the principal stations in Ohio, and perhaps in other States also, make similar low rates to those who wish to escape the hot weather by exploring the extreme North, and hunting up the many and precious gifts that God seems to have granted to particular localities and climates.

The Grand Traverse region is getting to be justly celebrated, not only for the abundance of fruit, both small and large, but for the excellent and (I think I may say) exquisite *quality* of these fruits, particularly the early cherries. I am going up this summer for a short time to "play in the woods," all alone by myself. Mrs. Root thinks she can not stand quite so much "globe-trotting."

CANADIAN BEE = KEEPERS

E. Grainger & Co., Deer Park, Toronto, announce to Canadian bee-keepers that they have a reasonably full line of Root bee-supplies on hand for shipment from Toronto. Large shipments will be made direct from the factory, and in many cases a considerable saving may be effected by placing orders with us.

See What Our Customers Say

North Toronto, March 1, 1911.

E. Grainger & Co., Toronto.

Dear Sirs:—The goods we received from you, manufactured by The A. I. Root Co., are most satisfactory. We find the frames fit beautifully; in fact, all the woodwork is so perfect and so clean and nice that we would not think of using any other make now. They are well worth the extra they cost.

A. W. O.

E. Grainger & Co., Toronto. Connaught, Mar. 7, 1911.

Dear Sirs:—Have received shipment of my order to-day. Every thing is in perfect order. Am very well pleased with the goods. D. R.

SEND ALL ORDERS TO

E. Grainger & Co., Deer Park, Toronto, Ont.

A BRIGHT OUTLOOK

TEXAS beemen are feeling pretty good these days, and the outlook for a bumper honey crop is most pleasing. Every thing in readiness at your apiary?

Better not delay ordering foundation, extra hives, smokers—every thing you will be sure to need—and better have a generous stock, because it does not pay to run short when the honey-flow is at its height.

We Wish to Buy

We wish to buy your honey and beeswax, and supply you with honey-cans. We also desire, as usual, to buy all the first-class white honey we can obtain. We are now paying for first-class white bulk comb honey, properly put up, f. o. b. the bee-keeper's railroad shipping-point—

9½c per lb. for 2–60. 10½c per lb. for 10–6.
10c per lb. for 10–12. 11c per lb. for 20–3.

If you wish to sell us some, kindly send sample, stating how much you have and how it is put up, and we will send you shipping instructions.

We have on hand an immense stock of honey-cans and Root's Bee-keepers' supplies. We also manufacture comb foundation by the "Weed New Process," and lead in foundation sales in the Southwest with this superior product. Can work your wax into comb foundation at a reasonable rate—every pound guaranteed. We pay for average clean beeswax 28c cash; 30c in trade delivered here.

Wholesale Prices on .. Honey-shipping Cases

We are a little bit overstocked with cases for shipping comb honey, and want to clear at wholesale rates to our regular patrons. The cases offered below are of the latest design and made to ship comb-honey sections any distance with safety. We will quite gladly give further particulars upon request.

Quantity we have—	Size—	Price per 100—
300	10-inch, 4-row at	$12.50
200	12-inch, 2-row at	8.25
100	10-inch, 2-row at	7.75
150	16-inch, 2-row at	9.25
200	8-inch, 3-row at	8.50
350	6¼-inch, 3-row at	8.25
400	7⅛-inch, 4-row at	12.00
200	7⅛-inch, 3-row at	8.50
100	8-inch, 3-row at	8.50

TOEPPERWEIN & MAYFIELD COMPANY

Cor. Nolan and Cherry Sts., San Antonio, Texas



200 Pages; Nearly 500 Subjects

A NEW Edition of This Popular Book

ADVANCED BEE CULTURE

By W. Z. HUTCHINSON

E. R. ROOT, editor of *Gleanings in Bee Culture*, who revised Mr. Hutchinson's book which has just been published, has to say in *Gleanings:*

As a writer on bees Mr. Hutchinson has few equals. For clearness of style and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and the useful from an extended discussion is intuitive. The last edition of "Advanced Bee Culture," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by a master of the art of boiling down discussions.

I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced bee-keeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it in connection with some other work like the "A B C and X Y Z of Bee Culture," or any textbook designed especially for the beginner class.

Nearly 500 Subjects Pertinent to MODERN Bee-keeping are Authoritatively Discussed

ADVANCED BEE CULTURE is a beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that the many fine illustrations are unusually clear in every detail. The book has been bound in attractive and substantial cloth with clover design in natural colors on cover. All together it is a volume whose appearance and unquestionable worth justly entitle it to a place in the library of every bee-keeper. No more important work on this fascinating subject has recently appeared.

$1.50 Buys a $2.00 Value

ADVANCED BEE CULTURE costs $1.00 per copy. GLEANINGS IN BEE CULTURE (semi-monthly) — known and read by bee-keepers throughout the world— price $1.00 for an annual subscription. It is our pleasure, however, to offer this interesting and most useful combination — the book here described and GLEANINGS one year, both for $1.50. It is a value you will very seldom find—really it is a good $2.00 worth for $1.50.

USE THE COUPON

The A. I. Root Co., Medina, O.

The A. I. Root Co., Medina, Ohio. GBC 6 1-11

For the enclosed remittance of $1.50 please send Gleanings to

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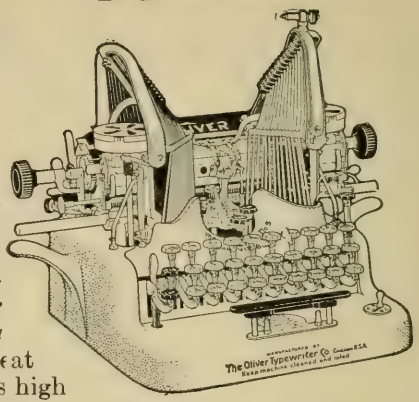
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Take Your Oliver Typewriter -Pay Seventeen Cents a Day!

Send Coupon or Letter for Details

A message of vital moment to the vast audience reached by this magazine.

We are selling the Oliver Typewriter—the Standard Visible Writer—the New Model No. 5—the regular $100 machine — for Seventeen Cents a Day! Whether you sit in the councils of great corporations or are perched on a bookkeeper's high stool—*whatever your part in the world's activities*—this offer of the Oliver Typewriter means something worth while to *you.*



Mightiest Machine in World's Workshop

The terrific pace of modern business demands mechanical aids of the highest degree of efficiency. Foremost among all the inventions that speed the day's work—that take the tension from *men* and transfer it to *machines*—is the *Oliver Typewriter.*

The Oliver Typewriter is the mightiest machine in the World's Workshop. It weaves the million threads of the world's daily transactions into the very fabric of business. It works with the smooth precision of an automatic machine. It adapts itself to the diversified needs of ten thousand business conditions.

The OLIVER Typewriter

The Standard Visible Writer

The basic idea upon which its towering supremacy rests is its wonderful Double Type-Bar. What the Selden patent is to the automobile, this principle is to the typewriter, *only we do not license its use on any other writing machine.*

The Doublh Type-Bar gives the Oliver Typewriter its positive DOWNWARD STROKE, the secret of *perfect printing, light touch, easy operation, and perfect alignment.*

Brilliant Exclusive Features

The Oliver is illuminated by scores of brilliant innovations not found on other typewriters. Its remarkable time-saving devices and conveniences include the Vertical and Horizontal Line Ruler, the Disappearing Indicator, the Tabulator, the Back Spacer, the Adjustable Paper Feed, the Double Release, the Automatic Spacer, the Locomotive Base.

Time and again, when our existing models met every demand of the public, we have brought out important *improvements* at great expense, without adding a cent to the price.

100 per cent Efficiency

The Oliver Typewriter has an efficiency of 100 per cent. every day in the week and from one year's end to another.

Its printing mechanism works freely in a framework of solid steel, which gives wonderful stability and the limit of durability.

It operates with the lightest touch and thus prevents fatigue. The swiftest operator can not overtake the speed of an Oliver Typewriter. It writes in beautiful, readable type and, of course, it *writes in sight.*

Every office, whether equipped with one Oliver Typewriter or a battery of Olivers, secures the very maximum of typewriter service at the minimum of cost and labor.

The simplicity, strength and easy operation of the Oliver Typewriter make it most desirable for use in the home.

COUPON

The Oliver Typewriter Company,
116 Prospect St., Cleveland, Ohio.

Gentlemen:—Please send your Art Catalog and details of "*17-Cents-a-Day*" offer on the Oliver Typewriter.

Name.....

Address.....

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Yours for Pennies! Send the Coupon

Having simplified the *typewriter* to the utmost, we have now simplified its *purchase* until you can own it for the trifling sum of Seventeen Cents a Day.

A small cash payment brings you the magnificent new model Oliver No. 5. Then you save Seventeen Cents a Day and pay *monthly* until the machine is *yours.*

No matter what typewriter you are using, you can turn it in as first payment on the Oliver and let *pennies* complete the purchase.

Send coupon or letter for the handsome Catalog and full details of the popular Penny Plan. (66)

The Oliver Typewriter Co.

Sales Department

116 Prospect St. CLEVELAND, OHIO

Gleanings in Bee Culture

VOL. XXXIX JUNE 15, 1911 NO. 12

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Heads of Grain

Our Homes

A MAIN POINT OF DISTRIBUTION!

NATURALLY the center of our large export business, and logically the source from which a majority of Eastern Bee-keepers expect their supplies to come, our NEW YORK BRANCH has been made A MAIN POINT OF DISTRIBUTION for all goods in the big ROOT LINE. Equipped for service in the fullest meaning of the word, well stocked, well managed, familiarity with every appliance for successful bee-keeping and the highways and byways of shipping, here, as perhaps at no other point are we thoroughly prepared to care for the wants of our Eastern bee-keeping friends.

1911 Supplies and Stock.

We have a complete line of all goods listed in the ROOT catalog, and carloads of fresh-stock goods come on continually from our factory. The capacity of our river-front warehouse is about twenty carloads. Orders for special-sized goods may be sent here—and we will order same from our factory to be shipped in car to New York and we will re-ship from here, thus saving an item on your freight charges. When ordering goods, be specific. Try to use our "KEY TABLE" as much as possible in specifying hives or parts of hives ordered. If not familiar or uncertain of articles ordered or letters representing some of our goods, give illustration and page number. : :

Shipping Facilities.

Insure yourself of quick delivery by sending your orders to New York. Here is the terminal of nearly all railroads —north, west, south, and the main steamspip lines whereby we can ship goods direct to you without change or delay. All express companies call at our warehouse daily, thus assisting us in serving you. Our facilities for shipping by freight, express, and boat are truly unexcelled. Avail yourself of this opportunity of quick delivery and low shipping charges which you certainly will obtain by ordering your goods of the New York Branch of The A. I. Root Co. : : : :

Packing.

We do not charge for packing, boxing, or delivering to freight offices in New York or Hoboken, N. J. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B. New York. If no agent at your station, notify us and we will prepay, and bill charges after shipment. Often during the busy season much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what charges will be from New York. : :

Careful Attention and Prompt Service is Our Aim. We Try to Ship Mail and Express Orders the Day They are Received. Freight Orders are Filled in Order of Receipt. No Order is too Small or Large for Our Personal Attention.

OUR LOCATION.—We are located on 6th floor of the Evening Post Building, 20-24 Vesey St., in the downtown district. Our office is convenient to surface, subway, and elevated stations and to all downtown ferries. Here you will find well-fitted display rooms, with complete line of supplies, booklets, etc., always on exhibition, and our manager or attendant always present to explain our appliances and discuss the subject of bee-keeping. You and your friends are always welcome.

REMITTANCES.—Remittance with orders should be made by draft, check, postal money order, express money order, or stamps. Do not remit in currency or coin, unless registered, as it often goes astray. We do not care to ship C. O. D.

Order your supplies early. Do not wait until you are in a rush for them. Order now. We want your acquaintance.

Our Manager at the New York branch is thoroughly familiar with every appliance required for successful bee-keeping. His knowledge of outfits for beginners will be found especially beneficial to suburbanites who may want to engage in bee-keeping on a large or small scale. You will find him always willing and ready to make his services of value to whoever seeks his assistance.

Export Orders.—We pay especial attention to all orders for export. For the use of foreign customers we can furnish catalogs in Spanish and French.

THE A. I. ROOT COMPANY, NEW YORK CITY.

Phone Cortlandt 543. **603 Evening Post Bldg.,** **20 Vesey Street.**

"Falcon" Bee Supplies

Read what Our Customers Say:

Quality of Goods—

Solvay, N. Y., May 26, 1911.

W. T. Falconer Mfg. Co., Falconer, N. Y.

Gentlemen:—Bee-supplies received, and want to thank you for prompt delivery; also to say that the quality is o. k. Am very much pleased with the nice finish of the goods.

Yours very truly, E. C. WATERHOUSE.

Dewey Foundation-Fastener—

Stockbridge, Mass., May 15, 1911.

W. T. Falconer Mfg. Co., Falconer, N. Y.

Gentlemen:—The bee-supplies I ordered of you arrived, and I find them correct to the order and am well pleased with them. I have been using a Dewey foundation-machine belonging to a neighbor, and like it very much. Thanking you for the excellency of your goods, I am

Truly yours, E. B. SEELEY.

Queens—

Sanford, N. Y., May 27, 1911.

W. T. Falconer, Mfg. Co., Falconer, N. Y.

Gentlemen:—Enclosed find order for goods. Please ship at once. The queen I bought of you came yesterday. She is a dandy. I shall want some more later.

Yours truly, LEONARD LIGHT.

Service to Our Customers—

In a shipment made to Mr. Luke Russell, the railroad company lost one box. We tried to locate it, but it did not come to hand. We therefore duplicated the shipment without cost, as is our custom, and here is his letter:

Franklinton, N. Y., May 24, 1911.

W. T. Falconer Mfg. Co., Falconer, N. Y.

Dear Sirs:—Box of goods by express reached here yesterday all right, for which I thank you very much, and I shall always get my goods of you. Yours, LUKE RUSSELL.

The three new 1911 distributing-houses put a thermometer in large orders for supplies. Ask them for particulars.

Send them rush orders for sections and foundation.

Kansas City, Mo.
C. C. Clemons Bee Supply Co., 130 Grand Ave.

Chicago, Illinois
W. T. Falconer Mfg. Co., 117 No. Jefferson

Worcester, Mass.
Ross Bros. Co., 90 Front Street

Order from Your Nearest Dealer

Ross Bros. Co., 90 Front St., Worcester, Mass.
J. J. Wilder, Cordele, Ga.
The Fred W. Muth Co., 51 Walnut St., Cincinnati, Ohio.
Deroy Taylor, Lyons, Wayne Co., N. Y.
Cull & Williams Co., 180 Washington St., Providence, R. I.
Hudson Shaver & Sons, Perch River, Jefferson Co., N. Y.
C. C. Clemons Bee Supply Co., 130 Grand Ave., Kansas City, Mo.
A. M. Applegate, Reynoldsville, Pa.
J. R. Rambo, Collingdale (near Phila.), Penn.
Bridat & Cia., Havana, Cuba.
E. Lyons & Son, Kingston, Jamaica.
Edmonson Bros., 10 Dame Street, Dublin, Ireland.

"Falcon" GOODS are sold in Mexico, Germany, Turkey, South and Central Africa, Australia, New Zealand, and everywhere.

W. T. Falconer Mfg. Company

Factory
FALCONER, N. Y.

Branch
117 No. Jefferson St., Chicago, Ills.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy white comb honey at 16; No. 1, 14 to 15; white extracted, 12. Beeswax, 30.

BLAKE-LEE CO.

4 Chatham Row, Boston, May 6.

CHICAGO.—The offerings of honey of the yield of 1910 are practically exhausted, and none of the crop of 1911 has appeared on the market.

Chicago, June 6. R. A. BURNETT & CO.

ZANESVILLE.—The honey market is a little quiet at the present time—no large receipts yet, but small lots of new honey are coming in from bee-keepers in this immediate vicinity. Best grades of white comb bring 17 to 18, wholesale. Producers are offered for beeswax 28 cts. cash, or 30 in exchange for bee-supplies.

Zanesville, O., June 6. E. W. PEIRCE.

CINCINNATI.—The market on comb honey is nearly exhausted. No new white extracted honey has yet arrived, and it is hard to tell what new honey will do. We are offering water-white honey put up in 60-lb. cans at 10 cts., but look for lower prices for the coming season. Beeswax is in good demand at $33.00 per 100 lbs. The above are our selling prices, not what we are paying.

Cincinnati, June 5. C. H. W. WEBER & CO.

DENVER.—The supply of comb and white extracted honey is enough to meet existing demands until the new crop comes in. We quote comb honey in a jobbing way as follows: No. 1, per case of 24 sections, $2.90 to $3.15; No. 2, $2.70; partly candied, $2.40 per case. We have only white extracted honey, which we quote at 9 to 10. We are in the market for light amber and amber of good quality. For pure beeswax we pay 26 cts. cash or 28 in trade.

THE COLORADO HONEY-PRODUCERS' ASSO'N,

Denver, Col., June 5. F. Rauchfuss, Manager.

ST. LOUIS.—Since ours of May 25 our market has remained in the same condition. The demand for comb honey is very small, with moderate stocks, and our market is bare of extracted honey, so the following quotations are more or less nominal. We quote fancy white comb honey at 16 cts.; No. 1, 15; choice amber, 14; dark, 10 to 11. Broken and leaking honey sells at less. Extracted honey is nominal, as there are no quotable stocks in the market. Choice Southern light amber, in barrels, brings 7 to 7½; in cans, 8 to 8½. Beeswax is scarce, and in good demand at 30 cts. for prime; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., June 9.

Now for 1911 Bee-Supplies

We have already received several carloads of that "finest of all Beeware"—Falconer make—anticipating the heavy rush of orders sure to come this spring, Prepare yourself Now, Brother, for we are going to have a heavy honey yield this season, and those who order early are the ones who will profit most. Send for our catalog to-day, and see our "MUTH SPECIAL" Dovetailed Hive, and also our "IDEAL METAL" cover—both DANDIES. We sell you cheaper than the rest; we have the best. Let us figure on your wants—we will surprise you.

THE FRED W. MUTH CO.

51 Walnut Street "The Busy Bee Men" Cincinnati, Ohio

THE SEASON FOR SECTIONS

To delay now may mean a serious loss to you on your 1911 Honey Crop. . .

How do You Buy Sections?

Do you make a discrimination between the sections of superior workmanship—clear, polished wood—sections that will add to the selling price of your honey, and cheaper grades that exact their toll from your honey profits? Do you buy comb-honey sections of ROOT QUALITY—boxes of uniform size, tight-locking corners, strongly made, put out by experienced beemen who know the value of this little detail?

We sell the best grade of sections made. If you want a hundred or ten thousand or a hundred thousand, we can fill your orders promptly with goods we will guarantee to please. You may judge of the popularity of these sections when we tell you that the manufacturers make upward of twenty-five million of them every season.

Comb Foundation

Another article we handle in considerable quantities is Comb Foundation. There is nothing more important to the up-to-date bee-keeper than to have foundation just when he needs it, and of the best quality. We sell nothing but Root's Weed-process Foundation, the recognized standard of the world. The bees appreciate the good points of this foundation, and every bee-keeper knows that it is the best. All grades and sizes constantly on hand. A pound or a ton, just as you like.

There are other items of interest too numerous to mention. We can furnish any thing you need in the bee-keepers' supply line, and get it to you so promptly that the goods will reach you just when you need them most. No order is too small for our attention, and none so large that we can not handle it to *your* satisfaction. Send US your hurry orders and allow us to demonstrate what we can do for you.

Complete catalog of Bee-keepers' Supplies and a special catalog of Poultry Supplies mailed on request.

C. H. W. WEBER & CO.

2146 Central Ave. Cincinnati, Ohio

Gleanings in Bee Culture

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Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, Mrs. H. G. Acklin.

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Extracted HONEY Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

INDIANAPOLIS.—There is a good and steady demand here for best grades of white-clover comb and extracted honey. Jobbing houses are well supplied, but practically none is now being offered by producers, and it is evident that there will be a shortage before the new crop can arrive. Fancy white comb is being offered at 18 cts.; No. 1 white, 17; extracted, 11, with some slight reductions on quantity lots. It is presumed that producers are being paid about 2 cents less than above quotations. Producers of beeswax are being paid 29 cts. cash or 31 in trade.

Indianapolis, June 3. WALTER S. POUDER.

LIVERPOOL.—The only sales since our last letter have been in Haitien honey at $7.56 to $7.68 for fair white. Of Chilian we fear there is to be a fair crop, and a good crop of California honey to come in. We are still without offers for the latter, but we expect to get some soon. Nominal quotations are as follows: Chilian, $5.52 to $6.72; California, $8.40 to $10.48; Jamaican, $6.00 to $6.72; Peruvian, $3.64 to $4.80. Beeswax is firm on the spot, but easier forward, the sellers of Chilian being unable to make progress at $36.28, c. i. f. We believe the stocks are small, and at a later date we think there will be a good trade at a lower level. The nominal quotations are as follows: African, $33.64 to $34.48; American, $37.48; West Indian, $33.64 to $36.28; Chilian, $33.88 to $39.92.

TAYLOR & CO.

7 Tithebarn St., Liverpool, Eng., May 18.

BUFFALO.—Nothing new is to report in this market. Very little honey is arriving, and no demand for any outside of a case of white comb occasionally. Last season's crop seems to be well cleaned up, and we think the markets will be in fine shape to start the new crop. No pure white comb honey is in our market; some dark and mixed, and No. 2 white. Grocers prefer to go without honey rather than buy any not white. We quote No. 1 to fancy white comb honey at 16 to 17; No. 2 ditto, 12 to 14; No. 1 buckwheat, 9 to 11; No. 1 white extracted, 8 to 9; No. 1 dark ditto, 7 to 7½. Beeswax, 28 to 30.

Buffalo, June 9. W. C. TOWNSEND.

THE NATIONAL BEE-KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey.

MEMBERSHIP DUES

One dollar a year.

OFFICERS AND EXECUTIVE COMMITTEE

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VICE-PRESIDENT.—W. D. Wright, Altamont, N. Y.
SECRETARY.—E. B. Tyrrell, Detroit, Mich.
TREASURER AND GENERAL MANAGER.—Newell E. France, Platteville, Wis.

Are you a member? If not, why not send the annual dues ($1.00) at once to Treasurer France? Every progressive bee-keeper should be a member of this, the greatest bee-keepers' organization in North America.

BEES AND SUPPLIES!

Now is the time you are in a hurry for those bee goods. We have them waiting for you. . Italian queens, $1.00; full colony in a hive, $9.50. ' .

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

PATENTS 25 YEARS' PRACTICE

CHAS. J. WILLIAMSON, Rooms 304 to 307, Savings Bank Bldg., 7th and E. Sts., WASHINGTON, D. C.

Patent Practice in Patent Office and Courts.

Patent Counsel of The A. I. Root Co

We Save You Money!

We Manufacture Dovetailed Hives, Sections, Shipping-cases, Brood-frames, Separators, Section-holders, Berry Crates and Boxes.

QUALITY Our hives are made of best grade white pine, cut accurate and smooth to standard measure. Sections are of basswood, polished on both sides. There are no better goods made.

PRICE Our factory is well equipped, and we make goods as cheap as or cheaper than anybody else. We sell first hand, and can save you the middleman's profit. Will quote delivered prices by return mail, if you state your wants. Our prices will surprise you.

SERVICE We carry a complete line of everything used in the apiary—foundation, smokers, and extractors always on hand. Shipping facilities are as good as can be found anywhere. We want your business; no order is too small for careful attention; none too large for us to handle. We guarantee prompt and satisfactory service. Catalog is free.

Minnesota Bee-Supply Company

Minneapolis, Minn.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873 CIRCULATION 35,000. 62 pages Semi-monthly

A. L. BOYDEN, Advertising Manager

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Twenty-five cents per agate line, flat. Fourteen lines to inch.
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Cash discount if paid in 10 days, 2 per cent.
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No medical or objectionable advertising accepted.
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Column length, 8 inches.
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Forms close 10th and 25th.
Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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BEES PAY BIG

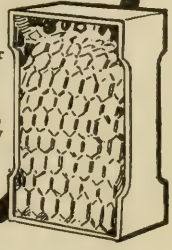
and require little care. All the little honey-gatherers and money-makers demand of you is to provide a home for them. They make the honey and you get the profit. What little work you must do can be made 100 per cent. easier and your profits 100 per cent. bigger if you have the

RIGHT KIND OF SUPPLIES

If you are a bee-keeper or are thinking of going into the bee business you ought to have our beautiful illustrated **New Bee Book**—just off the press. It's a complete guide to profitable bee culture. Tells you how to buy bees, what kind are best, where to locate the hives, how to care for them summer and winter, how to prepare the honey for market—in fact it tells you **all** you need to know to make bees highly profitable as a business or a side-line.

SEND FOR THIS FREE BOOK

We sell everything the bee-keeper needs and can save you money whether you keep few bees or many. Buy direct from headquarters at rock-bottom prices. Get our bee book and save money. Write now for a copy as the edition is limited.



Blanke Mfg. & Supply Co., Blanke Building St. Louis, Mo.
Successors to Blanke & Hauk Supply Co.

ELEVENTH-HOUR REPENTANCE

is better than death in sin; but to him who waits for the eleventh hour it may never come.
In bee-keeping as in spiritual life, delays are costly, and many a pound of honey and dollar of money is sacrificed on the altar of procrastination.
The season is now well advanced, and it will pay you to send in TO-DAY the supply order you have been holding back so long.

Edmund W. Peirce, Zanesville, O.

CHAS. ISRAEL & BROS.

488-490 Canal Street, NEW YORK
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments solicited. Established 1875.

BEE-KEEPERS

We make the best polished sections. This signifies quality. Send us your orders for sections and get the best. . Catalog free.

August Lotz & Co., Boyd, Wisconsin

1911 Three-banded Italian Queens

We are now ready to fill all orders promptly for our three-banded Italian queens; bred strictly for honey-gathering qualities. Untested, $1.00 each, or six for $5.00, or $9.00 a dozen. Tested, $1.25 each, or six for $6.50, or $12.00 a dozen. Select tested, $1.50 each. Breeders, the very best, $3.00 to $5.00 each. We guarantee safe arrival and will replace all dead queens that are returned to us in the cage we mailed them in.

Send All Orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas

GOLDEN ITALIAN QUEENS, $1.00

Six for $4.50; twelve for $8.00. After as bad a spring as I have ever known, conditions have improved, and we've fine queens now.

J. B. CASE, PORT ORANGE, FLORIDA

If YOU Want Them YELLOW Try the GENTLE



Strain of Swarthmore Pedigreed GOLDEN Queens, Swarthmore, Pa.

Protection Veil. . . .

Postpaid, all cotton, 50c; silk face, 60c; all silk, 90c; with B, or ballast cord, 10c per veil extra. Flexible-rim bee-hat, 30c. Oil duck gloves, long sleeves, 35c.

The heavy ballast cord (B) is a new feature to keep the veil from blowing in on the face. The cord A runs around the lower edge of veil, holding it down snugly on shoulders away from the neck, making a tight fit so bees do not get under. Cord C is a short one with loops in ends with cord A running through them, making it adjustable.

Middlebury, Vt., May 26, 1911.

A. G. Woodman Co., Grand Rapids, Mich.
Veils received, and we think the ballast-cord a great improvement in your veil, which was already the best to be had. J. E. CRANE & SON.



A. G. Woodman Co., Grand Rapids, Mich.

LEWIS BEE-WARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY CO. (Not Inc.)
Successors to YORK HONEY & BEE-SUPPLY COMPANY

148 W. Superior St. Chicago, Ill.
Send for catalog. ENOUGH SAID

Have You Delayed Getting Your Supplies?

As the years go by, bee-keepers are ordering their goods during the winter months.

A few there are as yet who wait till the last minute, even waiting till the bees swarm and are hanging on the trees, before ordering hives.

Are you one of the last, or are you one of those "looking ahead"?

The A. I. Root Company

Syracuse, N. Y.

Established 1885



We carry an up-to-date . . line of . .

Bee-keepers' Supplies. . . .

Prices the lowest in the West. Write us for our 50-page catalog, ready to mail you. Free for the asking. . We can fill your orders promptly and satisfactorily. Our old customers know what we handle; to new ones we can say that we have

THE ROOT COMPANY'S Make of SUPPLIES

hence there is nothing to fear as to quality. . . . . .

Send us your rush orders and get your goods before swarming time arrives. . . . . .

Beeswax taken in exchange for supplies or cash. . . . . .

John Nebel & Son Supply Co. High Hill, Montg. Co., Mo.

BEE SUPPLIES

We carry a full and complete line of Root's Celebrated Bee-keepers' Supplies. By buying in carload lots we are enabled to sell at factory prices f. o. b. Dallas. . . . . .

We also carry the largest and best assorted stock of the celebrated Texseed Brand Garden and Field Seeds in the South; Incubators and Brooders, and poultry supplies of all kinds.

Send for illustrated catalog. .

Texas Seed & Floral Co.

Dallas, Texas

When you have honey or beeswax for sale write us.

COMB-HONEY OUTFIT No. 5

It is a matter of some difficulty for the average beginner to decide exactly what he requires as an outfit for the first start in bee-keeping. To relieve the beginner of all perplexity we list certain outfits which we think will meet his needs. The one we give below is what may be fairly considered the best. Each item has been very carefully selected, and we doubt the wisdom of leaving any article out; but the purchaser may do so without altering the prices on the other items.

1 A B C and X Y Z of Bee Culture (536 p.),	$1.50
1 copy "Facts about Bees"	.10
1 year's subscription to "Gleanings," .	1.00
1 Root Smoker	.65
1 pair cotton bee-gloves (small, med., or large)	.50
1 silk-front bee-veil	.60
1 full col. Italian bees in Danzenbaker hive (Complete with 32 section honey-boxes)	12.00
1 untested Italian queen	1.50
2 Danz. hives complete for comb honey . (Nailed and painted, ready for the bees)	6.80
1 Porter bee-escape and board . . . . (For taking honey from the bees)	.35
Special Offer Delivered at any express office north Ohio River and east Mississippi River	**$25.00**

For delivery to points outside of the above free limit, we will make terms on application.

The colony of bees is as near perfect as we can make them. The combs are beautifully straight and well filled with brood. The breeding of the queen is of the very best, so that one has the nucleus of a fine stock of bees. In many cases a return of $10.00 in honey has been secured the first year from just such an outfit as this, and in addition one or two swarms may be secured, which practically doubles the value of the investment. Order at once.

The A. I. Root Co., Medina, Ohio

Bee-keepers who Have

THOROUGHBRED CHICKENS

and want to sell eggs and stock at good prices should use space under the POULTRY heading in the

Classified Pages

In proportion to the cost it is doubtful if any other medium offers as good an opportunity for profitable returns on such offerings as

Gleanings in Bee Culture

Read this from one of our satisfied advertisers:

> "I will say that what little advertising we did in GLEANINGS has brought us about all the business we can attend to this season,"

—and others say the same.

Read the POULTRY advertisements yourself. Read Mr. A. I. Root's talks on CHICKENS—advertise in GLEANINGS, and GET results.

The Bees Won't Wait for You

Are you ready for them? We have a complete stock of Root's Goods.

Sections . . . . .
"Root Quality" kind.

Foundation . . .
Weed Process also "Root Quality.

Hives . . . . . .
Let us quote you on new equipment. Special quotations on complete outfits.

Extractors . . . .
Small machines for the small producer up to the eight-frame power outfits.

Beginners' Outfits .
Do you wish to make a start with bees, as hundreds of others are doing? We will help you decide on your needs.

Beeswax Wanted . .
We also sell berry baskets and crates. . . . . Send for catalog.

M. H. HUNT & SON

Opposite Lake Shore Depot

Lansing, Michigan



"If goods are wanted quick, send to Pouder." . . . Twenty-second Year.

BEE-SUPPLIES

A large and complete stock of the Root Goods offered at the factory schedule of prices. My system of rotating does not permit any accumulation of old stock. My comb foundation is always fresh from the mills; my sections fresh and bright, and hives have all latest improvements. I accept beeswax in payment for goods, or I will pay highest market price for wax in cash. I am in need of more wax at all times.

My **Perfection Tight-seal Jars** are acknowledged as being the best for extracted honey, and I assume all responsibility in shipping, guaranteeing safe arrival. I mean exactly what I say.

My new **Paper Honey-jars** are cheap enough for retailers to give away with their honey. No more waiting to exchange jars or crocks when you deliver your honey. My catalog tells all about these things, and is sent free.

WALTER S. POUDER, 859 Massachusetts Avenue, Indianapolis, Indiana

Boston Is the Shipping Center of **New England**

Bee-keepers should bear this in mind when ordering their supplies. . A full line of supplies always in stock. . . . . Send for catalog.

H. H. JEPSON

182 Friend Street . BOSTON, MASS.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine

J. B. MASON, Manager

ROOT'S GOODS

For WESTERN PENNNSYLVANIA

Prompt and satisfactory service.
Save time by ordering here.
Get a catalog at once.

GEO. H. REA, - Reynoldsville, Penn.

Successor to Rea Bee & Honey Co.

Nature Education and Recreation

For Boys and Girls:
NATURE AND SCIENCE (of St. Nicholas Magazine), . Per year, $3.00

For Men and Women:
THE GUIDE TO NATURE (monthly, illustrated) . . Per year, 1.00
$4.00
BOTH, ONE YEAR, $3.00; sample of either, 10c.

For Teachers:
"How Nature Study Should be Taught," (203 pgs.) . Postpaid, $1 00

For Everybody:
"The Spirit of Nature Study," (222 pgs., illustrated) . postpaid, $1.00
"Walking; a Fine Art," (164 pgs., illustrated) . . . Postpaid, $1.50
"Three Kingdoms," the handbook of the AA . . . Postpaid, .75

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Sachs Nutrient Tablets, a box, post., 10c.

For You (to aid and be aided):
The Agassiz Association (Popular Nature Society).

For Correspondents:
(To write for further information.)

Edward F. Bigelow

Arcadia : : Sound Beach, Connecticut

Why not Rear Your Own Queens

Doolittle's "Scientific Queen-Rearing" and the American Bee Journal a Year . Both for only $1.00

Every Bee-keeper Should Have Both Book and Bee Paper



DOOLITTLE'S "Scientific Queen-Rearing" book contains 126 pages, and is bound in leatherette with round corners. It tells in the clearest way possible just how the famous queen-breeder, Mr. G. M. Doolittle, rears the best of queen-bees in perfect accord with Nature's way. It is for both amateur and veteran in bee-keeping. As all know, Mr. Doolittle has spent some 40 years in rearing queens and producing honey. He has no superior as a queen-breeder. You can learn to rear fine queens by following his directions.

You will not regret having this book, which also gives his management of the bees for the production of honey.

The book and the American Bee Journal for only $1.00 is certainly a *big bargain* for you. Sample copy of the Bee Journal free.



George W. York & Co., 117 No. Jefferson Street, Chicago, Illinois

S. J. GRIGGS & CO.

"Griggs Saves You Freight"

TOLEDO

is the Second Largest Railroad Center in the United States. . . .

This is a Fact, Mr. Beeman,

not a say so. This is the reason we can give you quick service and the LOWEST FREIGHT. Send us a list of your needs, and we will quote you rock-bottom prices. . . . . "ROOT QUALITY" goods go out same day order is received. . Just try us, and prove this for yourself. . . . HONEY AND WAX always wanted, cash or in trade

S. J. Griggs & Co.

25 No. Erie St., Toledo, Ohio

"Griggs, the King Bee"



THIS MAN

Will consider it a privilege to make you an estimate on a bill of goods if you will send him a list of what you want, with discounts. Goods can be shipped from Fremont, Mich.; Chicago, Ill., or Medina, O., whichever place will cost the less freight; or you can have the estimate to be delivered at your station freight prepaid.

He has the largest and most complete stock in his 25 years as a supply-dealer, and can ship promptly ALL ROOT'S GOODS, AT THEIR PRICES with SEASON'S DISCOUNT.

Bees, Queens, and three-frame Nuclei a specialty; Hilton's Superior Strain—see adv. in back numbers of Gleanings, and testimonials.

Beeswax wanted for cash or exchange.

Send for 50-page CATALOG to

George E. Hilton

Fremont, Mich.

GOLD MEDALS
St. Louis Exposition, 1904
Jamestown Centennial, 1907



Danzenbaker Smoker

Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT GRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

The **ONE-PIECE** cap **CAN NOT clog.** It is the **COOLEST, CLEANEST, STRONGEST, BEST,** and **LARGEST NET CAPACITY** of all smokers, selling at one dollar ($1.00). We **GUARANTEE SATISFACTION** or **return** the price; only three complaints in **six years.**

Dan-z. 3½x7½-inch Prize Smoker, $1.00; by mail $1.25
With "Gleanings," $1.00 per year, and Prize Smoker, by mail 1.75
Dan-z. 3½x6-inch Victor Smoker, 80c; by mail 1.00
With "Gleanings," one year, 1200 pp., by mail 1.50

We send propolis shields with Danzenbaker Hives and Supers, and sell anything in the Bee-line at factory prices, also select three-banded Italian queens and bees.

Please send address of yourself and B-friends for FREE catalogs and prices on Bee-supplies, Bees, Queens, Hives, Sections, and Smokers. Address

F. Danzenbaker, 68-70 Woodside Lane, Norfolk, Va.

QUEENS and BEES

BEE-KEEPERS, you are now in need of bees and queens. . Get your stock where it has proven its quality. . I can now supply you with the best strain of ITALIAN QUEENS, untested, warranted, tested and select tested. BEES by the pound, on the comb, and full colonies. These are all bred from mothers noted for their prolificness and honey-gathering qualities, and will prove satisfactory in every case. . .

Send for Price List.

Earl M. Nichols

Successor to W. W. Cary & Son

Lyonsville, Massachusetts

Root's Section-Honey Boxes!

THERE have been very few years when the outlook for a bumper honey crop has been brighter than it is now—at the opening of the season of 1911. Every indication points to an almost unprecedented honey-flow, and the bee-keeper who is not making most complete preparations to reap the harvest will not be very well satisfied with himself when the surplus has all been taken off this fall, or when he knows a big flow is on and he has no sections to put on his hives.

Of course the section problem is the most important one to the comb-honey man, and it MUST be solved right. Therefore why take risks? Why run the slightest chance of getting sections of uncertain quality, or experimenting at a price you can not afford to pay. We are the largest manufacturers of Section-honey Boxes in the world—naturally we have the finest equipment for section-making and cut up the best lumber. We are in close touch with every phase of bee-keeping—with every department of the honey trade—therefore we know the service sections are required to give, and we make ROOT'S SECTION-HONEY BOXES to meet these requirements. Years of experience and satisfied section patrons throughout the world ought to count, and you, Mr. BEE-KEEPER, if you will buy ROOT'S SECTIONS will understand why.

Price List of Sections

4¼x4¼ Beeway Sections—2 inch, 1⅞, 1⅞, 1¾, or 7 to foot wide.

We send 1⅞ style 2 beeway when your order does not specify style or width wanted.

No.	A	B	Weight
100	$ 80	$ 70	7 lbs.
250	1 60	1 40	18 "
500	2 75	2 50	35 "
1000	5 50	5 00	70 "

Plain or No-beeway Sections — 4¼x4¼x1½, 1⅝, or 1⅜; 4x5x1⅜ or 1½; or 3⅝x5x1½.

We send 4¼x1½ plain, or what will fit other items in your order, if you do not specify.

No.	A	B	Weight
100	$ 80	$ 70	6 lbs.
250	1 60	1 40	15 "
500	2 75	2 50	30 "
1000	5 25	4 75	60 "

Price of larger quantities quoted on application.

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It Pays Better to Use . . . .

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It has been proven BEST by TEST by many leading bee-keepers.

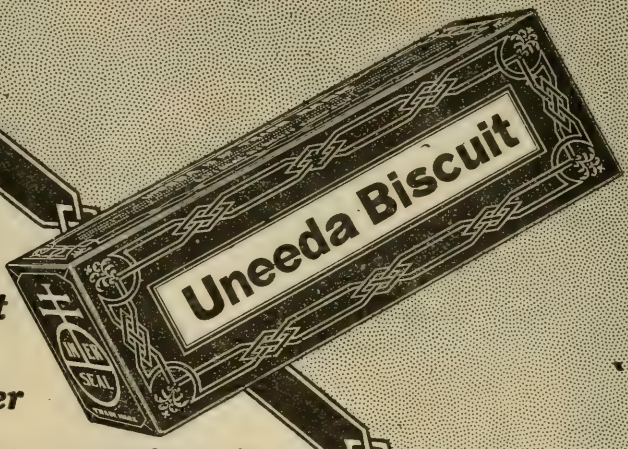
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The Perfect Soda Cracker

Uneeda Biscuit are the perfect soda crackers. The flour used must meet a perfect test. The very purity of the water is made doubly sure. Even the air in the mixing and bake rooms is filtered. The temperature and humidity of the atmosphere is accurately regulated to a uniform degree. The sponge is kneaded by polished paddles. The baking is done in the cleanest of modern ovens. Then Uneeda Biscuit are packed fresh in the purple and white package that keeps them crisp and good from oven to table. Is it any wonder that

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All the important ports on the Great Lakes are reached regularly by the excellent service of the D. & C. Lake Lines. The ten large steamers of this fleet are of modern steel construction and have all the qualities of speed, safety and comfort.

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A Cleveland to Mackinac special steamer will be operated two trips weekly from June 15th to September 10th, stopping only at Detroit every trip and Goderich, Ont. every other trip.

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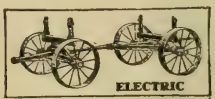


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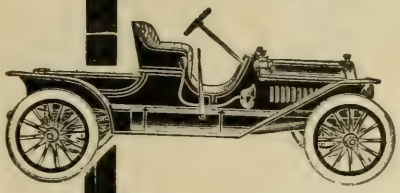


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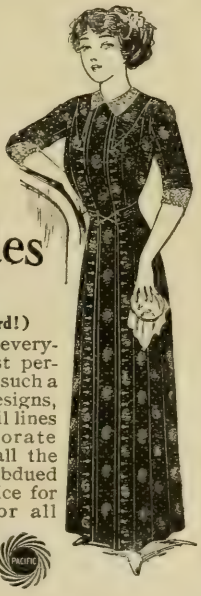
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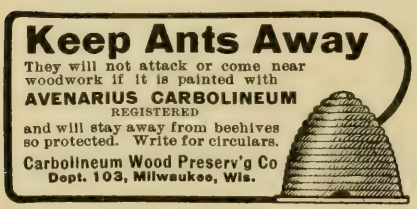
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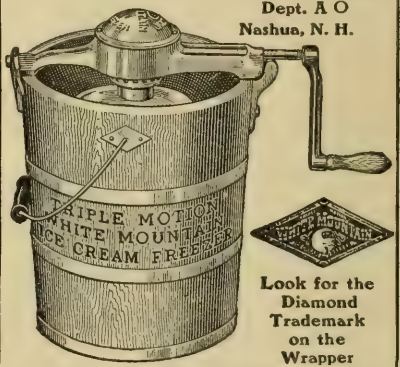
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is made in every part to give you longest, most satisfactory service. And besides, it is the freezer that is quickest, easiest to operate. The triple motion cuts down the freezing time of the old-style freezer two-thirds.

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Send for our recipe book, "Frozen Dainties." It tells you how to make and serve dozens of delectable desserts.

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THIS is the title of a neatly printed, illustrated booklet, the second edition of which has just been published. Each operation in the process of extracted-honey production is explained in detail, with photographic reproductions and drawings to make the text more plain. Beginning with the chapter on "Preparing Colonies for the Honey-flow," the booklet concludes with a description of "Packages for Extracted Honey."

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This interesting book is a very complete treatise on bees and bee-keeping, and is particularly valuable where one is interested in the anatomy and physiology of the bee, which has been very completely covered in this work. It is also valuable for its chapter on honey-plants, or bee-botany; 540 pages with good illustrations; bound in cloth. Price, by mail, $1.15; $1.00 by express or freight. . . Order from the author,

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and bees — an improved superior strain of Italians is what QUIRIN RAISES. All yards winter on summer stands with practically no loss. Our stock is hardy, and will ward off brood diseases.

In the spring of 1899 we sent fifty nuclei to J. D. Nixon, Lafarge, Wis., and on July 20th (same year) he wrote us, saying they did just splendid, as at that writing they had already filled their supers, and that he would have to extract them. We have files of testimonials similar to the above.

Prices before July	1	6	12
Select queens	$ 1 00	$ 5 00	$ 9 00
Tested queens	1 50	8 00	15 00
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Two-comb nuclei, no queen	2 50	14 00	25 00
Three-comb nuc., no queen	3 50	20 00	35 00
Full colonies on 8 frames .	6 00	30 00	

Add price of whatever grade of queen is wanted with nuclei and colonies; nuclei and colonies, if shipped before June 1st, add ¼, or 25%, extra to above price. No order too large and none too small. Will keep 500 to 1000 queens on hand ready to mail. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

QUIRIN-THE-QUEEN-BREEDER, BELLEVUE, O.

W. H. LAWS

is again offering his splendid stock of favorite Italians the coming season. Queens from this strain can not be surpassed, and are the kind that get bees that make supers hard to lift.

Twenty-one years a commercial queen-breeder, and an advertiser in this journal, he knows what a good queen is, and can prove it to you.

I wish you could see some of the splendid letters coming to my desk now almost daily. Laws queens are in every State in the Union, and the careful breeding of these queens has put many dollars in the pockets of his customers, as I have abundant evidence to show. I am now supplying some queens in April, and shall have plenty in May, and my prices are low, in keeping with quality of my stock.

I have about 75 strictly first-class breeding-queens that are worth many times the price I ask. I will sell at $5.00 each. Other queens, $1.00 each; six for $5 00. Satisfaction guaranteed. Circular free.

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Beeville, Bee Co., Texas

Miller's Strain Red-clover Italian Queens

By Return Mail after June 1 to 5 or Money Refunded

Bred from my superior breeder for business; gentle; no better hustlers; bees just roll honey in; three-banded; northern bred; hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored, long-tongued, red-clover strains. Untested, $1.00; six, $5 00; dozen, $9.00. Select untested, $1.25; six, $6.00; dozen, $11.00. Circular free. Satisfaction guaranteed. Isaac F. Miller, of Reynoldsville, Pa., a queen-specialist, is my apiarist and manager, who has been before you quite a number of years. J. S. MILLER, Rt 2, Brookville, Pa

EARLY QUEENS and LATE QUEENS

Bred from pure 3 and 5 banded and Golden Italians. All queens are raised in strong colonies and mated in four-frame nuclei. All orders filled promptly.

Untested, $1.00; six, $4.50; twelve, $8.00
Tested, . 1.50; " 7.50; " 13.50

Breeders, $3.00. Three-frame nuclei, $3.00, with price of queen wanted added. . Discounts for quantity. Send all money orders to Appalachicola, Fla.

A. B. Marchant, . . Sumatra, Fla.

NEW ENGLAND BEE-KEEPERS!

EVERY THING IN SUPPLIES
NEW GOODS
FACTORY PRICES
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Cull & Williams Co. . Providence, R. I.

Goldens that are Goldens

It has taken 20 years to perfect this race of "My Goldens," and they will winter anywhere, produce as much honey, and almost stingless. Try them and you will be satisfied. . . Untested, $1.00; twelve, $10.00. Tested, $3.00. Send for price list and circular. . . NO CHEAP GOODS.

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Italian Queens and Bees

Limited number of Select Queens, 75 cts. each; six for $3.75; or $7.00 per dozen. Tested, $1.25 each. One pound of bees with young (laying) Italian queen, $2 00. Bees and queens ready June 1. My circular is free. Send for one. . . . . .

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200 to 300 per month. Untested, $1.00; tested, $1.25; select tested, $2.00; breeders, $3.00. Nuclei, full colonies, bees by the pound. Have letter from the State certifying my bees are free from foul brood.

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FOR SALE—Bees and Queens Reared From Imported Mothers
Gentle **SIMMINS' PEDIGREE STRAIN** Sure
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J. E. HAND

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WILL begin the season of 1911 with greatly improved facilities for rearing the choicest queens. . . Our queens are not only large, vigorous, handsome, and prolific, but by reason of a judicious system of line breeding they have the power to transmit inherent tendencies of a highly desirable nature, such as hardiness, gentleness, and industry, as well as uniformity of marking, which makes them especially valuable as breeders. Every queen is warranted to produce uniformly marked bees of superior honey-gathering qualities. Don't take chances. Get the real thing. Warranted, $1.00; six, $5.00; dozen, $9.00. Tested, $1.25. Breeders, $5.00. Half pound of bees, no queen, $1.00. Three (L) frame nucleus, no queen, $3.25. No selection, therefore no culls, and a square deal for all. Valuable information free for your address.

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Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. My queens are all bred from my best long-tongued, three-banded, red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES—Untested queens, $1.00 each; six, $5.00; dozen, $9.00. Select untested, $1.25 each; six, $6.00; dozen, $11.00. Safe arrival and satisfaction guaranteed. Descriptive circular free.

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ITALIAN QUEENS

Nuclei, Bees by Pound. Ten-page descriptive list free. Untested, $1.00. Reduced rates July 1. List to select from, clubbing "The Pearce Method of Bee-keeping," price 50 cts., with a guaranteed queen for $1.10. Books by return; queens after June 10. Leaflets, "How to Introduce Queens," 15c: also "Increase," 15c; both for 25c. Send for list.

E. E. MOTT, Glenwood, Mich.

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IMPERIAL-ROYAL AGRICULTURAL ASSOCIATION

Ljubljana, Carniola (Krain)

Exports only pure Carniolan Alpine bees. Write for booklet and price list.

Bees have honey in the WINTER because they store away a part of what they make in the SUMMER. Follow this example. Save money during life's harvest time; then you'll have money when life's December comes.

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We have never heard of a dollar being lost in the mail by any of our depositors.

Write to-day for booklet explaining our convenient banking-by-mail system.

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We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. . Special attention is directed to our assortment of Friction-top Pails and to tin cans of ½, 1, 5 gallon capacity.

Get full information, prices, and samples.

The A. I. Root Company

Medina, Ohio

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Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

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FOR SALE.—1911 extracted white-clover and locust honey, A1 quality, 8½ cts. f. o. b. Richmond, Ky.
VIRGIL WEAVER, Baldwin, Ky.

FOR SALE.—Choice light-amber extracted honey at 9 cts. in new 60-lb. cans.
ORANGE MOUNTAIN BEE FARM, West Orange, N. J.

FOR SALE.—New crop of amber alfalfa and white mesquite honey in car lots. New cases and cans. Correspondence solicited.
ARIZONA HONEY EXCHANGE, Tempe, Arizona.

FOR SALE.—Choice light-amber extracted honey—thick, well ripened, delicious flavor. Price 9 cts. per lb. in new 60-lb. cans.
J. P. MOORE, Morgan, Ky.

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WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—Parties having bright yellow beeswax to sell to send sample and quote us their best cash price delivered here. G. H. PORTER, Falconer, N. Y.

WANTED.—Middle West extracted or comb honey. It will be to your advantage to send small average sample, giving full particulars. We pay the freight.
BOND & SON,
2309 Pennsylvania Ave., Joplin, Mo.

SOUTHERN BEE-KEEPERS.—When your honey is ready for market, write us. Will buy outright or handle on commission. Send samples with full particulars. Are paying 30 cts. per pound, net, f. o. b. New York for choice yellow beeswax.
HILDRETH & SEGELKEN, New York.

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FOR SALE.—In Antrim Co., Mich., 32¾ acres, bee and fruit farm; good honey location; home market for fruit and honey. Will sell 90 colonies of bees with farm. H. E. BROWN, Rt. 4, Charlevoix, Mich.

FOR SALE.—A ten-acre apple-orchard 7 years old, consisting of Jonathans, Rome Beauty, and Ganoes, on the famous Roswell Bench, Canyon County, Idaho; in fine bee country. One-half cash; the remainder on time. C. W. HALL, Rt. 1, Parma, Ida.

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WANTED.—Helper in apiaries. Write full particular, F. B. CAVANAGH, Hebron, Ind.

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WANTED.—A young German of good habits and several years' experience desires position in a large apiary for the production of comb and extracted honey. State wages and conditions in first letter.
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A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

A. I. Root supplies; all new stock; fire destroyed mailing-list. Send a card for catalog.
W. E. TRIBBETT, Staunton, Va.

Let me have your order for Root's supplies. I sell at factory prices. Use any Root catalog, or write for one to GEO. S. GRAFFAM, Bangor, Maine.

I solicit your orders for Root's peerless goods. Catalog on request.
L. W. CROVATT, Box 134, Savannah, Ga.

FOR SALE.—Fifty ten-frame Root chaff hives complete, with frames, chaff tray, super cover and telescope cover; in good condition; $1.50 each, f. o. b.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—300 cases of second-hand five-gallon cans in good condition; single cases, 35 cts.; 5 cases or more, 30 cts. per case.
J. E. CRANE & SON, Middlebury, Vt.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—Root's bee-supplies and American honey-cans. Four more caloads just unloaded. For quick shipments at low prices order from
SUPERIOR HONEY CO.,
Ogden, Utah, and Idaho Falls, Ida.

HONEY-CANS.—By arrangement with a large manufacturer I can supply new five-gallon square tin cans, boxed, at a price that will save you money. Write for prices, stating how many you can use.
C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—A bee-hive factory with one acre of ground. The factory has 2500 square feet of floor space, and machinery sufficient for making hives and portable poultry-houses; two small groves on the place; 35 fruit-trees and abundant small fruits; a four-room house; business growing; electric power; all modern conveniences; close to the cars and school, and 40 minutes to the city of Portland, Oregon. Write for full description.
THE BEE HIVE, Box 167, Lents, Oregon.

Wants and Exchanges

WANTED.—Second-hand bee-hives, with or without combs. Address GLEANINGS, Medina, O. 3613

WANTED.—A good second-hand German or Hershiser wax-press.
MARTIN GUTE & SON, Owosso, Mich.

WANTED.—To buy an apiary of 100 or more colonies of bees located in the West—Colorado preferred. M. C. BERRY, 1738 Pearl, Denver, Col.

WANTED.—A two-frame reversible or four-frame non-reversible extractor, good condition, cheap.
H. F. MILLER,
346 Marcel Ave., Westmount Plateau,
Montreal, Canada.

Bees and Queens

FOR SALE.—Italian queens, untested, $1.00; 6 for $5.00. E. A. SIMMINS, Greenville, Ala.

Italian queens, 75 cts.; tested, $1.00; breeders, $5.00.
W. T. HELLYER, St. Louis, Mo.

Queens (hybrid) from New Hampshire, 50 cents.
W. B. BURLINGAME, Exeter, N. H.

Bees and queens of quality. Supplies. Catalog.
Stringham, 10 Park Place, New York City.

Golden queens, untested, remainder of season, 75 cts. each. R. O. Cox, Rt. 2, Greenville, Ala.

FOR SALE.—Italian queens, 50 cents each.
J. F. MICHAEL, Winchester, Ind.

Italian queens, Doolittle strain direct. Untested, 80 cts.; dozen, $7.00. Catalog.
F. M. BABCOCK, Fredonia, N. Y.

Fifty hives of Italian bees in eight-frame hives.
A. SCHERMERHORN, JR.,
938 Carteret Ave., Trenton, N. J.

Golden Italian queens and nuclei. No disease. Write for prices. J. H. WAGNER,
Box 305, Beatrice, Neb.

Missouri-bred Italian queens; none better; prices right. Write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

Missouri-bred Italian queens; none better; prices right. Write for circular.
S. E. TENNANT, Schoharie, N. Y.

Famous Doolittle strain of Italian queens now ready at $1.00 each; 6 for $5.00.
A. G. SOARES, Brawley, Imperial Valley, Cal.

Italian queens, 75 cts.; tested, $1.00; breeders, $5.00 each; two-frame nucleus with queen, $2.50.
E. M. COLLIER, 75 Broadway, Ossining, N. Y.

Bungalow Golden Italians; also non-swarming and educated queens, $3.00 to $100.00.
HENRY BRITTON, Stoughton, Mass.

Improved red-clover Italian queens bred from the best honey-gatherers obtainable. Untested, $1.00; 6 for $5.50; 12 for $10.00. J. H. GIBBS, Berlin, Md.

Golden and red-clover Italian queens; superior stock. Write for prices. WM. A. SHUFF,
Aldan, Delaware Co., Pa.

Golden queens, untested, $1.00; select untested, $1.50; breeders, $5.00 to $10.00; also Root's bee-supplies. Write for catalog. ROB'T INGHRAM, Sycamore, Pa.

Pure black non-swarming queens, mated with best drones at my private mating-station. Each, $5.00. DR. BRUNNICH, Rheinau, Switzerland.

Three-banded Italian bees and queens; nuclei and by the pound. Send for prices. Also bee-supplies, day-old chicks, and growing pullets. Catalog.
DEROY TAYLOR, Lyons, N. Y.

FOR SALE.—Golden Italian queens. Tested, $1.00; select tested, $1.25; untested, 60 cts.; dozen, $7.00.
D. T. GASTER, Rt. 2, Randleman, N. C.

Italian queens, hustlers, 75 cents; after July 10, 60 cents; tested, $1.25.
MRS. J. W. BACON, Waterloo, N. Y.

FOR SALE.—Westwood red-clover queens and bees; nuclei and full colonies a specialty.
HENRY SHAFFER.
2860 Harrison Ave., Station L, Cincinnati, O.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Bradley's Store, Va.

Italian queens, good as the best; untested, 75 cts.; tested, $1.00. Shipments begin April 1st for bees by the pound and nucleus. Write for prices.
C. B. BANKSTON, Buffalo, Leon Co., Texas.

FOR SALE.—Royal Caribbean queens; hard workers and fine layers, often producing ten frames of brood. Write for prices. CAMPBELL & RIGGS,
Santa Fé, Isle of Pines, West Indies.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction.
W. W. DAKIN, Hood River, Ore.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

Golden queens — very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

QUEENS READY TO DELIVER.—A limited number of 1911 Italian queens, bred for the following points: Prolificness, hardiness, gentleness, color, and cleanness in comb-building; $1.00 each.
THE QUEEN-BREEDER
for Palm Fruit Co., Wasco, Cal.

FOR SALE.—Fine three-banded red-clover Italian queens, every queen a breeder. They are reared from the very best honey-gathering strains; also fine golden queens; untested, 75 cts.; $7.00 per doz.; tested, $1.25. H. B. MURRAY,
Liberty, Randolph Co., N. C.

FOR SALE.—Italian queens, bred from the best honey-gathering strain obtainable. Untested, 75 cts.; select, $1.00; tested, $1.25; select tested, $1.50; breeding-queens, $3.00; select breeding-queen, $5.00; nuclei without queen, one-frame, $1.25; two-frame, $2.00; three-frame, $2.75. For queens and nuclei in quantity lots, write for prices.
ROBERT B. SPICER, Wharton, N. J.

FOR SALE.—Alexander queens. I have 200 Italian queens, two years old, which I offer at 50 cts. each, to be shipped between July 10 and 15. This is the first time the public has had a chance to buy any of our stock. After I dispose of these queens there will be no more at any price. If you want some, order early. Remittance must be sent with order.
FRANK C. ALEXANDER, Delanson, N. Y.

Poultry

Indian Runner duck eggs, $1.00 per 13. Booklet free. AARON FISHER, Box 37, La Park, Pa.

Indian Runner duck-culture book. Information that a beginner is looking for; 75 cts., money order. Catalog for two stamps.
LEVI D. YODER, Box 50, Dublin, Pa.

Indian Runner ducklings from best pens at 20 cts. each, for July 1st delivery—the right time to raise them for winters *layers*. Place your order early.
KENT JENNINGS, Mt. Gilead, O.

Indian Runner ducks from imported stock, fawn and white; very easy to raise and easy to keep. They are beauties too—lay eggs all the year; lay heaviest in winter. Eggs, $1.50 per 13; $7.00 per 100. Let me start you to success.
C. O. YOST. Rt. 4, Winchester, Ind.

FOR SALE.—Duston White Wyandottes, $2.00; 15 eggs, $1; $5 per 100. ELMER GIMLIN, Taylorville, Ill.

Buttercups for utility and beauty; selected pens; unlike others. H. V. MEEKER, Earl St., Toledo, O.

White-faced Black Spanish eggs for hatching! 15, $1.00; 50, $3.00; 100, $5.00. Also dealer in bee-keepers' supplies of all kinds. A. W. SWAN, Centralia, Kan.

Partridge Wyandottes and Partridge Rocks—also all leading varieties. Prize-winning stock and eggs—reasonable. Catalog free.
JOHN T. CROUTHAMEL, Franconia, Pa.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St. Joseph, Mo.

S. C. R. I. Reds, large and beautiful, rich in color, and rich egg-layers; the winning strain. Eggs from exhibition pens, $2.00 per 15; $10.00 per 100. Eggs from standard pens, $1.00 per 15; $5.00 per 100. I can please you, sure.
C. O. YOST, Rt. 4, Winchester, Ind.

Order your copy of "American Standard of Perfection" through GLEANINGS. The new edition of this greatest of all poultry-books is now ready. Beautiful plates show feather-markings, etc., of every standard breed. Price $1.50, postpaid, in cloth; $2.25 in morocco binding.
BUYERS' BUREAU, GLEANINGS IN BEE CULTURE.

Miscellaneous

FOR SALE.—Cadillac automobile with runabout and touring bodies; good running condition; three tires practically new; a bargain at $100, f. o. b. here.
L. F. HOWDEN, Fillmore, N. Y.

FOR SALE.—Extra good Collie pups, white and sable; eligible for registry; $5.00 to $25.00. Can use a few queens. W. D. K. DEUEL,
129 Bouck St., Tonawanda, N. Y.

FOR SALE.—One set (40 volumes) of the Imperial Encyclopedia and Dictionary. These books are in fine condition, very slightly worn; half publishers' price. Cash or white extracted honey taken.
SNAVELY BROTHERS, Lititz, Pa.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, $1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school.
W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1911; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices see large advertisement.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

GRAY PRINTING CO., Fostoria, O.
Make ENGRAVINGS for GLEANINGS

Books and Magazines.

Taking "speed pictures" with an ordinary camera usually puts the amateur "up a stump." But there are certain expedients by which the ordinary camera can be used very effectively, even in picturing a limited express train or a ball in its flight from the pitcher's hand to the batsman. These are explained in an article on the Boys' Page of *The Youth's Companion* for June 1.

Convention Notices.

The summer meeting of the New Jersey Bee-keepers' Association will be held at Mr. W. D. Robinson's apiary, Spring Lake, Monmouth Co., New Jersey, on Wednesday, June 28. The program is not completed yet, but it is intended to make the meeting especially interesting along the line of bee diseases and their treatment.

State Inspector of Apiaries Dr. John B. Smith will be present, and explain the recently enacted foulbrood law; plans of inspection; enforcement of penalties, etc. It is also hoped that the assistant inspector will have been secured by that time, who will also be present and get acquainted with the bee-keepers of the State. All bee-keepers in this State and near-by territory are invited. This ought to be a very profitable meeting for bee-keepers who have bee diseases or who are threatened with them, for the success of our foul-brood legislation in eradicating diseases from the State will depend in a large measure on the support of the best bee-keepers of the State.

Spring Lake is easily accessible from most parts of the State. It can be reached conveniently from points on the Central Railroad of New Jersey, the Pennsylvania Railroad, and New York & Long Branch Railroad. It is also near the large summer resorts of Ocean Grove, Long Branch, Sea Girt, etc.

Program will be mailed later to any who will write for it.

Bee-keepers and manufacturers are invited to exhibit any appliance or improvement along apiarian lines—bees in observation hives, and the like.

Pittstown, N. J. ALBERT G. HANN.

Special Notices

By Our Business Manager

QUICK SHIPMENTS.

We were never in better shape to make prompt shipment of orders than now—especially of sections and comb foundation. We have a good stock to draw on; and if you need goods in a hurry, let us show you how quickly we can ship them.

JAPANESE BUCKWHEAT SEED.

If any of our readers are provided with more buckwheat than they need for seed, especially of the Japanese, we should like to know how much they have to offer, and the price asked. Our present stock is limited, and may not last the season through.

HONEY WANTED.

We are now in the market for a good grade of white honey suitable for our trade. Send us a sample with your name attached to package for identification. Write us at the same time, telling us from what source the honey was gathered, when you extracted it, and in what kind of package it is put in; also if you are ready to ship it at once, or at what time you will be ready to ship it. Mention the price per pound that you want for it, delivered on cars at your nearest railroad station. We can use any amount, from a 60-lb. can or a small barrel, to several carloads, and from any place produced, provided the honey is light and does not have a too pronounced flavor.

THE BEE-KEEPERS' REVIEW TO BE CONTINUED.

Just as we go to press we are advised that the *Bee-keepers' Review* will be continued under the management and control of Mr. E. B. Tyrrell, of Detroit. Mr. Tyrrell thinks it may be impossible, under the circumstances, for him to get out the June number on time. If so, he will get out a double number for July.

The new proprietor is Secretary of the National Bee-keepers' Association, a bee-keeper of experience, a student and admirer of Mr. Hutchinson, an enthusiast on and a lover of bees. We bespeak for the *Review* the same cordial support that it has enjoyed in the past, for the new editor says he is going to continue the same policies inaugurated by his predecessor. As a matter of fact, Mr. Hutchinson had enough matter accumulated to last almost a year, so the readers of the *Review* will see the handiwork of its founder for some time yet.

TWENTIETH-CENTURY (OR SAFETY) SHIPPING-CASES.

In another part of this issue, p. 361, will be found a description of a new shipping-case intended to protect comb honey better in shipping, and also to provide protection for the individual sections of honey from the dealer to his customer. These cases will be furnished with two-inch glass, and not with three inch. If preferred, a wooden slide can be used in place of the glass. For the present we will furnish these cases for only three sizes of sections—the 4¼ x 4¼ x 1⅞ beeway; 4¼ x 4¼ x 1½ plain, and 4 x 5 x 1⅜ plain. A special carton must be made for each size of section used; and as these are the sections in common use we will not, for the present, supply other sizes. The price of each style of case will be the same for each size of plain section, and a little more for the beeway, as it is larger.

	1 NAILED.	PRICE IN FLAT. 1	10	100
12-lb. safety case for 4¼ x 1⅞ sections	25	20	$1.80	$17.00
24-lb. safety case for four rows, 4¼ x 1⅞ sections	40	35	2.80	26.00
24-lb safety case, double tier, for 4¼ x 1⅞ sections	40	35	2.80	26.00
12-lb. safety case for 4¼ x 1½ sections	25	20	1.70	16.00
24-lb. safety case for four rows of 4¼x4¼x1½ sections	40	35	2.60	24.00
24-lb. safety case, double tier, for 4¼x1½ sections	40	35	2.60	24.00
12-lb. safety case for 4 x 5 x 1⅜ sections	25	20	1.70	16.00
24-lb. safety case for four rows of 4 x 5 x 1⅜ sections	40	35	2.60	24.00

Cases include nails, glass, carton for each section, corrugated paper for top, bottom, and both ends, and in the double-tier case a sheet between the top and bottom tiers; also paper for tray in bottom.

SECOND-HAND FOUNDATION MILLS.

We have to offer the following list of foundation-machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0117, 2x10 round-cell medium-brood mill in good condition. Price $14.00.

No. 0121, 2¼ x 10-inch heavy hex. brood mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price $8.00.

No. 0126, 2½x10 hexagonal light-brood mill in good condition. Price $15.00.

No. 0129, 2x10 round cell medium-brood mill, old-style frame, in good condition. Price $14.00.

No. 0132, 2 x 10 round cell Pelham mill. This is nearly new, but it does not make a natural-shaped cell. Price $9.00.

No. 0133, 2x10 round-cell medium-brood Dunham mill in poor condition. Price $8.00.

No. 0135, 2 x 10 round-cell medium-brood mill in old-style frame, fair condition. Price $12.00.

No. 0137, 2x10 round-cell medium-brood mill, old style, poor condition. Price $10.00.

No. 0138, 2½ x 6 hexagonal extra thin-super mill, in very good shape. Price $14.00.

No. 0139, 2½x6 hexagonal thin-super mill, in very good condition. Price $14.00.

No. 0140, 2½x6 hexagonal thin-super mill, in very good condition. Price $14.00.

No. 0141, 2½x6 hexagonal extra thin-super mill, in extra good condition. Price $15 00.

No. 0142, 2½x6 hexagonal thin-super mill, in fair condition. Price $12.00

No. 0144, 2½x10 hexagonal medium-brood mill, in fair condition. Price $15.00.

No 0145, 2½x10 hexagonal light-brood mill, in fair condition. Price $15.00.

No. 0146, 2½x10 hexagonal medium-brood mill, in very good shape. Price $17.00.

No. 0147, 2½x6 hexagonal thin-super mill, in extra good condition. Price $15.00.

BEE LECTURES AT PHILADELPHIA.

As has been the custom for several years, the Root Company at the Philadelphia warehouse, 10 Vine St., expect to have some fifty colonies of bees on their roof throughout the season, and will give free lectures every Tuesday and Friday from twelve to one. All interested in bees are welcomed, and veils are furnished free. Free explanations and demonstrations in any line of bee-keeping are given, and all friends from far and near, who find it convenient to do so, are invited to attend as often as they can.

In past seasons amateur and advanced bee-keepers have journeyed quite a distance to hear Mr. Selser's lectures, and it is because of the interest shown that this feature has been arranged again this year. No special invitation required—come on either of the days named at the proper hour and you will be welcomed. For any additional particulars address Wm. A. Selser, 10 Vine Street, Philadelphia, Pa.

CANADIAN BEE - KEEPERS

E. Grainger & Co., Deer Park, Toronto, announce to Canadian bee-keepers that they have a reasonably full line of Root Bee-supplies on hand for shipment from Toronto. Large shipments will be made direct from the factory, and in many cases a considerable saving may be effected by placing orders with us.

See What Our Customers Say!

North Toronto, March 1, 1911.

E. Grainger & Co., Toronto,

Dear Sirs:—The goods we received from you, manufactured by The A. I. Root Co., are most satisfactory. We find the frames fit beautifully; in fact, all the woodwork is so perfect and so clean and nice that we would not think of using any other make now. They are well worth the extra they cost. A. W. O.

E. Grainger & Co., Toronto. Connaught, March 7, 1911.

Dear Sirs:—Have received shipment of my order to-day. Every thing is in perfect order. Am very well pleased with the goods. D. R.

SEND ALL ORDERS TO

E. Grainger & Co., Deer Park, Toronto, Can.

The Texas Honey-crop

YOU don't hear much complaining among Texas bee-keepers this year. The outlook for a big crop of honey of the highest quality is very pleasing, and wise bee-keepers are not risking the loss of any part of their harvest through lack of preparation. How are you fixed for supplies? Better get your orders in right away for prompt service.

We are in the Market

We wish to buy your honey and beeswax, and supply you with honey-cans. We also desire, as usual, to buy all the first-class white honey we can obtain. We are now paying for first-class white bulk comb honey, properly put up, f. o. b. the bee-keeper's railroad shipping-point—

9½ cts. per pound for 2–60. 10½ cts. per pound for 10–6.
10 cts. per pound for 10–12. 11 cts. per pound for 20–3.

If you wish to sell us some, kindly send sample, stating how much you have and how it is put up, and we will send you shipping instructions.

We have on hand an immense stock of honey-cans and Root's Bee-keepers' Supplies. We also manufacture comb foundation by the "Weed New Process," and lead in foundation sales in the Southwest with this superior product. Can work your wax into comb foundation at a reasonable rate—every pound guaranteed. We pay for average clean beeswax 28c cash, 30c in trade, delivered here.

What can You Use in This List? Prices LESS than Wholesale!

We are a little bit overstocked with cases for shipping comb honey, and want to clear at wholesale rates to our regular patrons. The cases offered below are of the latest design and made to ship comb-honey sections any distance with safety. We will quite gladly give further particulars upon request.

Quantity we have—	Size—	Price per 100—
300	10-inch, 4-row at	$12.50
200	12-inch, 2-row at	8.25
100	10-inch, 2-row at	7.75
150	16-inch, 2-row at	9.25
200	8-inch, 3-row at	8.50
350	6¼-inch, 3-row at	8.25
400	7⅛-inch, 4-row at	12.00
200	7⅛-inch, 3-row at	8.50
100	8-inch, 3-row at	8.50

TOEPPERWEIN & MAYFIELD COMPANY

Cor. Nolan and Cherry Sts., San Antonio, Texas



200 Pages; Nearly 500 Subjects

A NEW Edition of This Popular Book

ADVANCED BEE CULTURE

By W. Z. HUTCHINSON

E. R. ROOT, editor of *Gleanings in Bee Culture*, who revised Mr. Hutchinson's book which has just been published, has to say in *Gleanings:*

As a writer on bees Mr. Hutchinson has few equals. For clearness of style and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and the useful from an extended discussion is intuitive. The last edition of "Advanced Bee Culture," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by a master of the art of boiling down discussions.

I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced bee-keeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it in connection with some other work like the "A B C and X Y Z of Bee Culture," or any textbook designed especially for the beginner class.

Nearly 500 Subjects Pertinent to MODERN Bee-keeping are Authoritatively Discussed

ADVANCED BEE CULTURE is a beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that the many fine illustrations are unusually clear in every detail. The book has been bound in attractive and substantial cloth with clover design in natural colors on cover. All together it is a volume whose appearance and unquestionable worth justly entitle it to a place in the library of every bee-keeper. No more important work on this fascinating subject has recently appeared.

$1.50 Buys a $2.00 Value

ADVANCED BEE CULTURE costs $1.00 per copy. GLEANINGS IN BEE CULTURE (semi-monthly) — known and read by bee-keepers throughout the world— price $1.00 for an annual subscription. It is our pleasure, however, to offer this interesting and most useful combination — the book here described and GLEANINGS one year, both for $1.50. It is a value you will very seldom find—really it is a good $2.00 worth for $1.50.

USE THE COUPON

The A. I. Root Co., Medina, O.

The A. I. Root Co., Medina, Ohio. GBC 6 15-1

For the enclosed remittance of $1.50 please send Gleanings to

_____

_____

Send Advanced Bee Culture to

Name _____

Address _____

If Gleanings is to be sent to same party as book, sign only in last two blank lines.

Enlist as Local Agent

for the Fast-Working, Fast-Selling

Oliver Typewriter!

The battle lines of the Oliver Typewriter forces are forming for another campaign of conquest. The triumphs of 1910—the most brilliant ever achieved by a great sales organization—have served to inspire to more mighty deeds in the coming year.

The roll-call of the Oliver Sales Organization shows over 15,000 men **under arms**—the most magnificent body of trained salesmen in the world.

This Sales Force, great as it is, cannot cope with the tremendous increase in business which the popularity of the Oliver Typewriter has created.

Resident Agents Wanted in every Town and Village

This advertisement is a call for reinforcements—to enable the Oliver Sales Force to extend its skirmish lines to all sections of the country.

The central idea of our selling system is to have—**everywhere**—a vigilant agent of the Oliver Typewriter constantly **on the ground.** Whether that agent devotes part or all of his time to the sale of the Oliver Typewriter is left to his own discretion.

Teachers, tradesmen, doctors, ministers, lawyers, stenographers, telegraph operators, printers, mechanics—men and women in a multitude of different occupations—can succeed as local agents for the Oliver Typewriter. If you have the will to take up this work, **we will point out the way.**

The OLIVER Typewriter

The Standard Visible Writer

The Oliver Typewriter has been breaking records since the day it was placed on the market. Efficiency records, speed records, endurance records—it has won them in quick succession. It sets the swiftest pace in sales by giving unparalleled service.

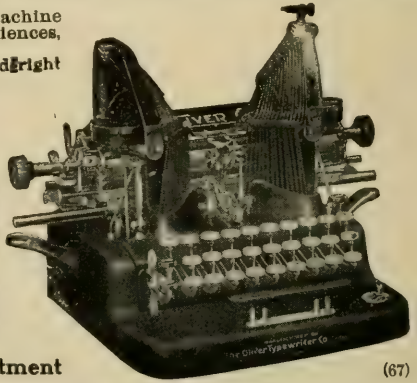
With several hundred less parts than other standard typewriters, its simplicity, strength, ease of operation, versatility and convenience are correspondingly increased.

"17-Cents-a-Day" Plan a Wonderful Aid to Agents

This machine, with all of its advantages, all of its time and labor-saving devices, the Local Agent can buy—and sell—for Seventeen-Cents-a-Day.

The Oliver Typewriter No. 5—the newest model—the $100 machine—equipped with a brilliant array of new devices and conveniences, actually offered for pennies!

This irresistable offer enables the Local Agent to succeed right from the word "go!"



Write for Inspiring Book, "The Rise of the Local Agent"

Read the life stories of men who rose from the Local Agency ranks to positions of great importance in the Oliver Organization—How one Local Agent is to-day the Typewriter King of Mexico. (Mexican Government reports show that more Oliver Typewriters are imported than all other typewriters combined).

These inspiring stories will open your eyes to the **big opportunities still open** for ambitious men to carry the Oliver flag, fight for new records and reap the rewards of success.

Send a personal letter today while the Call for Volunteers is ringing in your ears.

Address Agency Department (67)

The OLIVER TYPEWRITER CO., 116 Prospect St., Cleveland, O.

Gleanings in Bee Culture

VOL. XXXIX JULY 1, 1911 NO. 13

Editorial

Stray Straws

Bee-keeping in California

Bee-keeping Among the Rockies

Notes from Canada

Conversations with Doolittle

W. Z. Hutchinson, Editor and Publisher . . . . .

The Aspinwall Non-swarming Hive Up to Date. *L. A. Aspinwall*

Bee-keeping for Beginners, Illustrated . . *E. D. Townsend*

Bee keeping in Florida . . . . . *E. G. Baldwin*

How Artificial Swarms are Made in Switzerland . *F. Greiner*

The Sectional Hive Well Adapted to the Production of Fancy Comb Honey . . . . . *S. D. House*

Producing Either Comb or Extracted Honey without Swarming. . . . . *B. F. Schmidt*

Home-made Capping-melters . . . . . *G. W. Haines*

External Characteristics of American and European Foul Brood. . . . . *E. F. Phillips, Ph. D.*

The Truth about Alfalfa in New Mexico. . . *O. B. Metcalfe*

Heads of Grain

Our Homes

THE A. I. ROOT COMPANY

St. Paul Branch

1024 Mississippi St., St. Paul, Minn.

Is the natural distributing-point for Root's Goods in the following territory, and has been established at this location for 20 years.

Minnesota	North Dakota
Western Wisconsin	South Dakota
Northern Iowa	Montana
Western Canada	Idaho

SUPPLIES

Practically every article mentioned in the Root catalog is kept in stock at St. Paul. Carload shipments from the factory are forwarded frequently to keep the stock complete. At the 1910 Minnesota State Fair we were awarded first prize for the best exhibit of apiarian tools and fixtures; also for best hive for comb honey and for best hive for extracted honey.

SERVICE

We are constantly seeking to improve our facilities for filling orders ACCURATELY and PROMPTLY. Many delays will be avoided if patrons will state whether eight-frame or ten-frame size is wanted when ordering any of the following articles:

Honey-boards,	Wire for Entrance-guards,
Porter Bee-escapes with Board,	Hives,
Super-covers,	Supers,
Queen and Drone Traps,	Covers,
Entrance-guards,	Bottoms.

PRICES

The prices in the Root catalog are factory prices, f. o. b. Medina; but at this branch they are f. o. b. St. Paul, thus saving much in time and freight to Northwestern bee-keepers ordering from St. Paul. SEND FOR FREE CATALOG.

QUEENS

Orders booked now for spring delivery of queens.

WAX

We are paying 28c cash, 30c in trade for clean wax

THE A. I. ROOT COMPANY

ST. PAUL, MINN.

PILCHER & PALMER, Northwestern Managers . . . 1024 Mississippi Street

"Falcon" Bee Supplies

Read what Our Customers Say:

Quality of Goods—

Solvay, N. Y., May 26, 1911.
W. T. Falconer Mfg. Co., Falconer, N. Y.
Gentlemen:—Bee-supplies received, and want to thank you for prompt delivery: also to say that the quality is o. k. Am very much pleased with the nice finish of the goods.
Yours very truly, E. C. WATERHOUSE.

Dewey Foundation-Fastener—

Stockbridge, Mass., May 15, 1911.
W. T. Falconer Mfg. Co., Falconer, N. Y.
Gentlemen:—The bee-supplies I ordered of you arrived, and I find them correct to the order and am well pleased with them. I have been using a Dewey foundation-machine belonging to a neighbor, and like it very much. Thanking you for the excellency of your goods, I am
Truly yours, E. B. SEELEY.

Queens—

Sanford, N. Y., May 27, 1911.
W. T. Falconer, Mfg. Co., Falconer, N. Y.
Gentlemen:—Enclosed find order for goods. Please ship at once. The queen I bought of you came yesterday. She is a dandy. I shall want some more later.
Yours truly, LEONARD LIGHT.

Service to Our Customers—

In a shipment made to Mr. Luke Russell, the railroad company lost one box. We tried to locate it, but it did not come to hand. We therefore duplicated the shipment without cost, as is our custom, and here is his letter:

Franklinton, N. Y., May 24, 1911.
W. T. Falconer Mfg. Co., Falconer, N. Y.
Dear Sirs:—Box of goods by express reached here yesterday all right, for which I thank you very much, and I shall always get my goods of you. Yours, LUKE RUSSELL.

The three new 1911 distributing-houses put a thermometer in large orders for supplies. Ask them for particulars.

Send them rush orders for sections and foundation.

Kansas City, Mo.
C. C. Clemons Bee Supply Co., 130 Grand Ave.

Chicago, Illinois
W. T. Falconer Mfg. Co., 117 No. Jefferson

Worcester, Mass.
Ross Bros. Co., 90 Front Street

Order from Your Nearest Dealer

Ross Bros. Co., 90 Front St., Worcester, Mass.
J. J. Wilder, Cordele, Ga.
The Fred W. Muth Co., 51 Walnut St., Cincinnati, Ohio.
Deroy Taylor, Lyons, Wayne Co., N. Y.
Cull & Williams Co., 180 Washington St., Providence, R. I.
Hudson Shaver & Sons, Perch River, Jefferson Co., N. Y.
C. C. Clemons Bee Supply Co., 130 Grand Ave., Kansas City, Mo.
A. M. Applegate, Reynoldsville, Pa.
J. R. Rambo, Collingdale (near Phila.), Penn.
Bridat & Cia., Havana, Cuba.
E. Lyons & Son, Kingston, Jamaica.
Edmonson Bros., 10 Dame Street, Dublin, Ireland.

"Falcon" GOODS are sold in Mexico, Germany, Turkey, South and Central Africa, Australia, New Zealand, and everywhere.

W. T. Falconer Mfg. Company

Factory
FALCONER, N. Y.

Branch
117 No. Jefferson St., Chicago, Ills.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy white comb honey at 16; No. 1, 14 to 15; white extracted, 12. Beeswax, 30.

BLAKE-LEE CO.

4 Chatham Row, Boston, June 17.

COLUMBUS.—The market is wanting new honey. No price is established.

Columbus, O., June 19. EVANS & TURNER CO.

INDIANAPOLIS.—Considerable honey still remains in jobbing houses—no established prices on the new crop till it begins to move. Demand will be good. Beeswax is in good demand, and producers are being paid 29 cts. cash or 31 in trade.

Indianapolis, June 19. WALTER S. POUDER.

CHICAGO.—There has not been any trade in comb during June, and very little is seen on sale other than amber grades. Extracted has not been offered freely, and the price is uncertain. Clean beeswax is steady at 31 to 32.

Chicago, June 19. R. A. BURNETT CO.

ZANESVILLE.—There is not much doing in the honey line now. The supply is, of course, light, and the demand slack. Best grades of white comb bring 17 to 18, wholesale; extracted, 11 to 12. Producers receive for beeswax 28 cents cash, or 30 to 31 in exchange for bee-supplies.

Zanesville, O., June 21. EDMUND W. PEIRCE.

CINCINNATI.—The market on comb honey is nearly exhausted. No new white extracted honey has arrived as yet, and it is hard to tell what new honey will do. We are offering water-white honey put up in 60-lb. cans at 10 cents; but we look for lower prices for the coming season. Beeswax is in good demand at $33.00 per 100 lbs. The above are our selling prices, not what we are paying.

Cincinnati, June 17. C. H. W. WEBER & CO.

NEW YORK.—There is practically nothing doing in comb honey. Our stock of white is pretty well cleaned up, and there is some demand at 13 to 15, according to quality. Off grades, mixed and buckwheat, are not wanted at any reasonable price, and we shall probably be compelled to carry over some of it. Extracted is in good demand. The new crop from the South is arriving, and finds ready sale at from 65 to 90 cts. per gallon, according to quality. West Indian is arriving freely, and selling at from 73 to 80 cts. per gallon, according to quality. No California honey is in the market yet, and we do not expect any for some time to come. Beeswax is steady at 30.

New York, June 20. HILDRETH & SEGELKEN.

Now for 1911 Bee-Supplies

We have already received several carloads of that "finest of all Beeware"—Falconer make—anticipating the heavy rush of orders sure to come this spring. Prepare yourself Now, Brother, for we are going to have a heavy honey yield this season, and those who order early are the ones who will profit most. Send for our catalog to-day, and see our "MUTH SPECIAL" Dovetailed Hive, and also our "IDEAL METAL" cover—both DANDIES. We sell you cheaper than the rest; we have the best. Let us figure on your wants—we will surprise you.

THE FRED W. MUTH CO.

51 Walnut Street "The Busy Bee Men" Cincinnati, Ohio

THE SEASON FOR SECTIONS

To delay now may mean a serious loss to you on your 1911 Honey Crop. . .

How do You Buy Sections?

Do you make a discrimination between the sections of superior workmanship—clear, polished wood—sections that will add to the selling price of your honey, and cheaper grades that exact their toll from your honey profits? Do you buy comb-honey sections of ROOT QUALITY—boxes of uniform size, tight-locking corners, strongly made, put out by experienced beemen who know the value of this little detail?

We sell the best grade of sections made. If you want a hundred or ten thousand or a hundred thousand, we can fill your orders promptly with goods we will guarantee to please. You may judge of the popularity of these sections when we tell you that the manufacturers make upward of twenty-five million of them every season.

Comb Foundation

Another article we handle in considerable quantities is Comb Foundation. There is nothing more important to the up-to-date bee-keeper than to have foundation just when he needs it, and of the best quality. We sell nothing but Root's Weed-process Foundation, the recognized standard of the world. The bees appreciate the good points of this foundation, and every bee-keeper knows that it is the best. All grades and sizes constantly on hand. A pound or a ton, just as you like.

There are other items of interest too numerous to mention. We can furnish any thing you need in the bee-keepers' supply line, and get it to you so promptly that the goods will reach you just when you need them most. No order is too small for our attention, and none so large that we can not handle it to *your* satisfaction. Send US your hurry orders and allow us to demonstrate what we can do for you.

Complete catalog of Bee-keepers' Supplies and a special catalog of Poultry Supplies mailed on request.

C. H. W. WEBER & CO.

2146 Central Ave. Cincinnati, Ohio

Honey-crop Reports by States from All Sections of the United States.

The following reports have been received just as we go to press. Those from a distance have been sent by wire, and those from near-by points by mail. Most of the responses are from dealers in supplies, who will have exceptional opportunities for gathering information for their respective territories. The reports are given by States in their alphabetical order.—ED.

ALABAMA

The honey crop here is a complete failure. The bees are starving to death in the height of the season, and it is the same with all bee-keepers at this place.
Fayetteville, Ala., June 22. H. F. SOLLEY.

CALIFORNIA

From reports received we judge there will be fifty to sixty per cent normal honey crop; shortage caused by heavy losses from European foul brood. Honey now is reported heavy in alfalfa districts; buyers are offering 5 7-8 to 6 1-8.
Fresno, Cal., June 26. MADARY PLANING MILL CO.

Mountain sage is one-third crop; Imperial Valley, half a crop; Central and Northern California promises three-quarters of a crop; very little orange; honey, estimate of total for State, 250 cars. Ruling price, extracted, 6 to 7 1-2 cents; no comb is offered this season; six weeks late; nearly over.
Los Angeles, Cal., June 24. MADARY SUPPLY HOUSE.

A little better than half a crop of mountain-sage honey; full crop of orange honey. A good demand for white honey. Extracted white is selling from 7 to 8 cents per pound; white comb honey, 15 to 16.
Riverside, Cal., June 27. CRESMER MFG. CO.

DIST. OF COLUMBIA

Maryland will be very light, owing to loss of bees last winter, which was fully three-fourths; have not heard from West Virginia. No honey offered so far; poor season; little or no clover here.
Washington, D. C., June 22. THE A. I. ROOT CO.

ILLINOIS

We are having a severe drouth; no white-clover bloom. No white-clover honey from this section.
Basco, Ill., June 10. WM. FINDLAY.

I have had a number of callers here at the office from different localities near Chicago, stating that white clover was yielding splendidly; and if we have frequent showers I am inclined to believe that we shall yet secure an average honey-crop.
Chicago, Ill., June 22. THE A. I. ROOT CO.

But little more honey than for brood-rearing has been gathered from clover. Basswood is coming in bloom; prospects good.
Davis, Ill., June 20. J. C. FRANK.

The white-clover crop is a complete failure in this, the west-central part of Illinois. Bees are filling up on honey-dew; fall crop prospects are fair.
Meredosia, Ill., June 22. FRED H. MAY.

There has been very little swarming, and not a pound of surplus honey has been gathered so far. The prospect is not flattering, as there is little clover, and the basswood is about gone. Dry weather, and fall prospect poor.
Milan, Ill., June 20. C. H. DIBBERN.

INDIANA

Our local honey crop is mostly produced from white clover. The quantity has been fair. There is not enough honey produced in this locality to ship out; in fact, we look for most of the supply from the outside.
Evansville, Ind., June 24. VICKERY BROS.

B. W. Douglas, State Entomologist and head of the State Apiary Department, has declared the honey crop in Indiana this year to be one of the worst failures in two decades. The continued dry weather and the consequent failure of the white-clover crop, Mr. Douglas said, brought about the failure. —Indianapolis *News*, June 14, 1911.

IOWA

Bad drouth is on here; white clover is not going to amount to any thing. Bees are worse off than a month ago. I see no show for any surplus here. Rains can't give us any thing above the brood-nest this year.
Brooklyn, Iowa, June 14. B. H. TRIPP.

Dry weather is giving us some concern. Some parts of the State have been favored with about an average rainfall, while others have had but little for several weeks. However, if we get a good rain in a few days, followed at short intervals by others, the honey crop will be pretty good. Basswood is blooming now quite profusely, and sweet clover is showing up nicely.
Des Moines, Iowa, June 22. THE A. I. ROOT CO.

No surplus yet; clover is scarce; was very dry; am hopeful now, as we have just had over an inch of rain. Basswood bloom is just beginning to open, and what trees we have are full of promise. Bees are in fine condition.
Marshalltown, Ia., June 17. E. C. WHEELER.

MAINE

Bees are just well started on clover and raspberry; prospects are good for a full crop; have never seen better prospects at this date.
Mechanic Falls, Me., June 23. THE A. I. ROOT CO.

MICHIGAN

The white clover is the best that it has been in years. Bees are working fine; very little swarming. We have 92 colonies.
Big Rapids, Mich., June 20. CHARLES E. RAPER.

From 3 P.M. until dark the bees just drop with loads of clover now; but in the middle of the day little is doing. I could not say more than half a crop. Basswood is loaded with buds that will open in about ten days, but we can't depend on that in this State. Hives are loaded with honey, but not as much in supers as there should be.
Fremont, Mich., June 22. G. E. HILTON.

Prospects for a crop of honey from clover look much better than they did a week ago. There seems to be a good deal of clover, and at present it is yielding well. Basswood will blossom full, and we are looking for a fair yield from that. The weather is very favorable at present. No honey has been offered us thus far. Our estimate would be one-half or better for white honey.
Lansing, Mich., June 21. M. H. HUNT & SON.

Bees are weak for this time of year; nothing from dandelion or fruit-bloom; clover is good and in bloom, but very few bees are working on it yet.
Leer, Mich., June 21. EULAR THORNE.

Our honey-flow began the 15th. We had abundance of rain this spring. White clover and alsike are plentiful; bees are doing finely.
Wolverine, Mich., June, 20. L. K. FEICK.

MINNESOTA

The St. Paul Board of Trade reports extracted honey at 10 cts.; comb at 15; demand good. As to the crop conditions, no white clover is in sight—all burned up last year; but there is an unusually heavy crop of basswood. The crop will amount to one-half to two-thirds normal.
St. Paul, Minn., June 22. PILCHER & PALMER.

MISSISSIPPI

Sweet clover has not secreted this season on account of drouth lasting seven weeks; honey in East Mississippi and West Alabama will not be one-fourth crop at the highest estimate, and may not be half of this in West and South, Mississippi reporting half a crop; none on the market yet.
Penn, Miss., June 22. THE PENN CO.

MISSOURI

The honey crop to date is a failure. Bees have enough to live on, but not a pound of surplus. Weather is extremely dry; clover is all dried up.
Gunn City, Mo., June 15. JAS. A. ADAMS.

Central Missouri has half a crop of clover honey; drouth cut the other part off; basswood yielded well, but basswood-trees are scarce for a large crop. There will be a fall honey-flow on account of the drouth; prices on honey are good, and will remain so this season.
Highhill, Mo., June 22. JOHN NEBEL & SON SUPPLY CO.

The outlook for a honey crop is the worst in years, in my locality.
New Boston, Mo., June 3. F. H. THIELE.

Honey crop from clover, on account of dry spell, is shortened considerably; we expect a good half-crop. Crops of other grades of honey are very short. Basswood honey crop not reported yet; prospects for future crop very poor unless heavy rains fall during the next ten days. Southern customers in Louisiana and adjacent territory report a good crop.
St. Louis, Mo., June 23. BLANKE MFG. & SUPPLY CO.

Honey crop heavy in May; no flow now; mostly white-clover honey; no basswood, alfalfa, nor mountain-sage; honey is consumed locally; very little shipped out.
Springfield, Mo., June 22. SPRINGFIELD SEED CO.

No surplus honey in North Missouri; clover killed by dry fall and winter of 1910. We have no fall surplus; basswood is very promising, but not enough of it to give much honey here. Red clover is helping to fill up brood-nests, but we can not expect a surplus.
Unionville, Mo., June 22. ELMER F. QUIGLEY.

MONTANA

Honey crop conditions for 1911 in Yellowstone Valley, Montana, are very encouraging; prospects are bright for an extra heavy yield of clover and alfalfa honey.
Park City, Mont., June 23. EUGENE E. PECK.

NEBRASKA

The honey crop is a complete failure for June; a little scattering yellow sweet clover furnishes the only food for brood.
Bradshaw, Neb., June 20. C. B. PALMER.

Half a crop of white clover, with prospects of a long flow, and three-quarters of a crop of alfalfa; prospect is excellent in Central and Western Nebraska; bees are in fine condition for storing surplus.
Lincoln, Neb., June 22. BEE-KEEPERS' SUPPLY CO.

NEW HAMPSHIRE

A poor season for bees so far in this locality. They are working on clover a very little, but no swarming to date.
Pittsfield, N. H., June 22. HERBERT C. TOWLE.

NEW MEXICO

My bees are in the midst of a great honey-flow. The outlook is very favorable.
Artesia, N. Mex., June 8. L. A. HIGHSMITH.

Having heavy flow of honey all over Pecos Valley; about three-fourths from alfalfa; rest is sweet clover and fruit-blossoms—much more honey than the local market will consume; no basswood or mountain sage. Three-fourths of a crop will be extracted, the rest marketed in pound sections; several cars to ship.
Roswell, N. M., June 27. ROSWELL SEED CO.

NEW YORK

Some bee-keepers are reporting that the season is not as good so far as last year. Basswood promises something, and also sweet clover. We should judge that the honey crop will be about three-quarters what it was last year. Market conditions are good in this locality.
Syracuse, N. Y., June 23. F. A. SALISBURY.

Extracted HONEY Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

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We Save You Money!

We Manufacture Dovetailed Hives, Sections, Shipping - cases, Brood-frames, Separators, Section - holders, Berry Crates and Boxes.

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Minnesota Bee-Supply Company

Minneapolis, Minn.

BEES AND SUPPLIES!

Now is the time you are in a hurry for those bee goods. We have them waiting for you. . Italian queens, $1.00; full colony in a hive, $9.50. ' .

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK

Apiaries, Glen Cove, L. I.

PATENTS

25 YEARS' PRACTICE

CHAS. J. WILLIAMSON, Rooms 304 to 307, Savings Bank Bldg., 7th and E. Sts., WASHINGTON, D. C.

Patent Practice in Patent Office and Courts.

Patent Counsel of The A. I. Root Co

Prospects are good for a fair crop of honey; more swarms than usual.
Homer, N. Y., June 22. M. H. FAIRBANKS.

Bees are doing well now; and with these recent rains the honey prospects are good.
Kenmore, N. Y., June 2. O. L. HERSHISER.

Very few colonies have made any start in their supers yet. Clover has been pretty well winter-killed with us in Schoharie County, but good in Broome, Tompkins, and Tioga counties.
Middleburgh, N. Y., June 23. N. D. WEST.

OHIO

The prospect here for a crop of honey is not good. Some locations are good and others poor, and we think half a crop will be about the average. It is too early yet to know what basswood will do; but there is not much here, so can not count much on it. There will be hardly half a crop.
Columbus Grove, Ohio, June 22. MCADAMS SEED CO.

Prospects for a good crop of honey are good.
Columbiana, Ohio, May 23. D. M. MCGAFFICK.

Clover is yielding well, and promises a fair crop. One beekeeper of 24 years' experience says Sunday last was the best clover day he has ever experienced in his time. Others report a rapid flow, but not as good a quality as some years. Prospects are good for basswood. Trees are full of buds. From present outlook, at least two-thirds of a crop will be harvested in Northern Ohio and Southern Michigan. There is practically no honey of any kind to be had, and good grades of comb and extracted would find ready sale in a limited way.
Toledo, Ohio, June 21. S. J. GRIGGS & CO.

OREGON

Clover is in full bloom, but flow is light; weather too cool. Good reports from fireweed district; heavy flow; storing fast; no basswood here; no word from alfalfa districts, but the outlook early was good near Portland. Indications are for light surplus, but are having a regular mania for swarming.
Portland, Oregon, June 24. PORTLAND SEED CO.

TEXAS

Honey crop is over in our territory; very light; about the only honey we are able to get is alfalfa, from the irrigated district. We would think about half a crop. Section honey brings 16 cents; extracted, 9 cents on Dallas market.
Dallas, Texas, June 24. TEXAS SEED & FLORAL CO.

The honey crop will be very short here this year on account of so much cold wet weather in April, despite the big blow that some Uvalde bee-keepers made early in the spring. Last year was almost a total failure also, and very little honey was shipped from this county.
Sabinal, Texas, May 29. W. C. EDWARDS.

Guajilla and catclaw almost entire failure on account of too much rain and cold weather in early spring. Horsemint, half crop; first mesquite flow no good, but a good mesquite flow is on now. Honey from cotton blossom is short; too much rain in spring, and too dry now.
San Antonio, Texas, June 23. TOEPPERWEIN & MAYFIELD.

UTAH

Spring weather at Ogden and Idaho Falls has been cold and cloudy; honey crop depends on the weather from now on. Bees are starting to store from alfalfa, just in bloom; prospects are for an average honey crop.
Ogden, Utah, June 24. SUPERIOR HONEY CO.

VIRGINIA

Honey crop is about half former years; white clover just coming in; dry weather in May cut it short. We have little or no basswood in Valley of Virginia; 15 cts. is about the ruling price on fancy and No. 1; 12 1-2 for lower grades.
Staunton, Va., June 22. W. E. TRIBBETT.

WASHINGTON

No amount of honey produced in this section. This market is supplied from Yakima and Southern Idaho.
Spokane, Wash., June 26. SPOKANE SEED CO.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873 CIRCULATION 35,000. 62 pages Semi-monthly

A. L. BOYDEN, Advertising Manager

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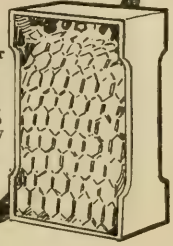
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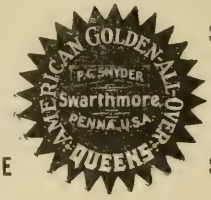


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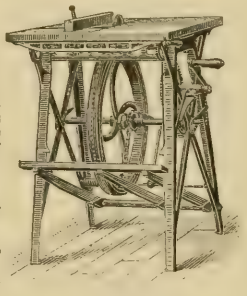
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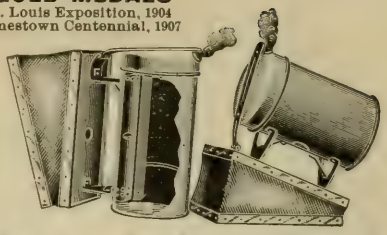
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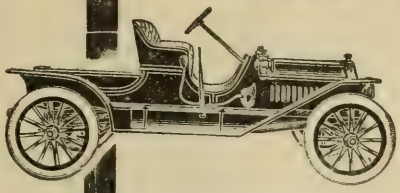
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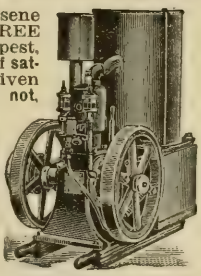
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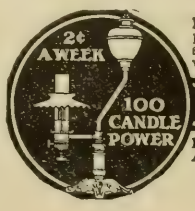
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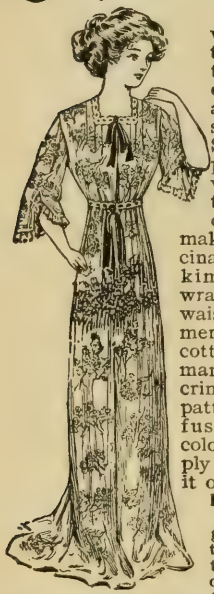


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The highest quality is guaranteed by this Pacific Mills trade mark on every piece of the genuine Serpentine Crêpe. If your dealer does not carry the genuine trade marked Serpentine Crêpe, write us for free samples and list of dealers who will supply you.

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FIRELESS COOK BOOK FREE



The Duplex Fireless made of metal, has **Aluminum Lining** and aluminum vessels **Bakes and Roasts.** Is the most practical Fireless Cooker made. Write for special offer.

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Fit all running gears. Get a new wagon just by buying wheels. Unbreakable, almost everlasting. All heights and tire widths. Also new Electric Handy Wagons. Write for book on "How to Make Old Wagons New." Free.

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CORN HARVESTER with Binder Attachment cuts and throws in piles on harvester or winrow. Man and horse cuts and shocks equal with a corn Binder. Sold in every state. Price $20 with Binder Attachment. S. C. MONTGOMERY, of Texaline, Tex., writes: "The harvester has proven all you claim for it. With the assistance of one man cut and bound over 100 acres of Corn, Kaffir Corn and Maize last year." Testimonials and catalog free, showing pictures of harvester. **New Process Mfg. Co., Salina, Kan.**



Look for the Diamond Trademark on the Wrapper

ONE of the joys of childhood is lost to the youngster who has never tasted that first spoonful from the wonder-working ice cream freezer. Isn't an ice-cream freezer a *debt* that is owed to the children? Especially now that the

Triple Motion White Mountain Ice Cream Freezer

does the work as if by magic. Fussing and mussing are done away with, and instead—the richest, smoothest ice cream in quick time.

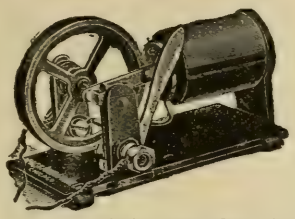
Write to-day for our recipe book "Frozen Dainties." Tells how to make and serve scores of delicious desserts.

The White Mountain Freezer Co.
Dept. AO
Nashua, N. H.



Premium Offer Extraordinary

Through a very special arrangement we are permitted to offer a combination of two high-class publications and a valuable premium at a price slightly above that usually charged for either magazine alone. **Gleanings in Bee Culture** for one year (24 big issues) with **Popular Electricity** (monthly) **in plain English,** "the **one** electrical magazine which **every** reader can understand and enjoy," and choice of valuable premiums described below — easily a $2.50 value — **if taken without delay, for** **$1.50**



No. 44

Electric Engine

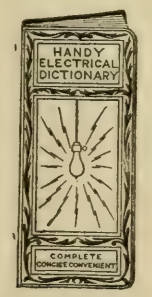
A perfect little engine, three times size of cut. with speed control and reversing lever. Runs 1,000 revolutions a minute on one dry battery. Safe; easy to operate. Interesting; amusing; instructive. A marvel of mechanical and scientific ingenuity.



No. 55

Pocket Magazine Screw-Driver

Twice size illustrated. The need and usefulness of this tool will be instantly recognized. There is nothing to be compared with it. The four detachable blades to suit different size screws, are kept in magazine formed by handle. Always ready, convenient to carry in pocket, as it is only three inches long, closed, and weighs only two ounces.



No. 66

Handy Electrical Dictionary

Invaluable to students, amateurs, workers, and all interested in electricity. Defines over 4,800 electrical terms, with 7 pages of diagrams. Vest pocket size; thumb indexed; gold stamped full leather binding. Handiest and best work of the kind.



No. 99. Screw-Driver Knife.

Twice size shown. Combines all uses of pocket knife and screw driver. Handsome hardwood handle; well tempered keen edge blade, strong enough to cut wire; screw-driver end. Closes like pocket knife, locks when open; can not shut down on the hand while in use. A very handy and useful tool for all purposes.

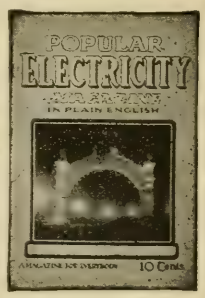
Gleanings in Bee Culture



has gained an enviable reputation as one of the leading class publications in America. Authoritatively edited, printed on best quality paper, illustrated with photographs of a most interesting sort, its semi-monthly appearance in the homes of bee-keepers is heartily welcomed.

If you keep bees read **Gleanings**, that you may understand their care and management. There's profit in this business if you know how others do it. If you are a beginner—or want to make a start with bees, read the articles from beginners everywhere which appear in this journal. You need **Gleanings** as you will decide for yourself after two or three numbers have been read. **24 times every year.**

Popular Electricity Magazine



is a bright, interesting, up-to-date monthly, dealing with electricity in all its applications. Written in plain, non-technical language, beautifully and profusely illustrated. Intensely fascinating and instructive. Thorough, comprehensive, practical. Appeals alike to all interested in electrical pursuits as well as those desiring a general knowledge of electricity.

It not only posts you on the latest electrical developments, but shows simply and clearly how to adapt this marvelous force to your own needs—generate current, make and use electrical appliances, "wireless" apparatus, etc. Wireless Club membership free to subscribers; electrical questions answered free. No other publication gives you so much for your money.

A. I. ROOT CO., Medina, Ohio

Herewith find $1.50 ($2.15 if Canadian, $2.60 if Foreign) for which enter my subscription for a year each to **Gleanings in Bee Culture** and **Popular Electricity Magazine**, in accordance with your special offer, and send me free premium

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Pop. Elec.

QUEENS

and bees — an improved superior strain of Italians is what QUIRIN RAISES. All yards winter on summer stands with practically no loss. Our stock is hardy, and will ward off brood diseases.

In the spring of 1899 we sent fifty nuclei to J. D. Nixon, Lafarge, Wis., and on July 20th (same year) he wrote us, saying they did just splendid, as at that writing they had already filled their supers, and that he would have to extract them. We have files of testimonials similar to the above.

Prices after July 1	1	6	12
Select queens	$ 75	$ 4 00	$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	
Golden five-band breeders	5 00		
Two-comb nuclei, no queen	2 25	12 00	22 00
Three-comb nuc., no queen	3 25	18 00	32 00
Full colonies on 8 frames	5 00	25 00	

Add price of whatever grade of queen is wanted with nuclei and colonies; nuclei and colonies, if shipped before June 1st, add ¼, or 25%, extra to above price. No order too large and none too small. Will keep 500 to 1000 queens on hand ready to mail. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

QUIRIN-THE-QUEEN-BREEDER, BELLEVUE, O.

W. H. LAWS

is again offering his splendid stock of favorite Italians the coming season. Queens from this strain can not be surpassed, and are the kind that get bees that make supers hard to lift.

Twenty-one years a commercial queen-breeder, and an advertiser in this journal, he knows what a good queen is, and can prove it to you.

I wish you could see some of the splendid letters coming to my desk now almost daily. Laws queens are in every State in the Union, and the careful breeding of these queens has put many dollars in the pockets of his customers, as I have abundant evidence to show. I am now supplying some queens in April, and shall have plenty in May, and my prices are low, in keeping with quality of my stock.

I have about 75 strictly first-class breeding-queens that are worth many times the price I ask. I will sell at $5.00 each. Other queens, $1.00 each; six for $5 00. Satisfaction guaranteed. Circular free.

Address

W. H. LAWS
Beeville, Bee Co., Texas

Miller's Strain Red-clover Italian Queens

By Return Mail or Money Refunded

Bred from my superior breeder for business; gentle; no better hustlers; bees just roll honey in; three-banded; northern bred; hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored, long-tongued, red-clover strains. Untested, 75c; six, $4 00; dozen, $7.50. Select untested, $1.00; six, $5.00; dozen, $9.00. Circular free. Satisfaction guaranteed. Isaac F. Miller, of Reynoldsville, Pa., a queen-specialist, is my apiarist and manager, who has been before you quite a number of years. **J. S. MILLER, Rt 2, Brookville, Pa.**

SEND FOR FREE ADEL BEE

and Supply Catalog. You will save money if you buy direct from my factory. I make the finest polished sections on earth. I want to prove it to you. Send me your order for sections, or any thing in bee-supplies. 45,000 brood-frames at $1.50 per 100 as long as they last; size is 9 1-8 in. deep; top-bar is 19 1-16 in. long, V-shape or two-grove and wedge, or Simplicity, all loose-hanging frames. 65,000 section-holders at $1.00 per 100 as long as they last. They are nicely dovetailed and are for 4 1-4 by 4 1-4 by 1 1-2, and for 4 by 5 by 1 3-8 sections. Carload section orders a specialty.

Chas. Mondeng, 140 Newton Ave., N., Minneapolis, Minn.

NEW ENGLAND BEE-KEEPERS!

EVERY THING IN SUPPLIES
NEW GOODS
FACTORY PRICES
SAVE FREIGHT

Cull & Williams Co. . Providence, R. I.

Goldens that are Goldens

It has taken 20 years to perfect this race of "My Goldens," and they will winter anywhere, produce as much honey, and almost stingless. Try them and you will be satisfied. . . Untested, $1.00; twelve, $10.00. Tested, $3.00. Send for price list and circular. . . NO CHEAP GOODS.

GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

ITALIAN QUEENS

Nuclei, Bees by Pound. Ten-page descriptive list free. Untested, $1.00. Reduced rates July 1. List to select from, clubbing "The Pearce Method of Bee-keeping," price 50 cts., with a guaranteed queen for $1.10. Books by return; queens after June 10. Leaflets, "How to Introduce Queens," 15c; also "Increase," 15c; both for 25c. Send for list.

E. E. MOTT, Glenwood, Mich.

Queens . . . Queens

200 to 300 per month. Untested, $1.00; tested, $1 25; select tested, $2.00; breeders, $3.00. Nuclei, full colonies, bees by the pound. Have letter from the State certifying my bees are free from foul brood.

Frank M. Keith, 83½ Florence St., Worcester, Mass

FOR SALE—Bees and Queens Reared From Imported Mothers
Gentle Hardy SIMMINS' PEDIGREE W. S. STRAIN Sure Honey Getters
American Apiculture and Farming Co., ST. LOUIS

Hand's Handsome Hustlers—

are a superior, honey-gathering strain of hardy, northern-bred, straight three-banded Italians — the result of years of careful selection and judicious breeding with a view of establishing fixed characteristics along chosen lines. Our queens are not only large, vigorous, handsome, and prolific, but by reason of a judicious system of line breeding they have the power unerringly to transmit inherent tendencies of a highly desirable nature, such as hardiness, gentleness, and industry, as well as uniformity of marking, which makes them especially valuable as breeders.

Warranted, 75c; six, $4.00; dozen, $8.00. Tested, $1.00. Breeders, $4.00. Half-pound package of bees, no queen, $1.00. Add price of queen to half-pound packages. No disease. Safe delivery and satisfaction guaranteed. Circulars and valuable information free.

J. E. Hand, Birmingham, O.

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Deposit your savings here, pending permanent investment.

The advantages offered are: Unquestioned safety and four per cent interest, compounded semi-annually.

This bank is under the supervision of the State, and its strict laws.

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A. T. SPITZER, Pres. E. R. ROOT, Vice-pres.
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Queens of MOORE'S STRAIN of ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. My queens are all bred from my best long-tongued, three-banded, red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES—Untested queens, $1.00 each; six, $5.00; dozen, $9.00. Select untested, $1.25 each; six, $6.00; dozen, $11.00. Safe arrival and satisfaction guaranteed. Descriptive circular free.

J. P. Moore, Queen-breeder, Rt. 1. **Morgan, Ky.**

FINE BEE LOCATION

LAND VERY CHEAP

340 acres situated in prairie section of Alabama. Rolling lime land (Houston clay). Good water. One mile from railroad station. . . Land mostly covered with *Melilotus alba*, *Melilotus medica*, and *burr clover*. A part of this farm will grow *fine alfalfa* and *corn*. There are several thousand acres not cultivated adjoining tract. For quick sale, $7.00 per acre.

C. C. Clay Alfalfa Land Co.

Demopolis, Ala.

Clark & Pike

LANDSCAPE ENGINEERS

. . WILLOUGHBY, OHIO . .

The A B C of Bee Culture

A complete treatise on the subject; fully illustrated. A text-book for the beginner and advanced bee-keeper. Cloth-bound, $1.50 postpaid; leather edition, $2.50.

THE A. I. ROOT CO., Medina, Ohio.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

FOR SALE.—1911 extracted white-clover and locust honey, A1 quality, 8½ cts. f. o. b. Richmond, Ky.
VIRGIL WEAVER, Baldwin, Ky.

FOR SALE.—Choice light-amber extracted honey at 9 cts. in new 60-lb. cans.
ORANGE MOUNTAIN BEE FARM, West Orange, N. J.

FOR SALE.—New crop of amber alfalfa and white mesquite honey in car lots. New cases and cans. Correspondence solicited.
ARIZONA HONEY EXCHANGE, Tempe, Arizona.

FOR SALE.—Choice light-amber extracted honey—thick, well ripened, delicious flavor. Price 9 cts. per lb. in new 60-lb. cans.
J. P. MOORE, Morgan, Ky.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & Co., 199 S. Water St., Chicago.

SOUTHERN BEE-KEEPERS.—When your honey is ready for market, write us. Will buy outright or handle on commission. Send samples with full particulars. Are paying 30 cts. per pound, net, f. o. b. New York for choice yellow beeswax.
HILDRETH & SEGELKEN, New York.

Real Estate

FOR SALE.—40 acres of land, 100 colonies Italian bees; average $10.00 profit per colony; never diseased; established trade in local market for entire crop. Best climate in the world. $1500.
A. J. SWAN, Lowell, Arizona.

FOR SALE.—Poultry, fruit, and bee farm in the beautiful and healthful Ozarks; 320 acres—15 in fine fruit; 80 colonies of bees; 500 chickens—10 breeds; well stocked with horses, cattle, and hogs. Write for price and description. E. C. BAKER,
Rush, Marion Co., Ark.

Position Wanted

WANTED.—A young German of good habits and several years' experience desires position in a large apiary for the production of comb and extracted honey. State wages and conditions in first letter.
A. HOFER, Box 547, Escalon, Cal.

Miscellaneous

FOR SALE.—One set (40 volumes) of the Imperial Encyclopedia and Dictionary. These books are in fine condition, very slightly worn; half publishers' price. Cash or white extracted honey taken.
SNAVELY BROTHERS, Lititz, Pa.

Wants and Exchanges

Yost typewriter, originally cost $100, to exchange for one strong colony of bees, any style of hive, or for two strong swarms, natural or artificial, without brood-combs. Sample of typewriting sent on request. E. W. BROWN, Willow Springs, Ill.

For Sale

Choice silverhull buckwheat, $1.20 per bushel.
HARRY ALBERTSON, Hope, N. J.

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

A. I. Root supplies; all new stock; fire destroyed mailing-list. Send a card for catalog.
W. E. TRIBBETT, Staunton, Va.

I solicit your orders for Root's peerless goods. Catalog on request.
L. W. CROVATT, Box 134, Savannah, Ga.

Two-frame Root extractor, automatic reversing, with brake; used slightly one season only. Price $10.00. ELLA M. BERGER, Muncy, Pa.

FOR SALE.—Hives, supplies, and bees at a sacrifice; going out of business—must sell. Write now for bargain-list. HARRY C. KLAFFENBACH,
Muscatine, Iowa.

FOR SALE.—Fifty ten-frame Root chaff hives complete, with frames, chaff tray, super cover and telescope cover; in good condition; $1.50 each, f. o. b.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—300 cases of second-hand five-gallon cans in good condition; single cases, 35 cts.; 5 cases or more, 30 cts. per case.
J. E. CRANE & SON, Middlebury, Vt.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—5000 lbs. yellow-sweet-clover seed, new crop, biannual: 4 lbs. hulled, by mail, prepaid, $1.10; 50 to 100 lbs., at 15 cts.; unhulled, 3 cts. per lb. less. Alfalfa seed, $16.00 per 100 lbs.
R. L. SNODGRASS, Rt. 4, Augusta, Kan.

FOR SALE.—700 cases of used 60-lb. honey-cans in A1 condition; will sell entire lot at 15 cts. per case—two cans per case—or 20 cts. in smaller quantity—f. o. b. Detroit. THE F. B. THOMPSON CO.,
Detroit, Mich.

FOR SALE.—Root's bee-supplies and American honey-cans. Four more caloads just unloaded. For quick shipments at low prices order from
SUPERIOR HONEY CO.,
Ogden, Utah, and Idaho Falls, Ida.

HONEY-CANS.—By arrangement with a large manufacturer I can supply new five-gallon square tin cans, boxed, at a price that will save you money. Write for prices, stating how many you can use.
C. J. BALDRIDGE, Homestead Farm, Kendala, N. Y.

FOR SALE.—Fifty eight-frame hives, one-story, in flat, at $1.15; 25 nailed and painted, at $1.80; 50 supers, 4¼ x 4 x 5, in flat, at 40c; 25, nailed and painted, at 60c. Also Danzenbaker hives and fittings cheap. All new. GEO. E. KRAMER, Valencia, Pa.

Bees and Queens

FOR SALE.—Italian queens, untested, $1.00; 6 for $5.00. E. A. SIMMINS, Greenville, Ala.

Italian queens, 75 cts.; tested, $1.00; breeders, $5.00.
W. T. HELLYER, St. Louis, Mo.

Queens (hybrid) from New Hampshire, 50 cents.
W. B. BURLINGAME, Exeter, N. H.

FOR SALE.—40 colonies of bees in 8-frame Root hives. E. C. RICHARDSON, Rt. 3, Adrian, Mich.

Bees and queens of quality. Supplies. Catalog.
Stringham, 10 Park Place, New York City.

Golden queens, untested, remainder of season, 75 cts. each. R. O. Cox, Rt. 2, Greenville, Ala.

FOR SALE.—Italian queens, 50 cents each.
J. F. MICHAEL, Winchester, Ind.

Italian queens, Doolittle strain direct. Untested, 80 cts.; dozen, $7.00. Catalog.
F. M. BABCOCK, Fredonia, N. Y.

Golden Italian queens and nuclei. No disease. Write for prices. J. H. WAGNER,
Box 305, Beatrice, Neb.

Missouri-bred Italian queens; none better; prices right. Write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

Italien queens, 75 cts.; tested, $1.00; breeders, $5.00 each; two-frame nucleus with queen, $2.50.
E. M. COLLIER, 75 Broadway, Ossining, N. Y.

Italian queens, hustlers, 75 cents; after July 10, 60 cents; tested, $1.25.
MRS. J. W. BACON, Waterloo, N. Y.

Improved red-clover Italian queens bred from the best honey-gatherers obtainable. Untested, $1.00; 6 for $5.50; 12 for $10.00. J. H. GIBBS, Berlin, Md.

Golden and red-clover Italian queens; superior stock. Write for prices. WM. A. SHUFF,
Aldan, Delaware Co., Pa.

Golden queens, untested, $1.00; select untested, $1.50; breeders, $5.00 to $10.00; also Root's bee-supplies. Write for catalog. ROB'T INGHRAM, Sycamore, Pa.

Cheap, 150 hives of Italian bees in eight-frame hives. No disease. Must be sold by Oct. 1.
J. E. HENDERSON, Elm Grove, W. Va.

FOR SALE.—Golden Italian queens. Tested, $1.00; select tested, $1.25; untested, 60 cts.; dozen, $7.00.
D. T. GASTER, Rt. 2, Randleman, N. C.

FOR SALE.—Westwood red-clover queens and bees; nuclei and full colonies a specialty.
HENRY SHAFFER,
2860 Harrison Ave., Station L, Cincinnati, O.

Three-banded Italian bees and queens; nuclei and bees by the pound. Send for prices. Also bee-supplies, day-old chicks, and growing pullets. Catalog.
DEROY TAYLOR, Lyons, N. Y.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Bradley's Store, Va.

Italian queens, good as the best; untested, 75 cts.; tested, $1.00. Shipments begin April 1st for bees by the pound and nucleus. Write for prices.
C. B. BANKSTON, Buffalo, Leon Co., Texas.

FOR SALE.—Royal Caribbean queens; hard workers and fine layers, often producing ten frames of brood. Write for prices. CAMPBELL & RIGGS,
Santa Fé, Isle of Pines, West Indies.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction.
W. W. DAKIN, Hood River, Ore.

High-grade Italian bees. Colonies, $8.00; queens, tested, $1.25; untested, 85 cts.; 1 lb. bees, $1.50; ½ lb., 90 cts. My bees get the honey. Try them. Satisfaction guaranteed.
GEO. H. REA, Reynoldsville, Pa.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

Italian queens from Moore's queens; also queens from Italy; mated with drones from Doolittle stock—no other bees near them; no foul brood. Untested, $1.00; 6, $5.00; 12, $9.00.
P. B. RAMER, Harmony, Minn.

Golden queens — very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

QUEENS! QUEENS!—Fine Italian queens ready to mail; satisfaction guaranteed; reared exclusively from Root's and Davis' stock. We cull our virgins. Three-banded untested, 60 cts.; ½ doz., $3.50; dozen, $7.00; tested, $1.00; select tested, $1.25. Our Golden yard is 3¼ miles from three-band. Price of golden the same as three-band.
H. B. MURRAY, Liberty, Randolph Co., N. C.

FOR SALE.—Italian queens, bred from the best honey-gathering strain obtainable. Untested, 75 cts.; select, $1.00; tested, $1.25; select tested, $1.50; breeding-queens, $3.00; select breeding-queen, $5.00; nuclei without queen, one-frame, $1.25; two-frame, $2.00; three-frame, $2.75. For queens and nuclei in quantity lots, write for prices.
ROBERT B. SPICER, Wharton, N. J.

California queens from The A. I. Root Co.'s $12.00 breeder and J. M. Davis' select stock. We offer 1000 select untested queens (three-banded Italians) in lots of 12 and upward at $9.00 per dozen; $70.00 per 100, cash with order. All queens reared in full colonies above queen-excluder, and mated in large nuclei. Fifteen years' experience in queen-rearing and honey-production. Address H. L. WEEMS,
Sup't Bee Dep't Kern Co. Land Co., Wasco, Cal.

Poultry

Indian Runner duck eggs, $1.00 per 13. Booklet free. AARON FISHER, Box 37, La Park, Pa.

Indian Runner duck-culture book. Information that a beginner is looking for; 75 cts., money order. Catalog for two stamps.
LEVI D. YODER, Box 50, Dublin, Pa.

Indian Runner ducklings from best pens at 20 cts. each, for July 1st delivery — the right time to raise them for winters *layers*. Place your order early.
KENT JENNINGS, Mt. Gilead, O.

INDIAN RUNNER DUCKS.—Full-grown young stock for sale, either fawn and white or penciled, from best strains in America. Eggs for hatching. All sales guaranteed as represented.
C. O. YOST, Rt. 4, Winchester, Ind.

FOR SALE.—Duston White Wyandottes, $2.00; 15 eggs, $1; $5 per 100. ELMER GIMLIN, Taylorville, Ill.

Buttercups for utility and beauty; selected pens; unlike others. H. V. MEEKER, Earl St., Toledo, O.

White-faced Black Spanish eggs for hatching; 15, $1.00; 50, $3.00; 100, $5.00. Also dealer in bee-keepers' supplies of all kinds. A. W. SWAN, Centralia, Kan.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St. Joseph, Mo.

Order your copy of "American Standard of Perfection" through GLEANINGS. The new edition of this greatest of all poultry-books is now ready. Beautiful plates show feather-markings, etc., of every standard breed. Price $1.50, postpaid, in cloth; $2.25 in morocco binding.
BUYERS' BUREAU, GLEANINGS IN BEE CULTURE.

Having more chickens than my back lot will accommodate without crowding, I am going to reduce my price one-half, on a setting of 15 eggs, to $1.50, from my $25.00 pen of S. C. R. I. Reds. Mr. A. I. Root told me a few days ago that I had the best S. C. R. I. Red rooster he had ever seen. Reports from purchasers of settings show a very high fertility of eggs. Special care used in containers for shipping eggs by express in the U. S., or by parcels post to foreign countries. L. W. BOYDEN,
682 West Liberty St., Medina, O.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, $1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school.
W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1911: beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices see large advertisement.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

ENGRAVINGS for "GLEANINGS"
MADE BY GRAY PRINTING CO., Fostoria, O.

Convention Notices.

The summer field meeting of the Connecticut Bee-keepers' Association will be held July 15 at the apiary of A. W. Yates, foul-brood inspector, 3 Chapman St., Hartford. Demonstrations of grafting, a new method of wire-imbedding, etc., by Prof. Allen Latham, E. C. Griswold, and Mr. Yates. Lunch on the basket-picnic plan. All are welcome.
JAMES A. SMITH, Sec., Hartford.

The annual field-day meeting of the Massachusetts Society of Bee-keepers will be held at the Bungalow Apis of Henry W. Britton, Stoughton, July 15. The following is the program:

11 : 00 to 12 : 30, social hour.

12 : 30 to 1 : 30, basket lunch.

1 : 30, meeting called to order by President E. C. Britton. Business session; action on new members; unfinished business.

Prof. Burton N. Gates, State Inspector of Apiaries, will speak on "Agricultural Advancement." Pres. E. C. Britton will give a practical demonstration with a three-queen hive, without protection.

Musical selections — cornet and trombone, by H. W. and E. C. Britton.

Question-box; adjournment, 4 : 30.

Matters of interest which will be on exhibition consist of observation hives made of cedar, chestnut, ash, and pine; new honey made in May and June; a swarm of bees in a hemlock stump; fancy queens, golden Italians, educated, non-swarming.

Trains leave South Station, Boston; at 10 : 10 A.M. and 12 : 15 P.M., and return at 3 : 1 and 4 : 44. Electric cars leave Dudley St. to Mattapan and Blue Hill street railway to Canton and Stoughton every half-hour. Automobiles at Stoughton Station.

Bring basket lunch. Hot coffee donated by Mr. H. W. Britton. All interested in bees are invited.
T. J. HAWKINS, Sec., 4 Emery St., Everett, Mass.

Mrs. W. Z. Hutchinson—

DEAR MADAM:—On June 6th and 7th there was held, under the direction of the Massachusetts Agricultural College, a convention of bee-keepers that was attended by something over one hundred persons from various parts of eastern United States. This was the first bee-keepers' assembly after the death of Mr. Hutchinson, the news of which came to us unexpectedly and as a shock. During our morning session of June 7 several of the prominent bee-keepers expressed their sympathy for you, and reviewed the splendid work of Mr. Hutchinson. It was a unanimous expression that the bee-keeping world has lost an individualistic leader, a clear and concise writer, whose place is not soon to be filled. The most sincere sympathy of those assembled is extended to you. It was desired that this be expressed also through the apicultural press.

The following is the program of the Pennsylvania State Bee-keepers' Association for its summer meeting, high-school building, Reynoldsville, Pa., July 11 and 12, 1911, beginning at 9 : 30 A.M., Tuesday.

Invocation, Rev. A. J. Meek, Reynoldsville.

Roll-call.

Address of welcome, Prof. L. Mayne Jones, Superintendent of Schools, Jefferson Co., Pa.

Response, H. C. Klinger, Liverpool, Pa.

Report of Secretary-treasurer.

Report of Legislative Committee, Wm. A. Selser, Philadelphia.

Address, Hon. S. B. Elliott, Reynoldsville.

Regular business.

Afternoon session, 1 : 30.

Practical demonstrations in the apiary:

"Handling bees for practical work," Geo. H. Rea, Reynoldsville.

"Handling bees for exhibition," E. R. Root, Medina, Ohio.

"Handling hives and apparatus," I. F. Miller, Knoxdale, Pa.

"Equipment for the amateur," Prof. H. A. Surface, State Economic Zoologist, Harrisburg.

Evening session, Tuesday, 7 : 30.

President's address, illustrated, Prof. Surface.

Election of officers.

"Late developments in apiculture," illustrated, E. R. Root.

Paper, "Queen-rearing," Penn G. Snyder, Swarthmore, Pa.

"Improving stock," S. P. Christian, Sabula, Pa., and J. R. Rambo, Collingdale, Pa.

Wednesday morning, 9 o'clock.

General business.

"Controlling swarming when working for comb honey," Chas. N. Greene, Troy, Pa.

"Extracted honey," Harold Hornor, Philadelphia.

"Necessity and methods of apiary inspection," Geo. H. Rea.

"Building up colonies for the clover harvest," Wm. A. Selser.

Wednesday afternoon, 1 : 30.

Practical demonstrations in the apiary.

"Treating foul brood," Geo. H. Rea, W. A. Selser.

"Shook swarming," E. R. Root.

"Transferring from box hives and trees," Prof. H. A. Surface, H. C. Klinger.

Special music will help enliven the program.

Exhibits of honey and supplies will be made.

Excellent hotel accommodations have been secured. Rooms may be had with or without board. Good meals will be served at restaurants.

Bee-keepers' headquarters will be at Franks Tavern, where special rates have been secured at $1.50 per day.

The afternoons of each day will be devoted to field work in practical demonstrations. Each bee-keeper who can attend should be there.
H. C. KLINGER, Sec'y.

Special Notices

By Our Business Manager

BEESWAX WANTED.

Till further notice we will pay 28 cts. cash, 30 cts. in trade, for average wax, delivered here.

SWEET-CLOVER SEED.

We are still prepared to furnish sweet-clover seed of the various kinds we have been advertising at the prices last quoted. We are also arranging for seed of this season's crop, and shall be pleased to hear from those who are prepared to gather seed to sell, especially the yellow biennial and the white hulled seed.

SECOND-HAND CANS.

We still have a good supply of good second-hand cans free from rust on the inside, and fairly bright outside. They would make an excellent container for dark or off grades of honey. We do not recommend any thing short of new cans for choice white honey. These cans are a bargain at $3.00 for 10 boxes of 2 cans each; $25.00 per 100 boxes; 50 boxes at 100 rate.

HONEY WANTED.

We are now in the market for a good grade of white honey suitable for our trade. Send us a sample with your name attached to package for identification. Write us at the same time, telling us from what source the honey was gathered, when you extracted it, and in what kind of package it is put; also if you are ready to ship it at once, or at what time you will be ready to ship it. Mention the price per pound that you want for it, delivered on cars at your nearest railroad station. We can use any amount, from a 60-lb. can or a small barrel, to several carloads, and from any place produced, provided the honey is light and does not have a too pronounced flavor.

BALING-TAGS.

In the manufacture of sections we produce a great many small pieces of the thickness and width of sections finished smooth, about 2 to 2½ inches long. We have been furnishing these to men in this vicinity, who bale up hay and straw, to use as tags in marking the weight of the bale. Because they are a waste product we can furnish them very much cheaper than they could be made to order. Our price at present is $3.00 per barrel, and a barrel contains approximately 10,000 pieces, making them cost about 30 cts. per 1000. We can furnish more than we have been selling, and should be pleased to hear from any one with orders. Call your hay-balers' attention to this.

BUCKWHEAT SEED.

We have sold out our stock of Japanese buckwheat, but have secured a further supply at an increased price. We have also located some lots in other parts of the country from which we can make shipments. We will furnish from here either silverhull or Japanese by freight, bags included, not prepaid. Peck, 50 cts.; ½ bu., 85 cts.; one bu., $1.40; two bu., $2.50. We can also ship from Dexter, Mo., in lots of one bushel or more, at the same rate. This is good recleaned seed, but not guaranteed pure Japanese. Subject to previous sale, there is also some Japanese available at Hoosick Falls, N. Y. Ten-bushel lots from either place, bags extra, at $1.10 per bushel.

SECOND-HAND SHIPPING-CASES NAILED.

We have quite a number of shipping-cases in which we have received comb honey, which are cleaned up and in fair condition, which we offer crated up for shipment at the following special prices:

303 24-section cases for 4¼x1⅞ sec., 9 for $1.00; $10.00 per 100.

65 24-section cases for 4¼x2 sec., 9 for $1.00; $6.00 for lot.

67 24-section cases for 4¼x1¾ sec., 9 for $1.00; $6.00 for lot.

33 12-section cases for 4¼x1⅞ sec., $2.00 for lot.

22 24-section cases for 4x5x1⅞ sec., $2.00 for lot.

21 24-section cases for 3⅝x5x1½ sec., $2.00 for lot.

OLD-STYLE HONEY-EXTRACTORS.

We still have a few old-style honey-extractors without slip gear and ball bearing or the latest die-molded gears, No. 25, four-frame Root automatic, at Medina, which we will sell at a special price of $15.00 each. Here, certainly, is a bargain.

At Des Moines, Iowa, several No. 15 Cowans which we will sell at $10.00 each.

At Chicago, No. 4 Novice for short frames at $7.50 each, or No. 10 Novice at $8.50 each. A No. 20 Cowan for extra-large frames, offered at $12.50.

At Philadelphia a No. 4 Novice at $7.50. A No. 17 Cowan at $11.00. A No. 18 Cowan at $11.50. A No. 25 four-frame automatic at $16.00.

At New York, a No. 17 Cowan for $11.00.

At Washington, D. C., a No. 15 Cowan for $10.00, or a No. 15 automatic for $11.50.

At Mechanic Falls, Me., No. 15 Cowan at $10.00 each. No. 4 Novice at $7.50 each.

SECOND-HAND FOUNDATION-MILLS.

We have to offer the following list of foundation-machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0117, 2x10 round-cell medium-brood mill in good condition. Price $14.00.

No. 0121, 2¼x10-inch heavy hex. brood mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price $8.00.

No. 0129, 2x10 round cell medium-brood mill, old-style frame, in good condition. Price $14.00.

No. 0132, 2x10 round cell Pelham mill. This is nearly new, but it does not make a natural-shaped cell. Price $9.00.

No. 0135, 2x10 round-cell medium-brood mill in old-style frame, fair condition. Price $12.00.

No. 0138, 2½x6 hexagonal extra thin-super mill, in very good shape. Price $14.00.

No. 0139, 2½x6 hexagonal thin-super mill, in very good condition. Price $14.00.

No. 0140, 2½x6 hexagonal thin-super mill, in very good condition. Price $14.00.

No. 0141, 2½x6 hexagonal extra thin-super mill, in extra good condition. Price $15.00.

No. 0142, 2½x6 hexagonal thin-super mill, in fair condition. Price $12.00.

No. 0144, 2½x10 hexagonal medium-brood mill, in fair condition. Price $15.00.

No. 0145, 2½x10 hexagonal light-brood mill in fair condition. Price $15.00.

No. 0146, 2½x10 hexagonal medium-brood mill, in very good shape. Price $17.00.

No. 0147, 2½x6 hexagonal thin-super mill, in extra good condition. Price $15.00.

No. 0151, 2½x6 hexagonal cell, extra thin-super mill, one bad cell, otherwise in good condition. Price $12.00.

No. 0152, 2½x6 hexagonal thin-super mill, extra good for regular-width super foundation. Price $12.00.

No. 0153, 2½x6 hexagonal thin-super mill. No. 0154, ditto. Both in very good condition. Price $14.00 each.

No. 0155, 2x10 round cell, medium-brood mill in old-style frame; fair condition. Price $12.00.

No. 0156, 2½x6 extra thin-super mill, fair. Price $10.00.

No. 0157, 2½x6 thin-super mill, in good condition. Price $12.00.

No. 0158, 2½x6 extra thin-super mill in fair condition. Price $10.00.

Special Notices

By A. I. Root

THE CROWN OF DIAMONDS AND THE CROWN OF THORNS.

I am so strongly impressed that the Home paper in this issue will do a great work in the cause of temperance that we have made preparations to furnish it in small pamphlet form, free of charge to all of our readers who may want the tracts for free distribution. Tell us how many you can dispose of where they will probably be read, and we will mail you 10, 25, or 100 copies, free of charge.

The Texas Honey-crop

YOU don't hear much complaining among Texas bee-keepers this year. The outlook for a big crop of honey of the highest quality is very pleasing, and wise bee-keepers are not risking the loss of any part of their harvest through lack of preparation. How are you fixed for supplies? Better get your orders in right away for prompt service.

We are in the Market

We wish to buy your honey and beeswax, and supply you with honey-cans. We also desire, as usual, to buy all the first-class white honey we can obtain. We are now paying for first-class white bulk comb honey, properly put up, f. o. b. the bee-keeper's railroad shipping-point—

9½ cts. per pound for 2–60. 10½ cts. per pound for 10–6.
10 cts. per pound for 10–12. 11 cts. per pound for 20–3.

If you wish to sell us some, kindly send sample, stating how much you have and how it is put up, and we will send you shipping instructions.

We have on hand an immense stock of honey-cans and Root's Bee-keepers' Supplies. We also manufacture comb foundation by the "Weed New Process," and lead in foundation sales in the Southwest with this superior product. Can work your wax into comb foundation at a reasonable rate—every pound guaranteed. We pay for average clean beeswax 28c cash, 30c in trade, delivered here.

What can You Use in This List? Prices LESS than Wholesale!

We are a little bit overstocked with cases for shipping comb honey, and want to clear at wholesale rates to our regular patrons. The cases offered below are of the latest design and made to ship comb-honey sections any distance with safety. We will quite gladly give further particulars upon request.

Quantity we have—	Size—	Price per 100—
300	10-inch, 4-row at	$12.50
200	12-inch, 2-row at	8.25
100	10-inch, 2-row at	7.75
150	16-inch, 2-row at	9.25
200	8-inch, 3-row at	8.50
350	6¼-inch, 3-row at	8.25
400	7⅛-inch, 4-row at	12.00
200	7⅛-inch, 3-row at	8.50
100	8-inch, 3-row at	8.50

TOEPPERWEIN & MAYFIELD COMPANY

Cor. Nolan and Cherry Sts., San Antonio, Texas



200 Pages; Nearly 500 Subjects

A NEW Edition of This Popular Book

ADVANCED BEE CULTURE

By W. Z. HUTCHINSON

E. R. ROOT, editor of *Gleanings in Bee Culture*, who revised Mr. Hutchinson's book which has just been published, has to say in *Gleanings:*

As a writer on bees Mr. Hutchinson has few equals. For clearness of style and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and the useful from an extended discussion is intuitive. The last edition of "Advanced Bee Culture," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by a master of the art of boiling down discussions.

I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced bee-keeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it in connection with some other work like the "A B C and X Y Z of Bee Culture," or any textbook designed especially for the beginner class.

Nearly 500 Subjects Pertinent to MODERN Bee-keeping are Authoritatively Discussed

ADVANCED BEE CULTURE is a beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that the many fine illustrations are unusually clear in every detail. The book has been bound in attractive and substantial cloth with clover design in natural colors on cover. All together it is a volume whose appearance and unquestionable worth justly entitle it to a place in the library of every bee-keeper. No more important work on this fascinating subject has recently appeared.

$1.50 Buys a $2.00 Value

ADVANCED BEE CUTLTURE costs $1.00 per copy. GLEANINGS IN BEE CULTURE (semi-monthly) — known and read by bee-keepers throughout the world— price $1.00 for an annual subscription. It is our pleasure, however, to offer this interesting and most useful combination — the book here described and GLEANINGS one year, both for $1.50. It is a value you will very seldom find—really it is a good $2.00 worth for $1.50.

USE THE COUPON

The A. I. Root Co., Medina, O.

The A. I. Root Co., Medina, Ohio. GBC 7-1-11

For the enclosed remittance of $1.50 please send Gleanings to

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Send Advanced Bee Culture to

Name _____

Address _____

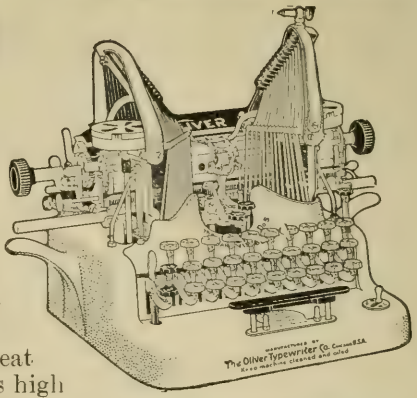
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Take Your Oliver Typewriter -Pay Seventeen Cents a Day!

Send Coupon or Letter for Details

A message of vital moment to the vast audience reached by this magazine.

We are selling the Oliver Typewriter—the Standard Visible Writer—the New Model No. 5—the regular $100 machine—for Seventeen Cents a Day! Whether you sit in the councils of great corporations or are perched on a book-keeper's high stool—*Whatever your part in the world's activities*—this offer of the Oliver Typewriter means something worth while to *you.*



Mightiest Machine in World's Workshop

The terrific pace of modern business demands mechanical aids of the highest degree of efficiency. Foremost among all the inventions that speed the day's work—that take the tension from *men* and transfer it to *machines*—is the *Oliver Typewriter.*

The Oliver typewriter is the mightiest machine in the World's Workshop. It weaves the million threads of the world's daily transactions into the very fabric of business. It works with the smooth precision of an automatic machine. It adapts itself to the diversified needs of ten thousand business conditions.

The OLIVER Typewriter

The Standard Visible Writer

The basic idea upon which its towering supremacy rests is its wonderful Double Type-bar. What the Selden patent is to the automobile, this principle is to the typewriter, *only we do not license its use on any other writing machine.*

The Double Type-bar gives the Oliver Typewriter its positive DOWNWARD STROKE, the secret of *perfect printing, light touch, easy operation, and perfect alignment.*

Brilliant Exclusive Features

The Oliver is illuminated by scores of brilliant innovations not found on other typewriters. Its remarkable time-saving devices and conveniences include the Vertical and Horizontal Line Ruler, the Disappearing Indicator, the Tabulator, the Back Spacer, the Adjustable Paper Feed, the Double Release, the Automatic Spacer, the Locomotive Base.

Time and again, when our existing models met every demand of the public, we have brought out important *improvements* at great expense, without adding a cent to the price.

100 per cent Efficiency

The Oliver Typewriter has an efficiency of 100 per cent every day in the week, and from one year's end to another.

Its printing mechanism works freely in a framework of solid steel, which gives wonderful stability and the limit of durability.

It operates with the lightest touch and thus prevents fatigue. The swiftest operator can not overtake the speed of an Oliver Typewriter. It writes in beautiful, readable type, and, of course, it *writes in sight.*

Every office, whether equipped with one Oliver Typewriter or a battery of Olivers, secures the very maximum of typewriter service at the minimum of cost and labor.

The simplicity, strength, and ease of operation of the Oliver Typewriter make it most desirable for use in the home.

COUPON

The Oliver Typewriter Company,
116 Prospect St., Cleveland, Ohio.

Gentlemen:—Please send your Art Catalog and details of "*17-Cents-a-Day*" offer on the Oliver Typewriter.

Name.....

Address .....

.....

Yours for Pennies! Send the Coupon

Having simplified the *typewriter* to the utmost, we have now simplified its *purchase* until you can own it for the trifling sum of Seventeen Cents a Day.

A small cash payment brings you the magnificent new model Oliver No. 5. Then you save Seventeen Cents a Day and pay *monthly* until the machine is *yours.*

No matter what typewriter you are using, you can turn it in as first payment on the Oliver and let *pennies* complete the purchase.

Send coupon or letter for the handsome Catalog and full details of the popular Penny Plan. (66)

The Oliver Typewriter Co.

Sales Department

116 Prospect St., CLEVELAND, OHIO

Gleanings in Bee Culture

VOL. XXXIX JULY 15, 1911 NO. 14

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Heads of Grain

Our Homes

MAIN LINES TO EVERYWHERE FROM THE WASHINGTON BRANCH

THE bulk of our trade at this branch comes from Southern Pennsylvania, Delaware, Maryland, the Virginias, and Carolinas; but this well-located office at the national center is also on the main line to the great South. No better service to the section along the Atlantic Coast can be had. A realization of our opportunity at this important distributing-point has encouraged us to make most careful and complete preparations for prompt and efficient service. . .

Read of Our Facilities

Supplies and Stock.

Abundant room in this branch enables us to carry a very large stock which represents practically every article in the big Root line. All goods listed in former price lists, and still on sale, are here, together with the new and improved lines shown in this 100th edition of our catalog. Carload lots of fresh supplies continually come from our factory to keep our stock complete. No delay in filling even the largest orders at Washington, is our policy.

Shipping Facilities.

Through railroad service to the heart of the South, main trunk lines north and west, steamship service along the Atlantic Coast, with all contingent facilities for quick handling of freight and express make our location an important one for bee-keepers who live in this great section and want the best bee-supplies with a minimum of delay and transportation expense.

Packing.

We do not charge for packing, boxing, or delivering to freight or express offices here in Washington. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B., Washington. If no agent at your station, notify us and we will prepay, and bill charges after shipment. Often during the busy season much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what charges will be from here.

Root Goods are Standard Goods!

Remember that ROOT'S Bee-keepers' Supplies are recognized all over the world as the STANDARD—standard in dimensions, standard in quality. Every part and place fits exactly in the place it was intended for. All parts are made with the utmost care and accuracy, and can be placed in any other hive of the same style without a hitch in fit. Our lumber is selected with a view to getting the best to be procured. It is carefully sorted and thoroughly seasoned. And no less care is taken in the choice of any material whatever that goes into a product which, when finished, is to bear the ROOT label.

The Washington Branch has the benefit of the experience of a manager who thoroughly understands the requirements of those engaged in this business either for profit or pleasure. He couples with his knowledge the desire to make his service valuable to you upon any occasion. Bee-keeping is gaining prominence in the Southland, and it will pay to investigate the opportunities offered by this pursuit in connection with poultry, fruit, and similar alliances. Do not be afraid to make known you wants—come to Washington, or write and we will show you every possible consideration.

THE A. I. ROOT COMPANY

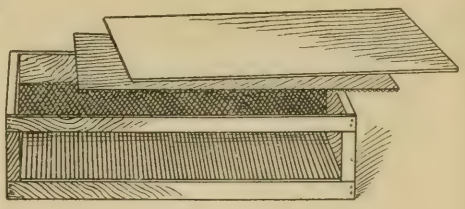
333 11th St., Washington, D. C.

Phone, M. 4237--m.

"Falcon"

Shipping-Cases

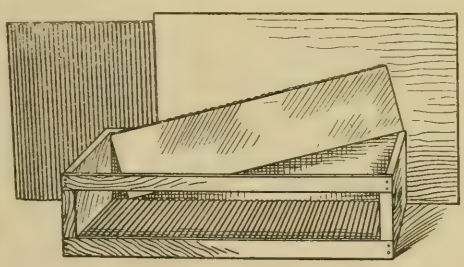
Lined with Corrugated Paper



A good crop of section comb honey to bring the highest price must be marketed in the best shipping-cases obtainable. Poor cases cut the price one to two cents a pound. Use, therefore, only the best and most attractive cases. Such are the cases made at the "FALCON" factory.

Corrugated paper has been proven far superior to the old no-drip sticks. Two sheets, one for bottom drip under sections and one for top (should the crate accidentally be turned bottom side up or receive any heavy blows on top), are supplied with each case. Notice, in the illustration, the corrugated follower to wedge the sections tight.

Corrugated paper above, below, and back of sections, drip-paper top and bottom, extra heavy ends, one-piece wooden covers and bottoms, and heavy slats for glass are furnished in "Falcon" cases. Use no other if you wish your honey to bring the highest price.



Prices

"Falcon" CASES with extra sheets of corrugated paper and corrugated follower cost no more than cases with these sold by others.

24-lb. for Beeway Sections

Showing Four

This case is 11⅜ inches wide, holds 24 sections 4¼x1⅞ to 1¾ or 20 sections, 2 or 1 15-16.

No. 11 with 3-inch glass,	10, $2.00	100, $18.00
No. 11 with 2-inch glass,	10, $1.90	100, $17.00
No. 1 without glass,	10, $1.80	100, $16.00

12-lb. for Beeway Sections

Showing Three

Holds 12 sections 4¼x1⅞. A convenient standard size.

No. 13 with 3-inch glass,	10, $1.30	100, $11.50
No. 13 with 2-inch glass,	10, $1.25	100, $10.75
No. 3 without glass,	10, $1.20	100, $10.00

24-lb. for Plain Sections

Showing Four

Holds 24 sections, 4¼x1½.

No. 11½ with 3-inch glass,	10, $2.00	100, $17.00
No. 11½ with 2-inch glass,	10, $1.90	100, $16.00
No. 1½ without glass,	10, $1.70	100, $15.00

24-lb. for Ideal Sections

Showing Four

Holds 24 sections 3⅝x5x1½.

No. 16 with 3-inch glass,	10, $1.80	100, $16.00
No. 6 without glass.	10, $1.60	100, $14.00

24-lb. for Tall Sections

Showing Four

For 24 sections 4x5x1⅜.

No. 18 with 3-inch glass,	10, $1.80	100, $16.50
No. 8 without glass,	10, $1.60	100, $14.50

Write for prices on cases for sections other than named above.

Buy cases from nearest dealer. See back copies GLEANINGS list of dealers, or write us.

Price List of "Falcon" Queens

Three-banded and Golden Italians, Caucasians, and Carniolans

Untested (after July 1) . . . . . One, 75c; six, $4.25; twelve, $8.00
Select Untested (after July 1) . . . . One, $1.00; six, $5.50; twelve, $10.00
Tested, $1.50 each. . . Select Tested, $2.00 each.

All queens are reared in strong vigorous colonies, and mated from populous nuclei. Safe arrival and satisfaction guaranteed.

Buy "Falcon" Queens and Increase Your Honey Yields!

W. T. Falconer Mfg. Company

Factory and Main Office
FALCONER, NEW YORK

Branch
117 No. Jefferson St., Chicago, Ills.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—Fancy and No. 1 white comb bring 15 to 16; white extracted, 12. Beeswax, 30.

Boston, Mass., July 3. BLAKE-LEE CO.

COLUMBUS.—No new honey on the market. The old crop of fancy white is selling at 17. Market is wanting supplies.

Columbus, O., July 3. EVANS & TURNER CO.

BUFFALO.—There is not much doing in honey now. People do not care for honey in hot weather. If grocers do sell out they try to wait for new honey instead of buying any more old. There is not much white left in our market, and no new arriving. White-clover comb honey brings 14 to 17; dark, 9 to 10; white extracted, 8½ to 9; dark ditto, 6½ to 7. Beeswax, 28 to 30.

Buffalo, N. Y., July 7. W. C. TOWNSEND.

ZANESVILLE.—The excessively warm weather has practically destroyed the demand for honey, there being almost no call for it at the present time. This is rather unusual, as a healthy demand usually marks the coming-in of the new crop on the local market. Locally the honey yield will be considerably heavier than anticipated, and this may temporarily lower prices, though indications are that prices are likely to be rather high and firm. Producers are being offered for beeswax 28 cts. cash, 30 in exchange for bee-supplies.

Zanesville, O., July 4. E. W. PEIRCE.

LIVERPOOL.—Since we last reported, most of the stocks of Haitien have been cleared at full prices. In other, honey trade has been slow, old pile No. 1 Chilian being sold at $6.00 per cwt. to clear before the new arrival. The first shipment of Chilian, about 500 barrels, has just arrived, and as yet there are no sales to report, neither are there any fresh features to report in other descriptions, and the quotations are: Chilian, $5.52 to $6.72; Californian, $8.40 to $10.48; Jamaican, $6.00 to $6.72; Peruvian, $3.84 to $4.80; Haitien, $6.00 to $7.56. Having been in short supply, recent arrivals of wax have sold very well, chiefly at $38.72 per cwt. for medium yellow Chilian. Buyers expect a decline as soon as further lots come in, and prices have eased off considerably this shipment. We quote to-day, African, $33.64 to $34.48; American, $36.28; West Indian, $32.64 to $36.48; Chilian, $33.88 to 39.92.

TAYLOR & CO.

7 Tithebarn St., Liverpool, Eng., June 21.

Now for 1911 Bee-Supplies

We have already received several carloads of that "finest of all Beeware"—Falconer make—anticipating the heavy rush of orders sure to come this spring. Prepare yourself Now, Brother, for we are going to have a heavy honey yield this season, and those who order early are the ones who will profit most. Send for our catalog to-day, and see our "MUTH SPECIAL" Dovetailed Hive, and also our "IDEAL METAL" cover—both DANDIES. We sell you cheaper than the rest; we have the best. Let us figure on your wants—we will surprise you.

THE FRED W. MUTH CO.

51 Walnut Street "The Busy Bee Men" Cincinnati, Ohio

Honey-Harvest Days are Here!

It is possible that, on account of conditions, you did not order any extra supplies; and now that the honey is coming in fast, you find yourself short of some important items. This is where we come in. Our stock is large and complete, and we are ready to fill your orders immediately on receipt.

Shipping-cases

Having produced a fine crop of honey, it is folly to market it in any thing but the best and neatest package. Good shipping-cases add much to the value of your honey, and you can not expect to secure the highest price unless your package as well as your product is the best. We supply all kinds of honey-packages—cases, bottles, cans, cartons, etc.

Sections

We sell the best grade of sections made. If you want a hundred or ten thousand or a hundred thousand, we can fill your order promptly with goods which are bound to please. You may judge of the popularity of these sections when we tell you that the manufacturers make upward of twenty-five million of them every season.

Foundation

Another article we handle in considerable quantities is Comb Foundation. There is nothing more important to the up-to-date bee-keeper than to have foundation just when he needs it, and of the best quality. We sell nothing but Root's Weed-process Foundation, the recognized standard of the world. The bees appreciate the good points of this foundation, and every bee-keeper knows that it is the best. All grades and sizes constantly on hand. A pound or a ton, just as you like.

Shipping

Whether you are ordering in ample season or whether you have put off until the last moment, you may rest assured that our service will give you delivery of goods at a minimum of expense and time. Having so many years' experience in this work, we know the best routes and we have the best facilities for serving you. Just tell us your needs briefly and send us definite orders, and we will demonstrate what we can do for you.

Power Honey-extractors

A thirty-two-page booklet that has a lot of valuable information for the bee-keeper who produces extracted honey. A copy free on request. Catalog and price list of the best bee-supplies made, for the asking.

C. H. W. Weber & Co.

2146 Central Ave. Cincinnati, Ohio

Gleanings in Bee Culture

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Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, Mrs. H. G. Acklin.

$1.00 per year. When paid in advance: 2 years, $1.50; 3 years, $2.00; 5 years, $3.00.

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Extracted HONEY Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

CHICAGO.—Up to this writing, none of the yield of 1911 has appeared on this market in the form of comb honey. California does not seem to have any to spare, and it is too early for sections this side, as a rule, the trade not taking kindly to the amber grades. Extracted of the new yield has come forward to a limited extent, and it is being sold at from 8 to 9, according to color and quality, with very few sales. Beeswax is meeting with good demand at from 31 to 32, if clean and of good color.

Chicago, Ill., July 5. R. A. BURNETT & Co.

CINCINNATI.—The market is bare of comb honey. There is as yet no new to offer, and it will be hard to tell just what it will bring. We are selling water-white extracted honey, put up in 60-lb. cans, at 10 cts. There is no new white-clover extracted honey as yet to hand. Amber honey in barrels is selling at 7. Beeswax is in fair demand at $33.00 per 100 lbs. These are our selling prices, not what we are paying. C. H. W. WEBER & Co.

Cincinnati, Ohio, July 1.

ST. LOUIS.—The receipts of Southern honey have not been large, and arrivals are well cleaned up on receipt. Comb honey is out of season at the present time. We quote fancy white comb honey nominal at 15 cts.; No. 1, at 14; choice amber, 12 to 13; southern extracted honey, in barrels and half-barrels, 7; same in five-gallon cans will bring ½ ct. more. Beeswax is in good demand at 30 cts. for prime; impure and inferior, less. L. HARTMANN PRODUCE Co.

St. Louis, Mo., July 3.

CINCINNATI.—Extracted honey is moving quite lively. For amber honey we are getting from 6 to 7½, according to quality; for fancy table honey, from 8 to 10 in crates of two 60-lb. cans. We have already received a number of shipments of comb honey, which found ready sale at 16 to 17½ in 24-section cases. The above are our selling prices, and we must buy at even better prices than these. For choice bright yellow wax, free from dirt, we are paying from 29 to 30.

Cincinnati, July 3. THE FRED W. MUTH Co.

Goldens that are Goldens

It has taken 20 years to perfect this race of "My Goldens," and they will winter anywhere, produce as much honey, and almost stingless. Try them and you will be satisfied. . . Untested, $1.00; twelve, $10.00. Tested, $3.00. Send for price list and circular. . . NO CHEAP GOODS.

GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Queens . . . Queens

200 to 300 per month. Untested, $1.00; tested, $1.25; select tested, $2.00; breeders, $3.00. Nuclei, full colonies, bees by the pound. Have letter from the State certifying my bees are free from foul brood.

Frank M. Keith, 83½ Florence St., Worcester, Mass.

BEES AND SUPPLIES!

Now is the time you are in a hurry for those bee goods. We have them waiting for you. . Italian queens, $1.00; full colony in a hive, $9.50. ' .

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK

Apiaries, Glen Cove, L. I.

PATENTS

25 YEARS' PRACTICE

CHAS. J. WILLIAMSON, Rooms 304 to 307, Savings Bank Bldg., 7th and E. Sts., WASHINGTON, D. C.

Patent Practice in Patent Office and Courts.

Patent Counsel of The A. I. Root Co

INDIANAPOLIS.- Demand is good, but offerings as yet are limited. Fancy white comb is being offered at 17; No. 1 white comb at 15; best extracted in five-gallon cans at 11; slightly lower prices on quantity lots. Producers are probably being paid about 2 cents less per pound than above quotations. Beeswax is in good demand, and producers are being paid 28 cents cash or 30 in trade.

Indianapolis, Ind., July 3. WALTER S. POUDER.

CHICAGO.—There is practically no activity in the honey trade, which is nothing unusual at this time of the year. Stocks of extracted honey are cleaned up, but there does not seem to be any scarcity of comb honey. There are no established prices as yet on new honey. We are realizing for last season's crop 15 to 16 for No. 1 white comb honey; 12 to 14 for No. 2 white; 10 to 12 for darker and off grades. White extracted is selling at 8 to 8½; light amber, 7¼ to 8. Bright pure beeswax is in good demand at from 30 to 32.

Chicago, Ill., July 5. S. T. FISH & Co.

NEW YORK.—We have nothing to report on comb honey. Fancy white and No. 1 are pretty well cleaned up. There is some little demand at from 14 to 15. Off grades, mixed and buckwheat, are not wanted, and some of these will have to be carried over. Extracted is in good demand. New Southern stock is arriving quite freely, and sells at from 65 to 85 cts. per gallon, according to quality. There is no new crop from California on the market as yet, and we do not expect to have any for a month to come. Beeswax is quiet at 30.

New York, July 3. HILDRETH & SEGELKEN.

DENVER.—We are beginning to receive small lots of new-crop comb honey, which moves readily at the following figures in a jobbing way: No. 1 white, per case of 24 sections, $3.60; No. 1 light amber, $3.38; No. 2, $3.15. No change from last quotation on extracted. We pay 26 cts. cash, 28 in trade, for clean yellow beeswax delivered here.

THE COLORADO HONEY PRODUCERS' ASS'N.

Denver, Col., July 5,

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873 CIRCULATION 35,000. 62 pages Semi-monthly

A. L. BOYDEN, Advertising Manager

ADVERTISING RATES.

Twenty-five cents per agate line, flat. Fourteen lines to inch.
SPACE RATES. To be used in one issue: One-fourth page, $12.50; one-half page, $25.00; one page, $50.00.
Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover, 50 per cent additional.
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Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount if paid in 10 days, 2 per cent.
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No medical or objectionable advertising accepted.
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BEES PAY BIG

and require little care. All the little honey-gatherers and money-makers demand of you is to provide a home for them. They make the honey and you get the profit. What little work you must do can be made 100 per cent. easier and your profits 100 per cent. bigger if you have the

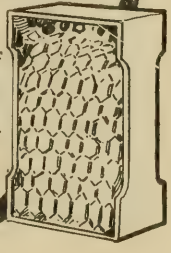
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If you are a bee-keeper or are thinking of going into the bee business you ought to have our beautiful illustrated **New Bee Book**—just off the press. It's a complete guide to profitable bee culture. Tells you how to buy bees, what kind are best, where to locate the hives, how to care for them summer and winter, how to prepare the honey for market—in fact it tells you all you need to know to make bees highly profitable as a business or a side-line.

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We sell everything the bee-keeper needs and can save you money whether you keep few bees or many. Buy direct from headquarters at rock-bottom prices. Get our bee book and save money. Write now for a copy as the edition is limited.

Blanke Mfg. & Supply Co., Blanke Building
St. Louis, Mo.
Successors to Blanke & Hauk Supply Co.



CALIFORNIA QUEENS. . . .

From The A. I. Root Co. $12.00 Breeder and J. M. Davis Select Stock. . We offer 1000 select untested queens (three-banded Italians) in lots of twelve and upward at $9.00 per dozen; $70.00 per hundred, cash with order. . All queens reared in full colonies, above queen-excluder, and mated in large nuclei. . Fifteen years' experience in queen-rearing and honey production. . . . Address

H. L. WEEMS, WASCO, CALIFORNIA
Supt. Bee Dept., Kern County Land Co.

If YOU Want Them YELLOW Try the GENTLE



Strain of Swarthmore Pedigreed GOLDEN Queens, Swarthmore, Pa.

ROOT'S GOODS FOR WESTERN PENNSYLVANIA

Prompt and satisfactory service. . Save time by ordering here. . . Get a catalog at once.

GEORGE H. REA, REYNOLDSVILLE, PENN.
Successor to Rea Bee & Honey Co.

CHAS. ISRAEL & BROS.

488-490 Canal Street, NEW YORK
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments solicited. Established 1875.

GOLDEN ITALIAN QUEENS, 75 cts.

Six for $4.00; twelve for $7.50. After as bad a spring as I have ever known, conditions have improved, and we've finequeens now.

J. B. CASE, PORT ORANGE, FLORIDA

Clark & Pike

LANDSCAPE ENGINEERS
. . WILLOUGHBY, OHIO . .

Protection Veil. . . .

Postpaid, all cotton, 50c; silk face, 60c; all silk, 90c; with B, or ballast cord, 10c per veil extra. Flexible-rim bee-hat, 30c. Oil duck gloves, long sleeves, 35c.

The heavy ballast cord (B) is a new feature to keep the veil from blowing in on the face. The cord A runs around the lower edge of veil, holding it down snugly on shoulders away from the neck, making a tight fit so bees do not get under. Cord C is a short one with loops in ends with cord A running through them, making it adjustable.

Middlebury, Vt., May 26, 1911.

A. G. Woodman Co., Grand Rapids, Mich.

Veils received, and we think the ballast-cord a great improvement in your veil, which was already the best to be had. J. E. CRANE & SON.

A. G. Woodman Co., Grand Rapids, Mich.



LEWIS BEE-WARE SHIPPED PROMPTLY

ARND HONEY & BEE-SUPPLY CO. (Not Inc.)
Successors to YORK HONEY & BEE-SUPPLY COMPANY

148 W. Superior St. Chicago, Ill.
Send for catalog. ENOUGH SAID.

Have You Delayed Getting Your Supplies?

As the years go by, bee-keepers are ordering their goods during the winter months.

A few there are as yet who wait till the last minute, even waiting till the bees swarm and are hanging on the trees, before ordering hives.

Are you one of the last, or are you one of those "looking ahead"?

The A. I. Root Company

Syracuse, N. Y.

BANKING BY MAIL

4%

Deposit your savings here, pending permanent investment.

The advantages offered are: Unquestioned safety and four per cent interest, compounded semi-annually.

This bank is under the supervision of the State, and its strict laws.

Its officers and directors are successful men.

Write to-day for booklet explaining our convenient banking-by-mail system.

Resources $1,000,000

Under ordinary circumstances all or any part of your deposits may be withdrawn at will.

The Savings Deposit Bank Company. . . Medina, Ohio

A. T. SPITZER, Pres. E. R. ROOT, Vice-pres.
E. B. SPITZER, Cashier

We Save You Money!

We Manufacture Dovetailed Hives, Sections, Shipping-cases, Broodframes, Separators, Section-holders, Berry Crates and Boxes.

QUALITY Our hives are made of best grade white pine, cut accurate and smooth to standard measure. Sections are of basswood, polished on both sides. There are no better goods made.

PRICE Our factory is well equipped, and we make goods as cheap as or cheaper than anybody else. We sell first hand, and can save you the middleman's profit. Will quote delivered prices by return mail, if you state your wants. Our prices will surprise you.

SERVICE We carry a complete line of everything used in the apiary—foundation, smokers, and extractors always on hand. Shipping facilities are as good as can be found anywhere. We want your business; no order is too small for careful attention; none too large for us to handle. We guarantee prompt and satisfactory service. Catalog is free.

Minnesota Bee-Supply Company

Minneapolis, Minn.

COMB-HONEY OUTFIT No. 5

It is a matter of some difficulty for the average beginner to decide exactly what he requires as an outfit for the first start in bee-keeping. To relieve the beginner of all perplexity we list certain outfits which we think will meet his needs. The one we give below is what may be fairly considered the best. Each item has been very carefully selected, and we doubt the wisdom of leaving any article out; but the purchaser may do so without altering the prices on the other items.

1 A B C and X Y Z of Bee Culture (536 p.),	$1.50
1 copy "Facts about Bees"	.10
1 year's subscription to "Gleanings," .	1.00
1 Root Smoker	.65
1 pair cotton bee-gloves (small, med., or large)	.50
1 silk-front bee-veil	.60
1 full col. Italian bees in Danzenbaker hive (Complete with 32 section honey-boxes)	12.00
1 untested Italian queen	1.50
2 Danz. hives complete for comb honey . (Nailed and painted, ready for the bees)	6.80
1 Porter bee-escape and board . . . . (For taking honey from the bees)	.35

Special Offer Delivered at any express office north Ohio River and east Mississippi River **$25.00**

For delivery to points outside of the above free limit, we will make terms on application.

The colony of bees is as near perfect as we can make them. The combs are beautifully straight and well filled with brood. The breeding of the queen is of the very best, so that one has the nucleus of a fine stock of bees. In many cases a return of $10.00 in honey has been secured the first year from just such an outfit as this, and in addition one or two swarms may be secured, which practically doubles the value of the investment. Order at once.

The A. I. Root Co., Medina, Ohio

Bee-keepers who Have

THOROUGHBRED CHICKENS

and want to sell eggs and stock at good prices should use space under the POULTRY heading in the

Classified Pages

In proportion to the cost it is doubtful if any other medium offers as good an opportunity for profitable returns on such offerings as

Gleanings in Bee Culture

Read this from one of our satisfied advertisers:

> "I will say that what little advertising we did in GLEANINGS has brought us about all the business we can attend to this season."

—and others say the same.

Read the POULTRY advertisements yourself. Read Mr. A. I. Root's talks on CHICKENS—advertise in GLEANINGS, and GET results.

Shipping-cases...

It pays to pack your honey in neat cases. We have them.

Five-gallon Cans

Two cans in a case. The standard package for extracted honey.

Sections and Foundation

here for immediate shipment.

Extractors.....

All sizes.
All "Root Quality."

Beeswax Wanted..

We pay 28c cash, 30c in trade for average wax delivered here.

We Buy Honey..

What have you?

M. H. HUNT & SON

Opposite Lake Shore Depot

Lansing, Michigan



"If goods are wanted quick, send to Pouder." . . . Twenty-second Year.

BEE-SUPPLIES

A large and complete stock of the Root Goods offered at the factory schedule of prices. My system of rotating does not permit any accumulation of old stock. My comb foundation is always fresh from the mills; my sections fresh and bright, and hives have all latest improvements. I accept beeswax in payment for goods, or I will pay highest market price for wax in cash. I am in need of more wax at all times.

My **Perfection Tight-seal Jars** are acknowledged as being the best for extracted honey, and I assume all responsibility in shipping, guaranteeing safe arrival. I mean exactly what I say.

My new **Paper Honey-jars** are cheap enough for retailers to give away with their honey. No more waiting to exchange jars or crocks when you deliver your honey. My catalog tells all about these things, and is sent free.

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Boston Is the Shipping Center of **New England**

Bee-keepers should bear this in mind when ordering their supplies. . A full line of supplies always in stock. . . . . Send for catalog.

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remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

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NEW ENGLAND BEE-KEEPERS!

EVERY THING IN SUPPLIES
NEW GOODS
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For Boys and Girls:
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Doolittle's "Scientific Queen-Rearing" and the American Bee Journal a Year . Both for only $1.00

Every Bee-keeper Should Have Both Book and Bee Paper



DOOLITTLE'S "Scientific Queen-Rearing" book contains 126 pages, and is bound in leatherette with round corners. It tells in the clearest way possible just how the famous queen-breeder, Mr. G. M. Doolittle, rears the best of queen-bees in perfect accord with Nature's way. It is for both amateur and veteran in bee-keeping. As all know, Mr. Doolittle has spent some 40 years in rearing queens and producing honey. He has no superior as a queen-breeder. You can learn to rear fine queens by following his directions.

You will not regret having this book, which also gives his management of the bees for the production of honey.

The book and the American Bee Journal for only $1.00 is certainly a *big bargain* for you. Sample copy of the Bee Journal free.



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"Griggs Saves You Freight"

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Will consider it a privilege to make you an estimate on a bill of goods if you will send him a list of what you want, with discounts. Goods can be shipped from Fremont, Mich.; Chicago, Ill., or Medina, O., whichever place will cost the less freight; or you can have the estimate to be delivered at your station freight prepaid.

He has the largest and most complete stock in his 25 years as a supply-dealer, and can ship promptly ALL ROOT'S GOODS, AT THEIR PRICES with SEASON'S DISCOUNT.

Bees, Queens, and three-frame Nuclei a specialty; Hilton's Superior Strain—see adv. in back numbers of Gleanings, and testimonials.

Beeswax wanted for cash or exchange.

Send for 50-page CATALOG to

George E. Hilton

Fremont, Mich,

GOLD MEDALS
St. Louis Exposition, 1904
Jamestown Centennial, 1907



Danzenbaker Smoker

Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT GRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

The **ONE-PIECE** cap **CAN NOT clog.** It is the **COOLEST, CLEANEST, STRONGEST, BEST,** and **LARGEST NET CAPACITY** of all smokers, selling at one dollar ($1.00). We **GUARANTEE SATISFACTION** or **return** the price; only three complaints in **six years.**

Dan-z. 3½x7½-inch Prize Smoker, $1.00; by mail $1.25
With "Gleanings," $1.00 per year, and Prize Smoker, by mail 1.75
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We send propolis shields with Danzenbaker Hives and Supers, and sell anything in the Bee-line at factory prices, also select three-banded Italian queens and bees.

Please send address of yourself and B-friends for FREE catalogs and prices on Bee-supplies, Bees, Queens, Hives, Sections, and Smokers. Address

F. Danzenbaker, 68-70 Woodside Lane, Norfolk, Va.

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BEE-KEEPERS, you are now in need of bees and queens. . Get your stock where it has proven its quality. . I can now supply you with the best strain of ITALIAN QUEENS, untested, warranted, tested and select tested. BEES by the pound, on the comb, and full colonies. These are all bred from mothers noted for their prolificness and honey-gathering qualities, and will prove satisfactory in every case. . .

Send for Price List.

Earl M. Nichols

Successor to W. W. Cary & Son

Lyonsville, Massachusetts

Root's Section-Honey Boxes!

THERE have been very few years when the outlook for a bumper honey crop has been brighter than it is now—at the opening of the season of 1911. Every indication points to an almost unprecedented honey-flow, and the bee-keeper who is not making most complete preparations to reap the harvest will not be very well satisfied with himself when the surplus has all been taken off this fall, or when he knows a big flow is on and he has no sections to put on his hives.

Of course the section problem is the most important one to the comb-honey man, and it MUST be solved right. Therefore why take risks? Why run the slightest chance of getting sections of uncertain quality, or experimenting at a price you can not afford to pay. We are the largest manufacturers of Section-honey Boxes in the world—naturally we have the finest equipment for section-making and cut up the best lumber. We are in close touch with every phase of bee-keeping—with every department of the honey trade—therefore we know the service sections are required to give, and we make ROOT'S SECTION-HONEY BOXES to meet these requirements. Years of experience and satisfied section patrons throughout the world ought to count, and you, Mr. BEE-KEEPER, if you will buy ROOT'S SECTIONS will understand why.

Price List of Sections

4¼x4¼ Beeway Sections—2 inch, 1⅞, 1⅞, 1¾, or 7 to foot wide.

We send 1⅞ style 2 beeway when your order does not specify style or width wanted.

No.	A	B	Weight
100	$ 80	$ 70	7 lbs.
250	1 60	1 40	18 "
500	2 75	2 50	35 "
1000	5 50	5 00	70 "

Plain or No-beeway Sections — 4¼x4¼x1½, 1⅝, or 1⅜; 4x5x1⅜ or 1½; or 3⅝x5x1½.

We send 4¼x1½ plain, or what will fit other items in your order, if you do not specify.

No.	A	B	Weight
100	$ 80	$ 70	6 lbs.
250	1 60	1 40	15 "
500	2 75	2 50	30 "
1000	5 25	4 75	60 "

Price of larger quantities quoted on application.

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It has been proven BEST by TEST by many leading bee-keepers.

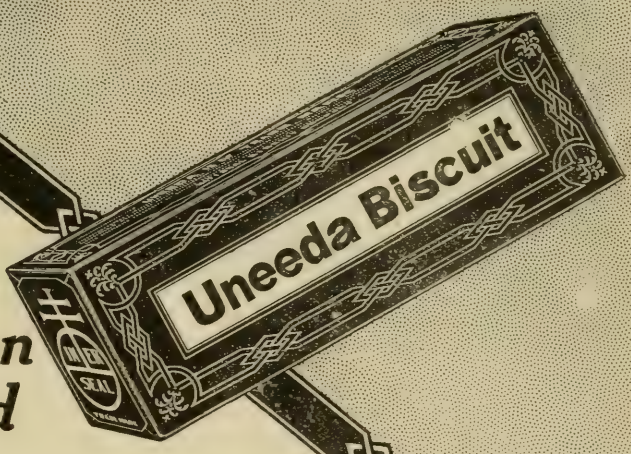
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Why use any other make?

Drop us a line and we will tell you where you can get our goods near you, and save time and freight.

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It is an incentive to hunger to see Uneeda Biscuit made.

All materials are of the finest quality —clean, nutritious. The dough is mixed in spotless trays in a spotless bakery. Rolled thin; baked in wonderful ovens scientifically heated to give just the right crispness; then packed into the moisture-proof packages that keep them fresh, crisp and clean till eaten.

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Where will you spend your summer vacation? Why not enjoy the charms of our Inland Seas, the most pleasant and economical outing in America?

WHERE YOU CAN GO

All the important ports on the Great Lakes are reached regularly by the excellent service of the D. & C. Lake Lines. The ten large steamers of this fleet are of modern steel construction and have all the qualities of speed, safety and comfort.

Daily service is operated between Detroit and Cleveland, Detroit and Buffalo; four trips weekly between Toledo, Detroit, Mackinac Island and way ports; daily service between Toledo, Cleveland and Put-in-Bay.

A Cleveland to Mackinac special steamer will be operated two trips weekly from June 15th to September 10th, stopping only at Detroit every trip and Goderich, Ont. every other trip.

Special Day Trips Between Detroit and Cleveland, During July and August

RAILROAD TICKETS AVAILABLE:—Tickets reading via any rail line between Detroit and Buffalo and Detroit and Cleveland will be honored for transportation on D. & C. Line Steamers in either direction.

Send 2 cent stamp for Illustrated Pamphlet and Great Lakes Map.

Address: L. G. Lewis, G. P. A., Detroit, Mich.

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How to Produce Extracted Honey

THIS is the title of a neatly printed, illustrated booklet, the second edition of which has just been published. Each operation in the process of extracted-honey production is explained in detail with photographic reproductions and drawings to make the text more plain. Beginning with the chapter on "Preparing Colonies for the Honey-flow," the booklet concludes with a description of "Packages for Extracted Honey." . . . Many helpful and valuable suggestions will be found within the 44 pages this booklet contains, and it is a pleasure to announce its addition to our Bee-keepers' 10-cent Library. Order by name or specify Number 25.

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West Coast Where Fortunes Are Made

GROWING

ORANGES, GRAPEFRUIT, VEGETABLES

¶Offers biggest returns for the smallest investment. Yields $500 to $1500 per acre net. Two and three crops per year—highest prices secured in the best markets of the East and North—low freight rates and quick transportation via the S. A. L. Ry.

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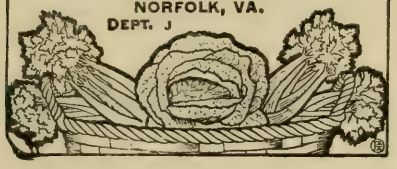
but prices are advancing—thousands of new settlers are taking advantage of the exceptional opportunities. Ideal, healthy climate, year round—plenty of high-class labor—abundant supply of pure water.

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The Duplex Fireless made of metal, has **Aluminum Lining** and aluminum vessels **Bakes and Roasts.** Is the most practical Fireless Cooker made. Write for special offer.

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THE "BEST" LIGHT



Gives 500 candle power. Casts no shadow. Costs 2 cents per week. Makes and burns its own gas. Over 200 styles. Every lamp warranted. No dirt. No odor. No grease. Agents wanted. Write for catalog, now.

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10,000 High Lifts Saved

Electric



Easy work for you, light draft for horses. The one unbreakable, low down handy wagon. Steel wheels, all heights and tire widths. Save rutting. Send for free book on labor saving farm hauling.

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PLENTY of ice cream and quick, too, if you have in the home a

Triple Motion White Mountain Ice Cream Freezer

The freezer that is made in every part to give you longest, most satisfactory service. And besides, it is quickest, easiest to operate. The triple motion cuts down the freezing time of the old-style freezer two-thirds.

And the ice cream is so much more delicious and so much more economical. The duplex dashers, revolving in opposite directions, whip and fluff the cream, giving it a velvety smoothness. And, at the same time, they largely increase the bulk.

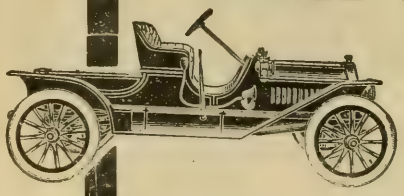
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Look for the Diamond Trademark on the Wrapper

THE BEE-KEEPER'S OWN CAR



Here is a car that is built for the up-to-date rural specialist — the man whose time and comfort are worth money to him.

In every part of the country its ability to take its owner anywhere, over any road, in any weather, is making it an invaluable investment to thousands.

SCHACHT MODEL E DELIVERY

There is no question that the Schacht is the staunchest, speediest under-one-thousand-dollar car on the market. Write today for our catalog and complete specifications.

We will make a special price on this car to bee-owners if purchased within the next thirty days.

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These recognized highest quality percales made, insure longest wearing qualities and richest effects. The designs are such as appeal to women of the most discriminating taste in dress. Yet the price (10c and up a yard) means lowest cost for correct apparel.

Ask your dealer for "Pacific Percales" and see that each piece bears this Pacific Mills trade mark, the guarantee of greatest value and newest conceptions.

If your dealer doesn't carry Pacific Percales, write us for free samples and list of retailers who will supply you.

PACIFIC MILLS - BOSTON, MASS.

Every Bee-keeper Should Own and Read

"The Manual of the Apiary"

By PROF. A. J. COOK

This interesting book is a very complete treatise on bees and bee-keeping, and is particularly valuable where one is interested in the anatomy and physiology of the bee, which has been very completely covered in this work. It is also valuable for its chapter on honey-plants, or bee-botany: 540 pages with good illustrations; bound in cloth. Price, by mail, $1.15; $1.00 by express or freight. . . Order from the author,

A. J. Cook, Pomona College, Claremont, Cal.
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HOW TO KEEP BEES

By ANNA BOTSFORD COMSTOCK

THIS is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning bee-keeping by their own effort. Having commenced bee-keeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in ordering this book. It is charmingly written and easily understood. Price $1.10 postpaid by

THE A. I. ROOT COMPANY, MEDINA, OHIO

Hand's Handsome Hustlers—

are a superior, honey-gathering strain of hardy, northern-bred, straight three-banded Italians — the result of years of careful selection and judicious breeding with a view of establishing fixed characteristics along chosen lines. Our queens are not only large, vigorous, handsome, and prolific, but by reason of a judicious system of line breeding they have the power unerringly to transmit inherent tendencies of a highly desirable nature, such as hardiness, gentleness, and industry, as well as uniformity of marking, which makes them especially valuable as breeders.

Warranted, 75c; six, $4.00; dozen, $8.00. Tested, $1.00. Breeders, $4.00. Half-pound package of bees, no queen, $1.00. Add price of queen to half-pound packages. No disease. Safe delivery and satisfaction guaranteed. Circulars and valuable information free.

J. E. Hand, Birmingham, O.

QUEENS

and bees — an improved superior strain of Italians is what QUIRIN RAISES. All yards winter on summer stands with practically no loss. Our stock is hardy, and will ward off brood diseases.

In the spring of 1899 we sent fifty nuclei to J. D. Nixon, Lafarge, Wis., and on July 20th (same year) he wrote us, saying they did just splendid, as at that writing they had already filled their supers, and that he would have to extract them. We have files of testimonials similar to the above.

Prices after July 1	1	6	12
Select queens	$ 75	$ 4 00	$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	
Golden five-band breeders	5 00		
Two-comb nuclei, no queen	2 25	12 00	22 00
Three-comb nuc., no queen	3 25	18 00	32 00
Full colonies on 8 frames	5 00	25 00	

Add price of whatever grade of queen is wanted with nuclei and colonies: nuclei and colonies, if shipped before June 1st, add ¼, or 25%, extra to above price. No order too large and none too small. Will keep 500 to 1000 queens on hand ready to mail. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

QUIRIN-THE-QUEEN-BREEDER, BELLEVUE, O.

Queens of MOORE'S STRAIN of ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. My queens are all bred from my best long-tongued, three-banded, red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES—Untested queens, $1.00 each; six, $5.00; dozen, $9.00. Select untested, $1.25 each; six, $6.00; dozen, $11.00. Safe arrival and satisfaction guaranteed. Descriptive circular free.

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. Moore, Queen-breeder, Rt. 1. Morgan, Ky.

Miller's Strain Red-clover Italian Queens

By Return Mail or Money Refunded

Bred from my superior breeder for business; gentle; no better hustlers; bees just roll honey in; three-banded; northern bred; hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored, long-tongued, red-clover strains. Untested, 75c; six, $4.00; dozen, $7.50. Select untested, $1.00; six, $5.00; dozen, $9.00. Circular free. Satisfaction guaranteed. Isaac F. Miller, of Reynoldsville, Pa., a queen-specialist, is my apiarist and manager, who has been before you quite a number of years. **J. S. MILLER, Rt 2, Brookville, Pa.**

. . THE . .

IMPERIAL-ROYAL AGRICULTURAL ASSOCIATION

Ljubljana, Carniola (Krain), Austria

Exports only pure Carniolan Alpine bees. Write for booklet and price list.

ITALIAN QUEENS

Nuclei, Bees by Pound. Ten-page descriptive list free. Untested, $1.00. Reduced rates July 1. List to select from, clubbing "The Pearce Method of Bee-keeping," price 50 cts., with a guaranteed queen for $1.10. Books by return; queens after June 10. Leaflets, "How to Introduce Queens," 15c; also "Increase," 15c; both for 25c. Send for list.

E. E. MOTT, Glenwood, Mich.

LOCKHART'S - SILVER - GRAY - CARNIOLANS

"LINE BRED" for the past 25 years. They are VERY hardy, gentle, prolific, great workers, and builders of VERY WHITE combs, and use mostly wax in place of propolis. Untested queen, $1.00; six for $5.00; dozen for $9.00. Select untested queen, $1.25; six for $6.00; dozen for $11.00. Tested queen, $2.00; six for $9.00; dozen for $15.00. Select tested, $3.00. Best breeder, $5.00. Extra select, the very best we have, $10.00. Prices of nuclei and full colonies quoted on application. Safe arrival guaranteed in United States and Canada. No foul brood here.

F. A. LOCKHART & CO., Lake George, New York.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

FOR SALE.—Clover honey in new 60-lb. tin cans.
C. J. BALDRIDGE, Homestead Farm,
Kendaia, N. Y.

FOR SALE.—New clover honey, $4.00 per case of 24 sections; extracted, in 60-lb. cans, 10 cts. per lb.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—New crop of amber alfalfa and white mesquite honey in car lots. New cases and cans. Correspondence solicited.
ARIZONA HONEY EXCHANGE, Tempe, Arizona.

FOR SALE.—Pure California sage extracted honey put up in five-gallon tins, two tins to the case. For samples and prices address RATHER BRO'S,
Managers Hemet Valley Bee-keepers' Asso'n,
Hemet, Cal.

FOR SALE.—Both comb and extracted honey. Our honey possesses that distinctive flavor of the wild flora from which it is gathered, and which many people prefer to any other. The conditions of production are favorable for a gilt-edge article. Samples. F. B. CAVANAGH, Hebron, Ind.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—Honey and wax. Please quote delivered price. J. E. HARRIS, Knoxville, Tenn.

WANTED.—Comb and extracted honey. Send a sample, with price f. o. b. at your station.
ARTHUR J. SCHULTZ, Ripon, Wis.

WANTED.—We wish to buy white extracted and fancy comb honey in small or car lots. We pay cash on arrival. Send a small sample of extracted. State price, and we will advise by return mail.
E. R. PAHL & COMPANY, Milwaukee, Wis.
Established in 1894.

SOUTHERN BEE-KEEPERS.—When your honey is ready for market, write us. Will buy outright or handle on commission. Send samples with full particulars. Are paying 30 cts. per pound, net, f. o. b. New York for choice yellow beeswax.
HILDRETH & SEGELKEN, New York.

Position Wanted

WANTED.—A position the rest of the season and winter in a large bee and honey business; ten years' experience. ERNEST W. FOX,
Black River Falls, Wis.

WANTED.—A young German of good habits and several years' experience desires position in a large apiary for the production of comb and extracted honey. State wages and conditions in first letter.
A. HOFER, Box 547, Escalon, Cal.

Help Wanted

WANTED.—Middle-aged lady wishes a lady partner in poultry and bee-keeping.
ELLA HANEY, Perkasie, Pa.

For Sale

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

I solicit your orders for Root's peerless goods. Catalog on request.
L. W. CROVATT, Box 134, Savannah, Ga.

Two-frame Root extractor, automatic reversing, with brake; used slightly one season only. Price $10.00. ELLA M. BERGER, Muncy, Pa.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—Root's bee-supplies and American honey-cans. Finest warehouse and largest stock between Missouri River and Pacific Coast assure prompt shipment at low prices.
SUPERIOR HONEY CO.,
Idaho Falls, Ida., and Ogden, Utah.

Bees and Queens

FOR SALE.—Italian queens, untested, $1.00; 6 for $5.00. E. A. SIMMINS, Greenville, Ala.

Italian queens, 75 cts.; tested, $1.00; breeders, $5.00.
W. T. HELLYER, St. Louis, Mo.

Queens (hybrid) from New Hampshire, 50 cents.
W. B. BURLINGAME, Exeter, N. H.

Bees and queens of quality. Supplies. Catalog.
Stringham, 10 Park Place, New York City.

FOR SALE.—125 colonies of bees; house and lot, horse and buggies. C. D. TOWNSEND, Muir, Mich.

FOR SALE.—Italian queens, 50 cents each.
J. F. MICHAEL, Winchester, Ind.

Italian queens, Doolittle strain direct. Untested, 80 cts.; dozen, $7.00. Catalog.
F. M. BABCOCK, Fredonia, N. Y.

Golden Italian queens and nuclei. No disease. Write for prices. J. H. WAGNER,
Box 305, Beatrice, Neb.

Missouri-bred Italian queens; none better; prices right. Write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

Select Italian queens bred from the best honey-gatherers obtainable. Untested, $1.00; 6 for $5.00; 12 for $9.00. J. D. HARRAH, Rt. 1, Walla Walla, Wash.

SPECIAL.—Golden queens from now until Nov. 1, 60 cents each; $6.50 per dozen. Guaranteed purely mated. R. O. COX, Rt. 4, Greenville, Ala.

Italian queens, hustlers, 75 cents; after July 10, 60 cents; tested, $1.25.
MRS. J. W. BACON, Waterloo, N. Y.

Improved red-clover Italian queens bred from the best honey-gatherers obtainable. Untested, $1.00; 6 for $5.50; 12 for $10.00. J. H. GIBBS, Berlin, Md.

FOR SALE.—25 colonies of the finest red-clover Italian bees at $6.00 per colony.
F. M. MAYBERRY, Lederach, Pa.

FOR SALE.—Golden Italian queens. Tested, $1.00; select tested, $1.25; untested, 60 cts.; dozen, $7.00.
D. T. GASTER, Rt. 2, Randleman, N. C.

Golden and red-clover Italian queens; superior stock. Write for prices. WM. A. SHUFF,
Aldan, Delaware Co., Pa.

Golden queens, untested, $1.00; select untested, $1.50; breeders, $5.00 to $10.00; also Root's bee-supplies. Write for catalog. ROB'T INGHRAM, Sycamore, Pa.

FOR SALE.—Sixteen colonies of Moore and other three-banders in Danz. and Dovetailed one-story hives at $3.00 each. No disease. S. A. PECK,
Northumberland, Pa.

FOR SALE.—Italian queens, untested, 75 cts.; tested, $1.00. Bees by the pound, nucleus, or full colony. Red-clover bees. EUGENE S. WATSON,
Rt. 2, Madison, Maine.

WANTED.—To buy an apiary in Southwest Wisconsin or Illinois, on the Illinois River. Must be healthy and cheap. H. C. AHLERS,
West Bend, Wis.

FOR SALE.—500 colonies of bees; apiary sites; house, land, fixtures; will sell cheap if taken at once. MCCLUGHAN & DEXTER,
Albuquerque, New Mexico.

FOR SALE.—Westwood red-clover queens and bees; nuclei and full colonies a specialty.
HENRY SHAFFER,
2860 Harrison Ave., Station L, Cincinnati, O.

Three-banded Italian bees and queens; nuclei and bees by the pound. Send for prices. Also bee-supplies, day-old chicks, and growing pullets. Catalog.
DEROY TAYLOR, Lyons, N. Y.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Bradley's Store, Va.

Italian queens, good as the best; untested, 75 cts.; tested, $1.00. Shipments begin April 1st for bees by the pound and nucleus. Write for prices.
C. B. BANKSTON, Buffalo, Leon Co., Texas.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction.
W. W. DAKIN, Hood River, Ore.

High-grade Italian bees. Colonies, $8.00; queens, tested, $1.25; untested, 85 cts.; 1 lb. bees, $1.50; ½ lb., 90 cts. My bees get the honey. Try them. Satisfaction guaranteed. GEO. H. REA, Reynoldsville, Pa.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

Italian queens from Moore's queens; also queens from Italy; mated with drones from Doolittle stock—no other bees near them; no foul brood. Untested, $1.00; 6, $5.00; 12, $9.00.
P. B. RAMER, Harmony, Minn.

Golden queens—very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Good vigorous hybrid queens, 35 cts. each; good tested Italians, one year old, 75 cts.; select young Italians, $1.00; select tested, $1.50. Safe arrival guaranteed any distance. Money refunded or queens replaced if not satisfied. E. W. BROWN,
Box 171, Willow Springs, Ill.

QUEENS! QUEENS!—Fine Italian queens ready to mail; satisfaction guaranteed; reared exclusively from Root's and Davis' stock. We cull our virgins. Three-banded untested, 60 cts.; ½ doz., $3.50; dozen, $7.00; tested, $1.00; select tested, $1.25. Our Golden yard is 3¼ miles from three-band. Price of golden the same as three-band.
H. B. MURRAY, Liberty, Randolph Co., N. C.

FOR SALE.—Italian queens, bred from the best honey-gathering strain obtainable. Untested, 75 cts.; select, $1.00; tested, $1.25; select tested, $1.50; breeding-queens, $3.00; select breeding-queen, $5.00; nuclei without queen, one-frame, $1.25; two-frame, $2.00; three-frame, $2.75. For queens and nuclei in quantity lots, write for prices.
ROBERT B. SPICER, Wharton, N. J.

California queens from The A. I. Root Co.'s $12.00 breeder and J. M. Davis' select stock. We offer 1000 select untested queens (three-banded Italians) in lots of 12 and upward at $9.00 per dozen; $70.00 per 100, cash with order. All queens reared in full colonies above queen-excluder, and mated in large nuclei. Fifteen years' experience in queen-rearing and honey-production. Address H. L. WEEMS,
Sup't Bee Dep't Kern Co. Land Co., Wasco, Cal.

Poultry

April-hatched Indian Runner ducks, fawn and white; $2.00 each; $3.50 a pair; $5.00 per trio. White-egg strain. KENT JENNINGS, Mt. Gilead, Ohio.

Indian Runner duck-culture book. Information that a beginner is looking for; 75 cts., money order. Catalog for two stamps.
LEVI D. YODER, Box 50, Dublin, Pa.

INDIAN RUNNER DUCKS.—Full-grown young stock for sale, either fawn and white or penciled, from best strains in America. Eggs for hatching. All sales guaranteed as represented.
C. O. YOST, Rt. 4, Winchester, Ind.

FOR SALE.—Duston White Wyandottes, $2.00; 15 eggs, $1; $5 per 100. ELMER GIMLIN, Taylorville, Ill.

Buttercups for utility and beauty; selected pens; unlike others. H. V. MEEKER, Earl St., Toledo, O.

White-faced Black Spanish eggs for hatching; 15, $1.00; 50, $3.00; 100, $5.00. Also dealer in bee-keepers' supplies of all kinds. A. W. SWAN, Centralia, Kan.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St. Joseph, Mo.

Order your copy of "American Standard of Perfection" through GLEANINGS. The new edition of this greatest of all poultry-books is now ready. Beautiful plates show feather-markings, etc., of every standard breed. Price $1.50, postpaid, in cloth; $2.25 in morocco binding.
BUYERS' BUREAU, GLEANINGS IN BEE CULTURE.

Having more chickens than my back lot will accommodate without crowding, I am going to reduce my price one-half, on a setting of 15 eggs, to $1.50, from my $25.00 pen of S. C. R. I. Reds. Reports from purchasers of settings show a very high fertility of eggs. Special care used in containers for shipping eggs by express in the U. S., or by parcels post to foreign countries. L. W. BOYDEN,
682 West Liberty St., Medina, O.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, $1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school. W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1911; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 60 cts.; select, 75 c.; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices see large advertisement. QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

GRAY PRINTING CO., Fostoria, O. Make ENGRAVINGS for GLEANINGS

Convention Notices.

The following interesting article appears in the local newspapers of Rockland County, New York, in connection with a movement to localize interest in bee-keeping into a permanent organization of those in that section engaged in our craft. We print it because of its well-expressed truthfulness, and because it furnishes us with an opportunity to submit the same ideas to progressive farmers in other localities who desire to increase the general resourcefulness of their respective communities.

We intend to watch this event, and will report to our readers the results of the efforts of those who are behind it. We wish the event success, because it deserves to succeed; and from the enterprise of the bee-keepers behind it, we feel certain that it will.

"Of all the rural industries that appeal to the lover of the country, none is so interesting as bee-keeping. Whether this is due to the universal fondness for honey or the human appeal of the industry, foresight, and productiveness of the honey-bee we can not say. However, it is true that there is no rural art in which we can gain more pleasure and profit from so small an investment as the keeping of bees.

"If the ease with which the industry of the honey-bee can be controlled for our enjoyment were more generally a part of the rural experience of the suburbanite and country dweller, the bee-hive would be an inseparable adjunct to every suburban garden or farm orchard. With the modern hive and the simple appliances for the handling of bees, the bee-sting is a bogey which need deter no man or woman living in the country from taking up this most interesting and profitable pursuit. The wide prevalence in this section of the country of wild and cultivated flower, bud, blossoms, and fruit insures an abundance of the natural food of the bee.

"Increasing facilities of suburban transit making possible the living in the country of increasing numbers of our city population, and the desire of all country dwellers to avail themselves of every means, either to procure at little expense a most delightful table-dish or to add a fruitful item to the farm income, insure a wide audience for the subject of bee-keeping and honey-production. The alertness of the women-folks, which is the one great characteristic of the present age, will find in this subject a congenial field for their activity.

"The committee believe that any art that will increase the attractions of rural life, particularly when it embraces the field of domestic economy, should be cultivated, and the pleasure and profit of it made known to all.

"To that end a bee-day will be held at Rockland Lake Park, Congers, on Saturday, August 5, to which the people of Rockland and adjacent countries are most cordially invited. Arrangements have been completed whereby instructors and demonstrators of national prominence in the art of bee-keeping, with appropriate equipment, will lecture on this subject. An exhibit of hives and appliances will be held, showing the simplicity and ease of modern methods of bee control and honey-production.

"The thoroughness with which this subject will be demonstrated by those best qualified to speak thereon should appeal to every one interested in bee-keeping, whether he or she be a student novice or an experienced bee-keeper.

"The beauty of Rockland Lake, its accessibility and accommodations for handling large crowds, contribute no small part to the enjoyment of all who attend. THE COMMITTEE."

State Fair Premium List.

The Oregon State Fair will be held at Salem, Sept. 11—15. The following premiums are offered to bee-keepers:

Display of bees, observatory hive, not less than three cages	$10.00	$5.00
Display of apiarian products of one apiary	6.00	3.00
Display of apiarian implements	6.00	3.00
Display of queen-nursery and queens	2.00	1.00
Bee-hive	2.00	1.00
Comb honey in sections, 24 lbs	3.00	2.00
Three gallons of extracted honey	3.00	2.00
Five pounds of beeswax	2.00	1.00

F. MEREDITH, Sec., Salem.

Special Notices

By OUR BUSINESS MANAGER

BEESWAX WANTED.

Till further notice we will pay 28 cts. cash, 30 cts. in trade, for average wax, delivered here.

SECOND-HAND CANS.

We still have a good supply of good second-hand cans free from rust on the inside, and fairly bright outside. They would make an excellent container for dark or off grades of honey. We do not recommend any thing short of new cans for choice white honey. These cans are a bargain at $3.00 for 10 boxes of 2 cans each; $25.00 per 100 boxes; 50 boxes at 100 rate.

HONEY WANTED.

We are now in the market for a good grade of white honey suitable for our trade. Send us a sample with your name attached to package for identification. Write us at the same time, telling us from what source the honey was gathered, when you extracted it, and in what kind of package it is put; also if you are ready to ship it at once, or at what time you will be ready to ship it. Mention the price per pound that you want for it, delivered on cars at your nearest railroad station. We can use any amount, from a 60-lb. can or a small barrel, to several carloads, and from any place produced, provided the honey is light and does not have a too pronounced flavor.

BALING-TAGS.

In the manufacture of sections we produce a great many small pieces of the thickness and width of sections finished smooth, about 2 to 2½ inches long. We have been furnishing these to men in this vicinity, who bale up hay and straw, to use as tags in marking the weight of the bale. Because they are

a waste product we can furnish them very much cheaper than they could be made to order. Our price at present is $3.00 per barrel, and a barrel contains approximately 10,000 pieces, making them cost about 30 cts. per 1000. We can furnish more than we have been selling, and should be pleased to hear from any one with orders. Call your hay-balers' attention to this.

SECOND-HAND SHIPPING-CASES NAILED.

We have quite a number of shipping-cases in which we have received comb honey, which are cleaned up and in fair condition, which we offer crated up for shipment at the following special prices:

303 24-section cases for 4¼x1⅞ sec., 9 for $1.00; $10.00 per 100.

65 24-section cases for 4¼x2 sec., 9 for $1.00; $6.00 for lot.

67 24-section cases for 4¼x1¾ sec., 9 for $1.00; $6.00 for lot.

33 12-section cases for 4¼x1⅞ sec., $2.00 for lot.

22 24-section cases for 4x5x1⅞ sec., $2.00 for lot.

21 24-section cases for 3⅝x5x1½ sec., $2.00 for lot.

OLD-STYLE HONEY-EXTRACTORS.

We still have a few old-style honey-extractors without slip gear and ball bearing or the latest die-molded gears, No. 25, four-frame Root automatic, at Medina, which we will sell at a special price of $15.00 each. Here, certainly, is a bargain.

At Des Moines, Iowa, several No. 15 Cowans which we will sell at $10.00 each.

At Chicago, No. 4 Novice for short frames at $7.50 each, or No. 10 Novice at $8.50 each. A No. 20 Cowan for extra-large frames, offered at $12.50.

At Philadelphia a No. 4 Novice at $7.50. A No. 17 Cowan at $11.00. A No. 18 Cowan at $11.50. A No. 25 four-frame automatic at $16.00.

At New York, a No. 17 Cowan for $11.00.

At Washington, D. C., a No. 15 Cowan for $10.00, or a No. 15 automatic for $11.50.

At Mechanic Falls, Me., No. 15 Cowan at $10.00 each. No. 4 Novice at $7.50 each.

SECOND-HAND FOUNDATION-MILLS.

We have to offer the following list of foundation-machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0117, 2x10 round-cell medium-brood mill in good condition. Price $14.00.

No. 0121, 2¼x10-inch heavy hex. brood mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price $8.00.

No. 0129, 2x10 round cell medium-brood mill, old-style frame, in good condition. Price $14.00.

No. 0132, 2x10 round cell Pelham mill. This is nearly new, but it does not make a natural-shaped cell. Price $9.00.

No. 0135, 2x10 round-cell medium-brood mill in old-style frame, fair condition. Price $12.00.

No. 0138, 2½x6 hexagonal extra thin-super mill, in very good shape. Price $14.00.

No. 0139, 2½x6 hexagonal thin-super mill, in very good condition. Price $14.00.

No. 0140, 2½x6 hexagonal thin-super mill, in very good condition. Price $14.00.

No. 0141, 2½x6 hexagonal extra thin-super mill, in extra good condition. Price $15.00.

No. 0142, 2½x6 hexagonal thin-super mill, in fair condition. Price $12.00.

No. 0144, 2½x10 hexagonal medium-brood mill, in fair condition. Price $15.00.

No. 0145, 2½x10 hexagonal light-brood mill in fair condition. Price $15.00.

No. 0147, 2½x6 hexagonal thin-super mill, in extra good condition. Price $15.00.

No. 0151, 2½x6 hexagonal cell, extra thin-super mill, one bad cell, otherwise in good condition. Price $12.00.

No. 0152, 2½x6 hexagonal thin-super mill, extra good for regular-width super foundation. Price $12.00.

No. 0153, 2½x6 hexagonal thin-super mill. No. 0154, ditto. Both in very good condition. Price $14.00 each.

No. 0155, 2x10 round cell, medium-brood mill in old-style frame; fair condition. Price $12.00.

No. 0156, 2½x6 extra thin-super mill, fair. Price $10.00.

No. 0157, 2½x6 thin-super mill, in good condition. Price $12.00.

No. 0158, 2½x6 extra thin-super mill in fair condition. Price $10.00.

Special Notices

By A. I. Root

THE BUTTERCUPS UP TO DATE.

On page 446 an inquiry is made in regard to the Buttercups. At the present time I can not say that I have found them to be better layers than a good strain of White Leghorns. They are handsome to look at and to show to visitors, especially the best-marked specimens; but as yet in a flock of birds there is considerable variation in color and markings. They are gentler than the Leghorns, but I am afraid the chicks are not as hardy and as easy to raise. I should be very glad indeed to get reports from others who have given the Buttercups a trial.

GARDENING IN THE SUMMER TIME IN SOUTHERN FLORIDA.

In discussing this subject on p. 447 I failed to say that sweet potatoes grow any time and all the time—especially if there is rain enough. Another thing, if you remember, I told you a year ago that my neighbor Abbott had a patch of lima beans growing up on poles, and these vines were yielding good big pods, filled with most delicious beans, all through July and August. I think the beans were planted some time in January. But they just kept right on giving nice plump beans, winter and summer, and so many of them that he sold them at the grocery, and got good prices for them too.

"THE CROWN OF DIAMONDS AND THE CROWN OF THORNS."

In our last issue, when I offered to send these free of charge I forgot that the postage would be about 10 cts. for each 100 copies. A lot of the friends, however, have been kind enough to remind me that, if I furnish the leaflet free, they can well afford to pay the postage. I am glad they are going off rapidly by the 10's, 25's, and many orders are for 100 copies. Now, if you feel inclined you may send postage at the rate of 10 cts. per 100. But do not neglect to scatter them abroad on account of the postage. We are especially anxious that the *wife* of every *brewer* or *saloon-keeper* shall have one of these leaflets. Will you help spread them throughout our nation? Nothing would please me better than to have a million copies called for. The great Father above will see that I get my pay for the postage, printing, and paper. I may not get it back in dollars and cents, but I shall get it back in something of far greater value than silver and gold that belong to this world, for Jesus said, "Every one that hath forsaken lands, . . for my sake, shall receive now in this present time a hundredfold, and shall inherit everlasting life."

CANADIAN BEE-KEEPERS

E. Grainger & Co., Deer Park, Toronto, announce to Canadian bee-keepers that they have a reasonably full line of Root Bee-supplies on hand for shipment from Toronto. Large shipments will be made direct from the factory, and in many cases a considerable saving may be effected by placing orders with us.

See What Our Customers Say!

North Toronto, March 1, 1911.

E. Grainger & Co., Toronto.

Dear Sirs:—The goods we received from you, manufactured by The A. I. Root Co., are most satisfactory. We find the frames fit beautifully; in fact, all the woodwork is so perfect and so clean and nice that we would not think of using any other make now. They are well worth the extra they cost. A. W. O.

E. Grainger & Co., Toronto. Connaught, March 7, 1911.

Dear Sirs:—Have received shipment of my order to-day. Every thing is in perfect order. Am very well pleased with the goods. D. R.

SEND ALL ORDERS TO

E. Grainger & Co., Deer Park, Toronto, Can.

Cans and Containers
. . FOR . .
Extracted Honey

As in previous seasons, we have prepared a very complete stock of honey-containers of almost every commendable shape and style. In our warehouse—ready for immediate shipment to you—are considerable quantities of tumblers, jars, tins, etc., all of the finest quality and all priced right.

There is Much Satisfaction

in knowing that there is a dependable source of supply so near to all Texas bee-keepers and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet to fall down at a critical time. Sometimes we feel that it is not wise for bee-keepers to trust entirely to the supply-house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when YOU are ready WE are.

Honey-extractors

We can quickly supply the famous ROOT HONEY-EXTRACTORS in whatever size your requirements call for. We have interesting printed matter which fully describes these quality machines, and a booklet which tells of the ecomomy of a power honey-extractor. Better get this information and prices right away.

Sell Us Your Honey and Beeswax

We desire, as usual, to buy all the first-class white honey we can obtain. We are now paying for bulk comb honey of the above grade, properly put up f. o. b. the bee-keeper's railroad shipping-point—

9½c per pound for 2--60. 10½c per pound for 10--6.
10c per pound for 10--12. 11c per pound for 20--3.

If you wish to sell us some, kindly send sample, stating how much you have and how it is put up, and we will send you shipping instructions.

TOEPPERWEIN & MAYFIELD COMPANY
Cor. Nolan and Cherry Sts., San Antonio, Texas



200 Pages; Nearly 500 Subjects

A NEW Edition of This Popular Book

ADVANCED BEE CULTURE

By W. Z. HUTCHINSON

E. R. ROOT, editor of *Gleanings in Bee Culture*, who revised Mr. Hutchinson's book which has just been published, has to say in *Gleanings:*

As a writer on bees Mr. Hutchinson has few equals. For clearness of style and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and the useful from an extended discussion is intuitive. The last edition of "Advanced Bee Culture," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by a master of the art of boiling down discussions.

I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced bee-keeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it in connection with some other work like the "A B C and X Y Z of Bee Culture," or any textbook designed especially for the beginner class.

Nearly 500 Subjects Pertinent to MODERN Bee-keeping are Authoritatively Discussed

ADVANCED BEE CULTURE is a beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that the many fine illustrations are unusually clear in every detail. The book has been bound in attractive and substantial cloth with clover design in natural colors on cover. All together it is a volume whose appearance and unquestionable worth justly entitle it to a place in the library of every bee-keeper. No more important work on this fascinating subject has recently appeared.

$1.50 Buys a $2.00 Value

ADVANCED BEE CUTLTURE costs $1.00 per copy. GLEANINGS IN BEE CULTURE (semi-monthly) — known and read by bee-keepers throughout the world—price $1.00 for an annual subscription. It is our pleasure, however, to offer this interesting and most useful combination — the book here described and GLEANINGS one year, both for $1.50. It is a value you will very seldom find—really it is a good $2.00 worth for $1.50.

USE THE COUPON

The A. I. Root Co., Medina, O.

The A. I. Root Co., Medina, Ohio. GBC 7-15-1

For the enclosed remittance of $1.50 please send Gleanings to

_____

_____

Send Advanced Bee Culture to

Name _____

Address _____

If Gleanings is to be sent to same party as book, sign only in last 2 blank lines.

Enlist as Local Agent

for the Fast-Working, Fast-Selling

Oliver Typewriter!

The battle lines of the Oliver Typewriter forces are forming for another campaign of conquest. The triumphs of 1910—the most brilliant ever achieved by a great sales organization—have served to inspire to more mighty deeds in the coming year.

The roll-call of the Oliver Sales Organization shows over 15,000 men **under arms**—the most magnificent body of trained salesmen in the world.

This Sales Force, great as it is, can not cope with the tremendous increase in business which the popularity of the Oliver Typewriter has created.

Resident Agents Wanted in every Town and Village

This advertisement is a call for reinforcements—to enable the Oliver Sales Force to extend its skirmish lines to all sections of the country.

The central idea of our selling system is to have—**everywhere**—a vigilant agent of the Oliver Typewriter constantly **on the ground.** Whether that agent devotes part or all of his time to the sale of the Oliver Typewriter is left to his own discretion.

Teachers, tradesmen, doctors, ministers, lawyers, stenographers, telegraph operators, printers, mechanics — men and women in a multitude of different occupations—can succeed as local agents for the Oliver Typewriter. If you have the will to take up this work, **we will point out the way.**

The OLIVER Typewriter

The Standard Visible Writer

The Oliver Typewriter has been breaking records since the day it was placed on the market. **Efficiency** records, **speed** records, **endurance** records—it has won them in quick succession. It sets the swiftest pace in sales by giving unparalleled **service.**

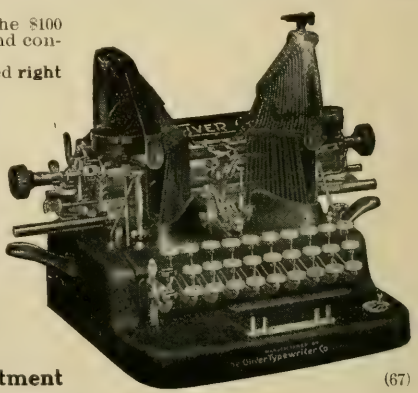
With **several hundred less parts** than other standard typewriters, its **simplicity, strength, ease of operation, versality, and convenience** are correspondingly **increased.**

"17-Cents-a-Day" Plan a Wonderful Aid to Agents

This machine with all of its advantages, all of its time and labor-saving devices, the Local Agent can buy—**and sell**—for Seventeen-Cents-a-Day.

The Oliver Typewriter No. 5 — the newest model — the $100 machine—equipped with a brilliant array of new devices and conveniences, actually offered for **pennies!**

This irresistible offer enables the Local Agent to succeed **right from the word "go!"**



Write for Inspiring Book, "The Rise of the Local Agent"

Read the life stories of men who rose from the Local Agency ranks to positions of great importance in the Oliver Organization—How one Local Agent is to-day the Typewriter King of Mexico. (Mexican government reports show that more Oliver Typewriters are imported than all other typewriters combined.)

These inspiring stories will open your eyes to the **big opportunities still open** for ambitious men to carry the Oliver flag, fight for new records and reap the rewards of success.

Send a personal letter to-day while the **Call for Volunteers** is ringing in your ears.

Address Agency Department (67)

The OLIVER TYPEWRITER CO., 116 Prospect St, Cleveland, O.

Gleanings in Bee Culture

VOL. XXXIX AUGUST 1, 1911 NO. 15

The Busy Bee.

LENA B. ELLINGWOOD

Oh! the sun is shining blithely,
For the summer days are here;
The leaves are at their greenest,
'Tis the zenith of the year.
The air is full of sweetness,
You are glad to be alive;
And the bees are on the clover,
And the honey's in the hive.

From early morn till sunset
There's a whirr of little wings;
There's a humming and a buzzing,
And a horde of busy things
Attacks the clover blossoms
And of all their sweets deprive,
For the bees are working madly,
Storing honey in the hive.

'Tis the world's vacation season;
People seek for change and rest;
But the honey-bees are tireless
In their keen, persistent quest.
They rush from flower to flower,
With might and main they strive—
Busy bees that gather honey
For the storing of the hive.

Complete Service At Chicago!

CHARACTERISTIC of the **Root Way** is our ready-for-service equipment at the Chicago Branch. In no detail have we neglected to anticipate the patronage of our bee-keeping friends in the territory contiguous to this great distributing center. Let us recount our preparations for your benefit:

SUPPLIES AND STOCK

Abundant room in this branch enables us to carry a very large stock which represents practically every article in the big Root line. All goods listed in former price lists, and still on sale, are here, together with the new and improved lines shown in this 100th, edition of our catalog. Carload lots of fresh supplies continually come from our factory to keep our stock complete. No delay in filling even the largest orders at Chicago, is our policy

SHIPPING FACILITIES.

With 25 great railroads and 7 express companies ready to distribute our goods in all directions; freight close at hand, with every facility for quick packing and delivery at railroad, express office, or boat, we await your call. Immediate attention is our invariable rule, and we augment our facilities in the busy season with extra employees so that shipments may be quickly cleared on all occasions.

PACKING.

We do not charge for packing, boxing, or delivering to freight or express offices here in Chicago. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B., Chicago. If no, agent at your station notify us and we will prepay, and bill charges after shipment. Often during the busy season much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what charges will be from Chicago.

We Aim to Get All Mail and Express Orders Off the Same Day They are Received. Freight Orders are Filled in Order of receipt. No Order is too Small or Large for Our Personal Attention

OUR LOCATION.—We are pleasantly located at 213-231 Institute Pl., one block north of Chicago Ave., on the 6th floor of the Jeffrey Bldg. Fine elevator service—both passenger and freight. Large, light, well-fitted display rooms, with complete line of supplies, booklets, etc., always on exhibition. You and your friends are always welcome.

HOW TO REACH US.—Telephone, telegraph, write, or call. Take any Northwestern Elevated train; get off at Chicago Ave.; walk one block north on Franklin St. and half block east on Institute Pl., or take any car running north of 5th Ave. and Wells St.; get off at Institute Pl., and walk half a block west to Jeffrey Bldg.

OUR MANAGER at the Chicago branch is an experienced bee-keeper who thoroughly understands the requirements of those engaged in this business, either for profit or pleasure. He has been identified with the **Root Line** for some twenty years, and has both the knowledge and desire to make his services of value to whoever seek his assistance.

THE A. I. ROOT COMPANY,

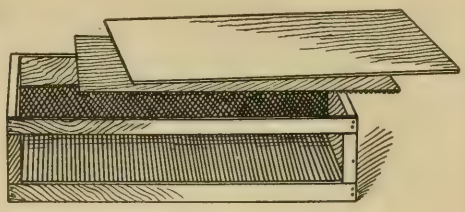
213-231 Institute Place, Chicago, Illinois.

R. W. BOYDEN, Mgr. :-: **Tel. 1484 North.**

"Falcon"

Shipping-Cases

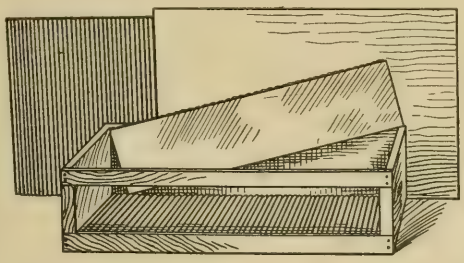
Lined with Corrugated Paper



A good crop of section comb honey to bring the highest price must be marketed in the best shipping-cases obtainable. Poor cases cut the price one to two cents a pound. Use, therefore, only the best and most attractive cases. Such are the cases made at the "FALCON" factory.

Corrugated paper has been proven far superior to the old no-drip sticks. Two sheets, one for bottom drip under sections and one for top (should the crate accidentally be turned bottom side up or receive any heavy blows on top), are supplied with each case. Notice, in the illustration, the corrugated follower to wedge the sections tight.

Corrugated paper above, below, and back of sections, drip-paper top and bottom, extra heavy ends, one-piece wooden covers and bottoms, and heavy slats for glass are furnished in "Falcon" cases. Use no other if you wish your honey to bring the highest price.



Prices

"Falcon" CASES with extra sheets of corrugated paper and corrugated follower cost no more than cases without these sold by others.

24-lb. for Beeway Sections

Showing Four

This case is 11⅜ inches wide, holds 24 sections 4¼x1⅞ to 1¾ or 20 sections, 2 or 1 15-16.

No. 11 with 3-inch glass,	10, $2.00	100, $18.00
No. 11 with 2-inch glass,	10, $1.90	100, $17.00
No. 1 without glass,	10, $1.80	100, $16.00

12-lb. for Beeway Sections

Showing Three

Holds 12 sections 4¼x1⅞. A convenient standard size.

No. 13 with 3-inch glass,	10, $1.30	100, $11.50
No. 13 with 2-inch glass,	10, $1.25	100, $10.75
No. 3 without glass,	10, $1.20	100, $10.00

24-lb. for Plain Sections

Showing Four

Holds 24 sections, 4¼x1½.

No. 11½ with 3-inch glass,	10, $2.00	100, $17.00
No. 11½ with 2-inch glass,	10, $1.90	100, $16.00
No. 1½ without glass,	10, $1.70	100, $15.00

24-lb. for Ideal Sections

Showing Four

Holds 24 sections 3⅝x5x1½.

No. 16 with 3-inch glass,	10, $1.80	100, $16.00
No. 6 without glass.	10, $1.60	100, $14.00

24-lb. for Tall Sections

Showing Four

For 24 sections 4x5x1⅜.

No. 18 with 3-inch glass,	10, $1.80	100, $16.50
No. 8 without glass,	10, $1.60	100, $14.50

Write for prices on cases for sections other than named above.

Buy cases from nearest dealer. See back copies GLEANINGS list of dealers, or write us.

Price List of "falcon" Queens

Three-banded and Golden Italians, Caucasians, and Carniolans

Untested (after July 1) . . . . . One, 75c; six, $4.25; twelve, $8.00
Select Untested (after July 1) . . . . One, $1.00; six, $5.50; twelve, $10.00
Tested, $1.50 each. . . Select Tested, $2.00 each.

All queens are reared in strong vigorous colonies, and mated from populous nuclei. Safe arrival and satisfaction guaranteed.

Buy "falcon" Queens and Increase Your Honey Yields!

W. T. Falconer Mfg. Company

Factory and Main Office
FALCONER, NEW YORK

Branch
117 No. Jefferson St., Chicago, Ills.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy white comb honey at 15 to 16; No. 1 ditto, 14 to 15; white extracted, 11 to 12. Beeswax, 30.

BLAKE-LEE CO.

4 Chatham Row, Boston, July 17.

DENVER.—We are beginning to receive small lots of new-crop comb honey, which moves readily at the following figures in a jobbing way: No. 1 white, per case of 24 sections, $3.60; No. 1 light amber, $3.38; No. 2, $3.15. No change from last quotation on extracted. We pay 26 cts. cash, 28 in trade, for clean yellow beeswax delivered here.

THE COLORADO HONEY PRODUCERS' ASS'N.

Denver, Col., July 15.

INDIANAPOLIS.- Demand is good, but offerings as yet are limited. Fancy white comb is being offered at 17; No. 1 white comb at 15; best extracted in five-gallon cans at 11; slightly lower prices on quantity lots. Producers are probably being paid about 2 cents less per pound than above quotations. Beeswax is in good demand, and producers are being paid 28 cents cash or 30 in trade.

Indianapolis, Ind., July 12. WALTER S. POUDER.

CINCINNATI.—Comb honey is now coming in, and finds ready sale at from 15 to 16 cts. from our store by the single case. Extracted honey, new crop, is also coming in quite lively; and for the finest water-white we are getting from 9 to 10 in crates of two 60-lb. cans; amber honey in barrels, from 6 to 7½, according to the quantity and quality bought. The above are our selling prices. For choice bright yellow beeswax we are paying from 28 to 30 cts. delivered here.

Cincinnati, July 17. THE FRED W. MUTH CO.

NEW YORK.—Last year's stock of white comb honey is well cleaned up; but considerable quantities of buckwheat, amber, and mixed remain unsold, with practically no demand. Small lots of white comb, new crop, are coming in from the South, and finding ready sale at from 13 to 15, according to quality and style of package. The demand for extracted honey is good, especially for fancy stock. Shipments from the South are quite heavy, but no overstock. It is selling all the way from 65 to 90 cts. per gallon, and 6 to 8 cts. per lb., according to quality and grades. No new crop of California is on the market as yet. Beeswax is quiet at 30.

New York, July 19. HILDRETH & SEGELKEN.

WANTED!

Comb and Extracted Honey

Let us hear from you with your best price on your Comb and Extracted Honey, freight paid to Cincinnati. We buy every time price justifies. No lot too large or too small. We remit day shipment arrives.

THE FRED W. MUTH CO.

51 Walnut Street "The Busy Bee Men" **Cincinnati, Ohio**

HONEY

We Want to Buy . . We Offer for Sale

We are always in the market for honey, both extracted and comb. Send samples and state lowest price. If in need of honey we will gladly submit sample and make quotation.

It is possible that, on account of conditions, you did not order any extra supplies; and now that the honey is coming in fast, you find yourself short of some important items. This is where we come in. Our stock is large and complete, and we are ready to fill your orders immediately on receipt.

SHIPPING-CASES

Having produced a fine crop of honey, it is folly to market it in any thing but the best and neatest package. Good shipping-cases add much to the value of your honey, and you can not expect to secure the highest price unless your package as well as your product is the best. We supply all kinds of honey-packages—cases, bottles, cans, cartons, etc.

SECTIONS

We sell the best grade of sections made. If you want a hundred or ten thousand or a hundred thousand, we can fill your order promptly with goods which are bound to please. You may judge of the popularity of these sections when we tell you that the manufacturers make upward of twenty-five million of them every season.

FOUNDATION

Another article we handle in considerable quantities is Comb Foundation. There is nothing more important to the up-to-date bee-keeper than to have foundation just when he needs it, and of the best quality. We sell nothing but Root's Weed-process Foundation, the recognized standard of the world. The bees appreciate the good points of this foundation, and every bee-keeper knows that it is the best. All grades and sizes constantly on hand. A pound or a ton, just as you like.

SHIPPING

Whether you are ordering in ample season or whether you have put off until the last moment, you may rest assured that our service will give you delivery of goods at a minimum of expense and time. Having so many years' experience in this work, we know the best routes and we have the best facilities for serving you. Just tell us your needs briefly and send us definite orders, and we will demonstrate what we can do for you.

POWER HONEY-EXTRACTORS

A thirty-two-page booklet that has a lot of valuable information for the bee-keeper who produces extracted honey. A copy free on request. Catalog and price list of the best bee-supplies made, for the asking.

C. H. W. Weber & Co.

2146 Central Ave. Cincinnati, Ohio

Gleanings in Bee Culture

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$1.00 per year. When paid in advance: 2 years, $1.50; 3 years, $2.00; 5 years, $3.00.

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Extracted HONEY Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

ZANESVILLE.—Some new honey is now being offered in this market. The demand is still a little slack, and prices are not established. Best grades of white comb go to retail grocer at 18 to 19. Little is doing in extracted. For good beeswax, producers are offered 28 in cash, or 30 in exchange for supplies.

Zanesville, O., July 18. EDMUND W. PEIRCE.

CHICAGO.—Very little of the yield of 1911 has come to this market. Small lots of choice comb bring 17 to 18; the amber grades, 2 to 3 cts. less. There is very little demand for off grades. Extracted is not selling freely—too high in price for manufacturers, and too early for table purposes. Prices range from 8 to 9 for white. Beeswax, 31 to 32 for prime.

Chicago, Ill., July 17. R. A. BURNETT & Co.

ST. LOUIS.—Since ours of July 3 there has been but very little change in the honey market. The receipts of Southern extracted honey are large, and prices have eased off, especially for the lower grades. Comb is out of season at present, and there are no receipts of new honey so far. We quote fancy white comb honey nominal at 15; No. 1, 14; choice amber, 12 to 13; Southern extracted, in barrels and half-barrels, 7 for choice light amber; dark, 6 to 6½; in five-gallon cans at 7½ for choice light amber. Beeswax, prime, 30; impure and inferior, less.

R. HARTMANN PRODUCE Co.

St. Louis, Mo., July 20.

THE NATIONAL BEE-KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey.

MEMBERSHIP DUES

One dollar a year.

OFFICERS AND EXECUTIVE COMMITTEE

PRESIDENT.—George W. York, Chicago, Ill.
VICE-PRESIDENT.—W. D. Wright, Altamont, N. Y.
SECRETARY.—E. B. Tyrrell, Detroit, Mich.
TREASURER AND GENERAL MANAGER.—Newell E. France, Platteville, Wis.

Are you a member? If not, why not send the annual dues ($1.00) at once to Treasurer France? Every progressive bee-keeper should be a member of this, the greatest bee-keepers' organization in North America.

Honey-Packages!

You will soon need packages for honey. 1-lb. screw-cap jar, $5 gross. These are heavier glass than generally sold. Tested Italian queens, $1.10; untested, 75c. Catalog of every thing a bee-keeper uses, free.

I. J STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

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Patent Practice in Patent Office and Courts. **Patent Counsel of The A. I. Root Co**

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488-490 Canal Street, NEW YORK
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments solicited. Established 1875.

HOW TO KEEP BEES

By ANNA BOTSFORD COMSTOCK

THIS is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning bee-keeping by their own effort. Having commenced bee-keeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in ordering this book. It is charmingly written and easily understood. Price $1.10 postpaid by

THE A. I. ROOT COMPANY, MEDINA, OHIO

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873 CIRCULATION 35,000. 62 pages Semi-monthly

A. L. BOYDEN, Advertising Manager

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Twenty-five cents per agate line, flat. Fourteen lines to inch.
SPACE RATES. To be used in one issue: One-fourth page, $12.50; one-half page, $25.00; one page, $50.00.
Preferred position, inside pages, 30 per cent additional.
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Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.
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Forms close 10th and 25th.
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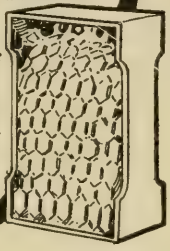
BEES PAY BIG

and require little care. All the little honey-gatherers and money-makers demand of you is to provide a home for them. They make the honey and you get the profit. What little work you must do can be made 100 per cent. easier and your profits 100 per cent. bigger if you have the

RIGHT KIND OF SUPPLIES

If you are a bee-keeper or are thinking of going into the bee business you ought to have our beautiful illustrated **New Bee Book**—just off the press. It's a complete guide to profitable bee culture. Tells you how to buy bees, what kind are best, where to locate the hives, how to care for them summer and winter, how to prepare the honey for market—in fact it tells you **all** you need to know to make bees highly profitable as a business or a side-line.

SEND FOR THIS FREE BOOK



We sell everything the bee-keeper needs and can save you money whether you keep few bees or many. Buy direct from headquarters at rock-bottom prices. Get our bee book and save money. Write now for a copy as the edition is limited.

Blanke Mfg. & Supply Co., Blanke Building St. Louis, Mo.

Successors to Blanke & Hauk Supply Co.

ROOT'S GOODS FOR WESTERN PENNSYLVANIA

Prompt and satisfactory service. . Save time by ordering here. . . Get a catalog at once.

GEORGE H. REA, REYNOLDSVILLE, PENN.
Successor to Rea Bee & Honey Co.

5 GOLD MEDALS
St. Louis Exposition, 1904
Jamestown Centennial, 1907



Danzenbaker Smoker

Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT GRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

The **ONE-PIECE** cap **CAN NOT clog.** It is the **COOLEST, CLEANEST, STRONGEST, BEST,** and **LARGEST NET CAPACITY** of all smokers, selling at one dollar ($1.00). We **GUARANTEE SATISFACTION** or **return** the price; only three complaints in **six years.**

Dan-z. 3½x7½-inch Prize Smoker, $1.00; by mail $1.25
With "Gleanings," $1.00 per year, and Prize Smoker, by mail 1.75
Dan-z. 3½x6-inch Victor Smoker, 80c; by mail 1.00
With "Gleanings," one year, 1200 pp., by mail 1.50

We send propolis shields with Danzenbaker Hives and Supers, and sell anything in the Bee-line at factory prices, also select three-banded Italian queens and bees.

Please send address of yourself and B-friends for FREE catalogs and prices on Bee-supplies, Bees, Queens, Hives, Sections, and Smokers. Address

F. Danzenbaker, 68-70 Woodside Lane, Norfolk, Va.

Protection Veil. . . .

Postpaid, all cotton, 50c; silk face, 60c; all silk, 90c; with B, or ballast cord, 10c per veil extra. Flexible-rim bee-hat, 30c. Oil duck gloves, long sleeves, 35c.

The heavy ballast cord (B) is a new feature to keep the veil from blowing in on the face. The cord A runs around the lower edge of veil, holding it down snugly on shoulders away from the neck, making a tight fit so bees do not get under. Cord C is a short one with loops in ends with cord A running through them, making it adjustable.

Middlebury, Vt., May 26, 1911.

A. G. Woodman Co., Grand Rapids, Mich.

Veils received, and we think the ballast-cord a great improvement in your veil, which was already the best to be had. J. E. CRANE & SON.



A. G. Woodman Co., Grand Rapids, Mich.

A YORK'S HONEY QUEEN FOR ONLY 25c



To introduce the AMERICAN BEE JOURNAL and also the STANDARD-BRED ITALIAN "YORK'S HONEY" QUEENS to NEW readers, we will make a special price of only $1.25 for the American Bee Journal one year ($1.00 alone) and one of the fine "York's Honey" Queens (75c alone). This low price of $1.25 for the Journal and a queen will stand for the rest of the season of 1911 to NEW subscribers. . . . . We will mail three of the Queens to any one for $2.10; 6 for $4.00 or 12 for $7.50. We are filling orders now by RETURN MAIL. Better try a few of our fine Queens and also the old American Bee Journal, if you are not now a regular reader of it. Sample copy free. Address



George W. York & Co., 117 No. Jefferson St., Chicago, Illinois

. . The . .

White-Honey Season

is nearing to a close, and
your next need will be

Shipping-cases

Your orders for cases will
have our prompt attention

The A. I. Root Company

Syracuse, N. Y.

"Griggs Saves You Freight"

TOLEDO

**is the place to buy
your BEE-WARE...**

When your crop is off don't make that mistake of putting it up in cheap shoddy cases.

Root's Extra Polished Cases

are the cheapest in the long run; your honey looks better and will bring the highest price. We carry a large stock of these cases, all sizes, and can ship promptly.

Honey, Honey, Honey!

We handle large quantities, both comb and extracted. Mail small sample of extracted, and state how comb is put up, size of section used, etc. Full particulars by return mail. Beeswax always wanted, cash or in trade.

S. J. Griggs & Co.

25 No. Erie St., Toledo, Ohio

"Griggs, the King Bee"

We Save You Money!

We Manufacture Dovetailed Hives, Sections, Shipping-cases, Broodframes, Separators, Section-holders, Berry Crates and Boxes.

QUALITY Our hives are made of best grade white pine, cut accurate and smooth to standard measure. Sections are of basswood, polished on both sides. There are no better goods made.

PRICE Our factory is well equipped, and we make goods as cheap as or cheaper than anybody else. We sell first hand, and can save you the middleman's profit. Will quote delivered prices by return mail, if you state your wants. Our prices will surprise you.

SERVICE We carry a complete line of everything used in the apiary—foundation, smokers, and extractors always on hand. Shipping facilities are as good as can be found anywhere. We want your business; no order is too small for careful attention; none too large for us to handle. We guarantee prompt and satisfactory service. Catalog is free.

Minnesota Bee-Supply Company

Minneapolis, Minn.

COMB-HONEY OUTFIT No. 5

It is a matter of some difficulty for the average beginner to decide exactly what he requires as an outfit for the first start in bee-keeping. To relieve the beginner of all perplexity we list certain outfits which we think will meet his needs. The one we give below is what may be fairly considered the best. Each item has been very carefully selected, and we doubt the wisdom of leaving any article out; but the purchaser may do so without altering the prices on the other items.

1 A B C and X Y Z of Bee Culture (536 p.),	$1.50
1 copy "Facts about Bees"	.10
1 year's subscription to "Gleanings," .	1.00
1 Root Smoker	.65
1 pair cotton bee-gloves (small, med., or large)	.50
1 silk-front bee-veil	.60
1 full col. Italian bees in Danzenbaker hive (Complete with 32 section honey-boxes)	12.00
1 untested Italian queen	1.50
2 Danz. hives complete for comb honey . (Nailed and painted, ready for the bees)	6.80
1 Porter bee-escape and board . . . . (For taking honey from the bees)	.35

Special Offer Delivered at any express office north Ohio River and east Mississippi River **$25.00**

For delivery to points outside of the above free limit, we will make terms on application.

The colony of bees is as near perfect as we can make them. The combs are beautifully straight and well filled with brood. The breeding of the queen is of the very best, so that one has the nucleus of a fine stock of bees. In many cases a return of $10.00 in honey has been secured the first year from just such an outfit as this, and in addition one or two swarms may be secured, which practically doubles the value of the investment. Order at once.

The A. I. Root Co., Medina, Ohio

Bee-keepers who Have

THOROUGHBRED CHICKENS

and want to sell eggs and stock at good prices should use space under the POULTRY heading in the

Classified Pages

In proportion to the cost it is doubtful if any other medium offers as good an opportunity for profitable returns on such offerings as

Gleanings in Bee Culture

Read this from one of our satisfied advertisers:

> "I will say that what little advertising we did in GLEANINGS has brought us about all the business we can attend to this season."

—and others say the same.

Read the POULTRY advertisements yourself. Read Mr. A. I. Root's talks on CHICKENS—advertise in GLEANINGS, and GET results.

Shipping-cases...

It pays to pack your honey in neat cases. We have them.

Five-gallon Cans

Two cans in a case. The standard package for extracted honey.

Sections and Foundation

here for immediate shipment.

Extractors.... .....

All sizes.
All "Root Quality."

Beeswax Wanted..

We pay 28c cash, 30c in trade for average wax delivered here.

We Buy Honey..

What have you?

M. H. HUNT & SON

Opposite Lake Shore Depot

Lansing, Michigan



"If goods are wanted quick, send to Pouder." . . . Twenty-second Year.

BEE-SUPPLIES

A large and complete stock of the Root Goods offered at the factory schedule of prices. My system of rotating does not permit any accumulation of old stock. My comb foundation is always fresh from the mills; my sections fresh and bright, and hives have all latest improvements. I accept beeswax in payment for goods, or I will pay highest market price for wax in cash. I am in need of more wax at all times.

My **Perfection Tight-seal Jars** are acknowledged as being the best for extracted honey, and I assume all responsibility in shipping, guaranteeing safe arrival. I mean exactly what I say.

My new **Paper Honey-jars** are cheap enough for retailers to give away with their honey. No more waiting to exchange jars or crocks when you deliver your honey. My catalog tells all about these things, and is sent free.

WALTER S. POUDER, 859 Massachusetts Avenue, Indianapolis, Indiana

Boston Is the Shipping Center of **New England**

Bee-keepers should bear this in mind when ordering their supplies. . A full line of supplies always in stock. . . . . Send for catalog.

H. H. JEPSON

182 Friend Street . BOSTON, MASS.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine

J. B. MASON, Manager

It Pays Well to Use Foundation
It Pays Better to Use . . . .

DADANT'S FOUNDATION

It has been proven BEST by TEST by many leading bee-keepers.

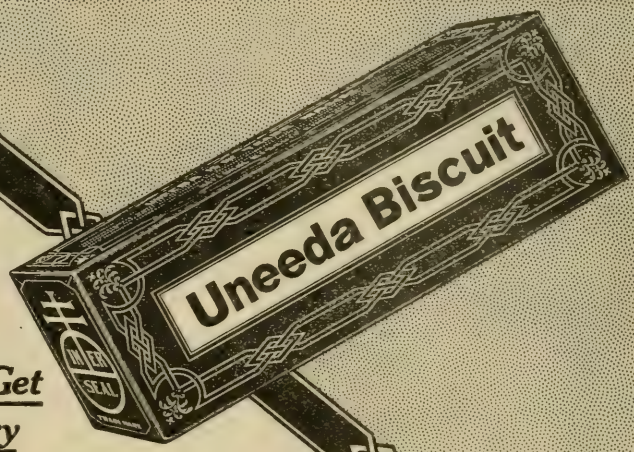
We have AGENTS near you.

Why use any other make?

Drop us a line and we will tell you where you can get our goods near you, and save time and freight.

BEE-SUPPLIES OF ALL KINDS

DADANT & SONS, Hamilton, Ill.



You Who Get Hungry Between Meals

Don't deny yourself food till meal time.

When that midmorning hunger approaches, satisfy it with Uneeda Biscuit.

These biscuit are little nuggets of nutrition. Each crisp soda cracker contains energy for thirty minutes more work.

Many business men eat them at ten in the morning. So do school children at recess.

They're more nutritive than bread. You can eat them dry — or with milk.

Uneeda Biscuit are always crisp and delightful.

Never Sold in Bulk

5¢

In the moisture-proof package

NATIONAL BISCUIT COMPANY



MANATEE FLORIDA..

America's Fruit and Garden Market

Oranges, Grapefruit, Vegetables

command the highest prices. Quick transportation and low freight rates to best Eastern and Northern Markets.

Rich Lands at Low Prices

are available now, but prices are advancing — ideal climate — unlimited supply of fresh, pure water — plenty of high-class labor. People are satisfied who have settled here. Finest climate the year round. No freezes; no intense heat.

Two and Three Crops a Year Net $500 to $1500 per Acre .:.:.

An interesting and instructive booklet fully describing "The Land of Manatee," on West Coast of Florida, will be sent free.

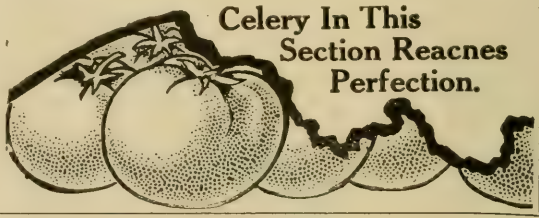
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J. W. WHITE

General Industrial Agent

Seaboard Air Line Railway

Dept. J, **Norfolk, Va.**



Celery In This Section Reacnes Perfection.



ELECTRIC Steel Wheels

Fit all running gears. Get a new wagon just by buying wheels. Unbreakable, almost everlasting. All heights and tire widths. Also new Electric Handy Wagons. Write for book on "How to Make Old Wagons New." Free.

ELECTRIC WHEEL CO., Box 23, Quincy, Ill.



THE "BEST" LIGHT

A portable, pure white, steady, safe light. Brighter than electricity or acetylene. 100 candle power. No grease, dirt nor odor. Lighted instantly. Costs 2 cts. per week. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog. Do not delay.

THE BEST LIGHT CO.
306 E. 5th St., Canton, Ohio

MAKES AND BURNS ITS OWN GAS

D&C LAKE LINES

THE COAST LINE TO MACKINAC

DETROIT
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BUFFALO
NIAGARA FALLS



D&C LAKE LINES

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THE LUXURY OF A LAKE TRIP

Where will you spend your summer vacation? Why not enjoy the charms of our Inland Seas, the most pleasant and economical outing in America?

WHERE YOU CAN GO

All the important ports on the Great Lakes are reached regularly by the excellent service of the D. & C. Lake Lines. The ten large steamers of this fleet are of modern steel construction and have all the qualities of speed, safety and comfort.

Daily service is operated between Detroit and Cleveland, Detroit and Buffalo; four trips weekly between Toledo, Detroit, Mackinac Island and way ports; daily service between Toledo, Cleveland and Put-in-Bay.

A Cleveland to Mackinac special steamer will be operated two trips weekly from June 15th to September 10th, stopping only at Detroit every trip and Goderich, Ont. every other trip.

Special Day Trips Between Detroit and Cleveland, During July and August

RAILROAD TICKETS AVAILABLE:—Tickets reading via any rail line between Detroit and Buffalo and Detroit and Cleveland will be honored for transportation on D. & C. Line Steamers in either direction.

Send 2 cent stamp for Illustrated Pamphlet and Great Lakes Map.
Address: L. G. Lewis, G. P. A., Detroit, Mich.
Philip H. McMillan, Pres. A. A. Schantz, Gen'l Mgr.

Detroit & Cleveland Navigation Company

BINDER Attachment with Corn Harvester cuts and throws in piles on harvester or winrows. Man and horse cuts and shocks equal with a Corn Binder. Sold in every state. Price $20 with Binder Attachment. S. C. MONTGOMERY, of Texaline, Tex., writes: "The harvester has proven all you claim for it. With the assistance of one man cut and bound over 100 acres of Corn, Kaffir Corn and Maize last year." Testimonials and catalog free, showing pictures of harvester. **New Process Mfg. Co., Salina, Kan.**



IDEAL FOLDING BATHTUB
Pat. Pending. For houses without tubs, campers, sportsmen, country houses, use in any room, light, lasts years. Write for low introductory offer. **N. Y. E. Bath Mfg. Co., 103 Chambers St., N. Y.**

THIS 33-PIECE DINNER SET GIVEN TO YOU FREE

Here is one of the prettiest sets of dishes I have ever seen. It is exquisite chinaware, and is beautifully decorated with red roses in center and dainty gold border. The style and shape of every single piece is very latest design. Now I want YOU to have a complete set. I will give it free for a very little work. I don't want a cent of your money. What I ask you to do is very easy. When you get these dishes on your table you will have something to be proud of indeed. Write me today for full particulars. I will mail you at once a large picture of the set in natural colors and explain my new, easy plan. Send no money, just your name and address, right now.

G. A. VOLLMER, Vice-President, Profitable Farming, St. Joseph, Missouri.

Serpentine Crêpe



A DESIGN FOR EVERY OCCASION!

If you want to know the supreme luxury of correct dress for Spring and Summer wear, ask your dealer to show you the latest

Serpentine Crepe

It makes up into street and outing dresses, gowns, house wrappers, lounging robes, kimonos, shirtwaists, and youths' and misses' dresses. Rich, stylish—quite the proper thing.

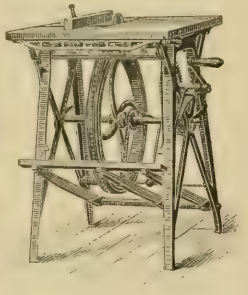
A design for every taste in all the latest artistic conceptions, and in black, white, gray and the delicate shades that appeal so strongly to women of good taste. The crinkle is permanent—the colors fast. Saves laundry bills, as it does not need ironing.

The highest quality and longest wear guaranteed by this Pacific Mills trade mark on every piece. Look for it and refuse imitations.

If your dealer doesn't carry the genuine trade marked Serpentine Crêpe, write us for free samples and list of dealers who will supply you.

PACIFIC MILLS - BOSTON, MASS.

BARNES' Hand and Foot Power MACHINERY



This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JNO. BARNES CO., 545 Ruby St., ROCKFORD, . ILLINOIS.

ITALIAN QUEENS

Nuclei, Bees by Pound. Ten-page descriptive list free. Untested, $1.00. Reduced rates July 1. List to select from, clubbing "The Pearce Method of Bee-keeping," price 50 cts., with a guaranteed queen for $1.10. Books by return; queens after June 10. Leaflets, "How to Introduce Queens," 15c; also "Increase," 15c; both for 25c. Send for list.

E. E. MOTT, Glenwood, Mich.

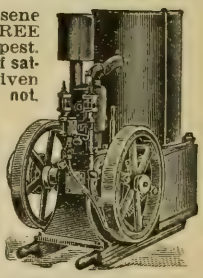
Clark & Pike

LANDSCAPE ENGINEERS

. WILLOUGHBY, OHIO .

Use KEROSENE Engine FREE!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing.



Gasoline Going Up

Automobile owners are burning up so much gasoline that the world's supply is running short. Gasoline is 9c to 15c higher than coal oil. Still going up. **Two** pints of coal oil do work of **three** pints of gasolene. No waste, no evaporation, no explosion from coal oil.

AMAZING "DETROIT"

The "DETROIT" is the **only** engine that handles **coal oil** successfully; uses alcohol, gasoline, and benzine, too. Starts without cranking. Basic patent—only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power, and strength. Mounted on skids. All sizes 2 to 20 h p, in stock ready to ship. Complete engine tested just before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric lighting plant. **Prices (stripped), $29.50 up.**

Sent any place on 15 days' Free trial. Don't buy an engine till you investigate amazing, money-saving, power-saving **"DETROIT."** Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, we will allow you **Special Extra-Low Introductory** price. Write!

Detroit Engine Works. 373 Bellevue Ave., Detroit, Mich.



Queens!

248 pounds of comb honey was taken off my breeding queens. . Prices: Untested selected, 75c; average queen, 65c; tested, $1.00 each; limited number at $7.00 per dozen. Try these queens.

CHESTNUT HILL APIARY
BIGLERVILLE, PA.

If YOU Want Them YELLOW Try the GENTLE



Strain of Swarthmore Pedigreed GOLDEN Queens, Swarthmore, Pa.

NEW ENGLAND BEE-KEEPERS!

EVERY THING IN SUPPLIES
NEW GOODS
FACTORY PRICES
SAVE FREIGHT

Cull & Williams Co. . Providence, R. I.

CALIFORNIA QUEENS. . . .

From The A. I. Root Co. $12.00 Breeder and J. M. Davis Select Stock. . We offer 1000 select untested queens (three-banded Italians) in lots of twelve and upward at $9.00 per dozen; $70.00 per hundred, cash with order. . All queens reared in full colonies, above queen-excluder, and mated in large nuclei. . Fifteen years' experience in queen-rearing and honey production. . . . Address

H. L. WEEMS, WASCO, CALIFORNIA
Supt. Bee Dept., Kern County Land Co.

Miller's Strain Red-clover Italian Queens

By Return Mail or Money Refunded

Bred from my superior breeder for business; gentle; no better hustlers; bees just roll honey in; three-banded; northern bred; hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored, long-tongued, red-clover strains. Untested, 75c; six, $4 00; dozen, $7.50. Select untested, $1.00; six, $5.00; dozen, $9.00. Circular free. Satisfaction guaranteed. Isaac F. Miller, of Reynoldsville, Pa., a queen-specialist, is my apiarist and manager, who has been before you quite a number of years. J. S. MILLER, Rt 2, Brookville, Pa

---

Queens of MOORE'S STRAIN of ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. My queens are all bred from my best long-tongued, three-banded, red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES—Untested queens, $1.00 each; six, $5.00; dozen, $9.00. Select untested, $1.25 each; six, $6.00; dozen, $11.00. Safe arrival and satisfaction guaranteed. Descriptive circular free.

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. Moore, Queen-breeder, Rt. 1. Morgan, Ky.

GOLDEN ITALIAN QUEENS, 75 cts.

Six for $4.00; twelve for $7.50. After as bad a spring as I have ever known, conditions have improved, and we've finequeens now.

J. B. CASE, PORT ORANGE, FLORIDA

. . THE . .

IMPERIAL-ROYAL AGRICULTURAL ASSOCIATION

Ljubljana, Carniola (Krain), Austria

Exports only pure Carniolan Alpine bees. Write for booklet and price list.

QUEENS

and bees — an improved superior strain of Italians is what QUIRIN RAISES. All yards winter on summer stands with practically no loss. Our stock is hardy, and will ward off brood diseases.

In the spring of 1899 we sent fifty nuclei to J. D. Nixon, Lafarge, Wis., and on July 20th (same year) he wrote us, saying they did just splendid, as at that writing they had already filled their supers, and that he would have to extract them. We have files of testimonials similar to the above.

Prices after July 1	1	6	12
Select queens	$ 75	$ 4 00	$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens . . .	1 50	8 00	15 00
Breeders	3 00	15 00	
Golden five-band breeders .	5 00		
Two-comb nuclei, no queen	2 25	12 00	22 00
Three-comb nuc., no queen	3 25	18 00	32 00
Full colonies on 8 frames .	5 00	25 00	

Add price of whatever grade of queen is wanted with nuclei and colonies; nuclei and colonies, if shipped before June 1st, add ¼, or 25%, extra to above price. No order too large and none too small. Will keep 500 to 1000 queens on hand ready to mail. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

QUIRIN-THE-QUEEN-BREEDER, BELLEVUE, O.

SEND FOR FREE ADEL BEE

and Supply Catalog. You will save money if you buy direct from my factory. I make the finest polished sections on earth. I want to prove it to you. Send me your order for sections, or any thing in bee-supplies. 45,000 brood-frames at $1.50 per 100 as long as they last; size is 9 1-8 in. deep; top-bar is 19 1-16 in. long; V-shape or two-grove and wedge, or Simplicity, all loose-hanging frames. 65,000 section-holders at $1.00 per 100 as long as they last. They are nicely dovetailed and are for 4 1-4 by 4 1-4 by 1 1-2, and for 4 by 5 by 1 3-8 sections. Carload section orders a specialty.

Chas. Mondeng, 140 Newton Ave. N., Minneapolis, Minn.

Goldens that are Goldens

It has taken 20 years to perfect this race of "My Goldens," and they will winter anywhere, produce as much honey, and almost stingless. Try them and you will be satisfied. . . Untested, $1.00; twelve, $10.00. Tested, $3.00. Send for price list and circular. . . NO CHEAP GOODS.

GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa

Queens . . . Queens

200 to 300 per month. Untested, $1.00; tested, $1.25; select tested, $2.00; breeders, $3.00. Nuclei, full colonies, bees by the pound. Have letter from the State certifying my bees are free from foul brood.

Frank M. Keith, 83½ Florence St., Worcester, Mass.

Greatest Premium Offer

Ever Made by an Eastern Poultry Journal

Send for ILLUSTRATED PREMIUM CATALOG

which describes over two thousand useful articles, and tells the number of subscriptions required to secure them. Do you want a watch, jewelry, silverware, clock, jardinier, vase, lamp, fountain pen, musical instrument, large bible, album, furniture of any description, trunk, suit-case, handbag, lace curtains, brass bed, mattress, Smyrna rugs; ingrain, Brussels, and Axminster art squares, furs, baby-carriage, washing-machine, stoves, granite and enameled ware, breakfast, dinner, or tea sets, and numerous other articles. All for a little of your time getting subscriptions for Poultry Item.

Send for complete outfit and start at once to secure the subscriptions. They will come easy as soon as The Poultry Item is shown them, and earn without much trouble one of these elegant premiums.

The Poultry Item.....Sellersville, Pennsylvania

CARNIOLAN QUEENS

By the time this ad. is in print, we will have on hand about 600 untested queens. All booked orders will be filled by that time, and the queens will be sent out promptly. . . . .

PRICES

UNTESTED:

One, 75c; 6, $4.25; 12, $8.00

TESTED:

One, $1; 6, $5.50; 12, $10.00

Wm. KERNAN

Rt. 2, Dushore, Pennsylvania

BANKING BY MAIL

4%

Deposit your savings here, pending permanent investment.

The advantages offered are: Unquestioned safety and four per cent interest, compounded semi-annually.

This bank is under the supervision of the State, and its strict laws.

Its officers and directors are successful men.

Write to-day for booklet explaining our convenient banking-by-mail system.

Resources $1,000,000

Under ordinary circumstances all or any part of your deposits may be withdrawn at will.

The Savings Deposit Bank Company. . . Medina, Ohio

A. T. SPITZER, Pres. E. R. ROOT, Vice-pres.
E. B. SPITZER, Cashier

State Fair Premium List.

The following is the premium list of the twenty-fourth annual exhibition to be held at Ottawa, September 8 to 16. Secretary, E. McMahon, 26 Sparks Street, Russell House Block, Ottawa.

Only one specimen from any one apiary or apiaries under one management can be entered in each section. These rules will be strictly enforced by the directors.

	1	2	3	4
Extracted granulated honey, in glass, totaling 20 lbs.	$6	$4	$2	$1
Liquid extracted honey, in glass, quality to be considered, totaling 100 lbs.	10	6	4	2
Comb honey, in section, fresh appearance and finish to be considered, totaling 100 lbs.	10	6	4	2
Special prize (value $6.00), by The Cuzner Hardware Co., Ottawa, for best 100 lbs. comb honey in section.				
Ten lbs. of comb honey, quality and finish to be considered, that is to say, body and flavor of honey, and clean and best-filled sections to be considered	5	3	2	1
Ten lbs. of extracted clover honey in glass	5	3	2	1
Ten lbs. of extracted linden honey in glass	5	3	2	1
Ten lbs. of extracted buckwheat honey in glass	5	3	2	1
Beeswax, not less than 10 lbs.	2	1		
Best exhibit, the object being to educate the public as to bees—their natural history, the bee-keeping industry, and its relation to horticulture.	5	3	2	1
Foundation for brood-chamber	1	.50		
Foundation for comb honey	1	.50		
Hive for comb honey	1	.50		
Hive for extracted honey	1	.50		
For the most tasty and neatly arranged exhibit of honey in the apiarian department, all the honey to be the product of the exhibitor	Diploma.			

COLORADO STATE FAIR, SEPT. 18–23, PUEBLO, COL.

1. Goods properly labeled may be sent by express, charges prepaid, to the secretary of the fair.
2. Entries close Monday, September 18.
3. All exhibits must be in place by 5 P.M., Monday, September 18.
4. The judges will award the premiums in this department Tuesday, September 19, at 9 A.M.

All honey and beeswax must be Colorado products.

	1.	2.	3.
Italian bees and queen in single-comb observatory hive	$7.00	$5.00	Ribbon,
Carniolan bees and queen in single-comb observatory hives	7.00	5.00	Ribbon,
Caucasian bees and queen in single-comb observatory hives	7.00	5.00	Ribbon,
Largest and best display of bees of various races in observatory hive	8.00	4.00	Ribbon,
Largest display of queens of various races in mailing-cages	4.00	2.00	Ribbon,
Best case of white comb honey	3.00	2.00	Ribbon,
Best case of light-amber comb honey	2.50	1.50	Ribbon,
Best and largest display of comb honey	7.00	5.00	Ribbon,
Best display of special designs	3.00	2.00	Ribbon,
Best dozen jars of white extracted honey	2.00	1.00	Ribbon,
Best dozen jars of light-amber extracted honey	2.00	1.00	Ribbo n
Best and largest display of extracted honey	8.00	5.00	Ribbon,
Best display of extracted honey in granulated form	3.00	2.00	Ribbon,
Best 10 lbs. of yellow beeswax	2.00	1.00	Ribbon,
Best and largest display of beeswax	5.00	3.00	Ribbon,
Best display of special designs in beeswax	3.00	2.00	Ribbon,
Best display of honey-producing plants, mounted	3.00	2.00	Ribbon,
Best display of fruits preserved in honey	3.00	2.00	Ribbon,
Most instructive display of apiarian products, and of the various uses made of honey and beeswax	20.00	10.00	Ribbon.

Idaho Honey-Producers' Association

Idaho Falls, Idaho

Water-white, Sweet-clover

HONEY

Comb or Extracted

BY THE

Can or Train Load

For Prices, Address

H. A. ANDERSON, Secretary

at the Rigby, Idaho, Office

Nature Education and Recreation

For Boys and Girls:
NATURE AND SCIENCE (of St. Nicholas Magazine), . Per year, $3.00

For Men and Women:
THE GUIDE TO NATURE (monthly, illustrated) . . Per year, 1.00
$4.00
BOTH, ONE YEAR, $3.00; sample of either, 10c.

For Teachers:
"How Nature Study Should be Taught," (203 pgs.) . Postpaid, $1.00

For Everybody:
"The Spirit of Nature Study," (222 pgs., illustrated) . postpaid, $1.00
"Walking; a Fine Art," (164 pgs., illustrated) . . . Postpaid, $1.50
"Three Kingdoms," the handbook of the AA . . . Postpaid, .75

For Plants:
Sachs Nutrient Tablets, a box, post., 10c.

For You (to aid and be aided):
The Agassiz Association (Popular Nature Society).

For Correspondents:
(To write for further information.)

Edward F. Bigelow

Arcadia : : Sound Beach, Connecticut

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

FOR SALE.—White-clover comb and extracted honey. HENRY HETTEL, Marine, Ill.

FOR SALE.—Clover honey in new 60-lb. tin cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—New clover honey, $4.00 per case of 24 sections; extracted, in 60-lb. cans, 10 cts. per lb. QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—New crop of amber alfalfa and white mesquite honey in car lots. New cases and cans. Correspondence solicited. ARIZONA HONEY EXCHANGE, Tempe, Arizona.

FOR SALE.—Choice light-amber honey, clover and raspberry mixed; also pure basswood in 60-lb. cans. Write for pure sample, 10 cts. E. L. LANE, Trumansburg, N. Y.

FOR SALE.—Several tons of fancy white extracted clover honey. Prices on application. Sample for 10 cts., which may apply on first order. ALBERT G. HANN, Pittstown, New Jersey.

FOR SALE.—"Townsend quality" of either clover or raspberry extracted honey, in new 60-lb. (net) tin cans. The price this year will be 10 cts. per lb. in small quantities; ten or more cans at 9½ cents. Sample of either free. E. D. TOWNSEND & SONS, Remus, Mich.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 199 S. Water St., Chicago.

NOTICE.—When sending samples of extracted honey to The A. I. Root Co., be sure to label same so that the sender may be identified.

WANTED.—Bulk comb honey in sections, and beeswax. Quote prices delivered. J. E. HARRIS, Knoxville, Tenn.

WANTED.—Comb and extracted honey. Send a sample, with price f. o. b. at your station. ARTHUR J. SCHULTZ, Ripon, Wis.

WANTED.—We wish to buy white extracted and fancy comb honey in small or car lots. We pay cash on arrival. Send a small sample of extracted. State price, and we will advise by return mail. E. R. PAHL & COMPANY, Milwaukee, Wis. Established in 1894.

SOUTHERN BEE-KEEPERS.—When your honey is ready for market, write us. Will buy outright or handle on commission. Send samples with full particulars. Are paying 30 cts. per pound, net, f. o. b. New York for choice yellow beeswax. HILDRETH & SEGELKEN, New York.

Help Wanted

WANTED.—A hustling helper, handy at extracting. B. WALKER, 6002 28th St., Cicero, Ill.

Position Wanted

WANTED.—Position as assistant to take charge of bees, poultry, or fruit by reliable married man. B. F. CHAPPELL, Forest Depot, Va.

WANTED.—A position in a large bee and honey business. Ten years' experience State wages. ERNEST W. FOX, Black River Falls, Wis.

Man of 24 years, of sober and industrious habits, would like a position with some bee-keeper; Pacific Coast States preferred; ready for work Nov. 1. F. LUMMER, Box 12, Rt. 13, Wauwatosa, Wis.

WANTED.—Young man to take charge of a 30-acre suburban fruit and bee farm near a city of 30,000; chance of a lifetime for an energetic and ambitious man who knows fruit and bees, and is not afraid to use his hands and brains. Must be of good habits and breeding. Can use married couple, wife to do housework. All the capital needed will be supplied. Will pay wages, and give an interest in the business. Give full particulars and references in first letter. Address ERNEST GONZENBACH, Sheboygan, Wis.

For Sale

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

I solicit your orders for Root's peerless goods. Catalog on request. L. W. CROVATT, Box 134, Savannah, Ga.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a speciaity. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—5000 lbs. yellow-sweet-clover seed, new crop, biannual; 4 lbs. hulled, by mail, prepaid, $1.10; 50 to 100 lbs., at 15 cts.; unhulled, 3 cts. per lb. less. Alfalfa seed, $16.00 per 100 lbs. R. L. SNODGRASS, Rt. 4, Augusta, Kan.

FOR SALE.—Root's bee-supplies and American honey-cans. Finest warehouse and largest stock between Missouri River and Pacific Coast assure prompt shipment at low prices. SUPERIOR HONEY CO., Idaho Falls, Ida., and Ogden, Utah.

Miscellaneous

MUSIC.—Beautiful variations of "Where is My Wandering Boy To-night?" Price 25 cents. MRS. F. W. ERICSON, Rockton, Wis.

Bees and Queens

Italian queens, 75 cts.; tested, $1.00; breeders, $5.00.
W. T. HELLYER, St. Louis, Mo.

Queens (hybrid) from New Hampshire, 50 cents.
W. B. BURLINGAME, Exeter, N. H.

Bees and queens of quality. Supplies. Catalog.
Stringham, 10 Park Place, New York City.

FOR SALE.—Italian queens; untested, 75 cts; 6 for $4.00. E. A. SIMMONS, Greenville, Ala.

FOR SALE.—Italian queens, 50 cents each.
J. F. MICHAEL, Winchester, Ind.

Italian queens, Doolittle strain direct. Untested, 80 cts.; dozen, $7.00. Catalog.
F. M. BABCOCK, Fredonia, N. Y.

Golden Italian queens and nuclei. No disease. Write for prices. J. H. WAGNER,
Box 305, Beatrice, Neb.

Missouri-bred Italian queens; none better; prices right. Write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

Select Italian queens bred from the best honey-gatherers obtainable. Untested, $1.00; 6 for $5.00; 12 for $9.00. J. D. HARRAH, Rt. 1, Walla Walla, Wash.

SPECIAL.—Golden queens from now until Nov. 1, 60 cents each; $6.50 per dozen. Guaranteed purely mated. R. O. COX, Rt. 4, Greenville, Ala.

Fine golden queens ready to mail right now at 75 cts. each; $7.50 per dozen.
J. B. CASE, Port Orange, Fla.

FOR SALE.—50 to 300 colonies, eight-frame, good condition. Sept. 15.
E. F. ATWATER CO., Meridian, Idaho.

Improved red-clover Italian queens bred from the best honey-gatherers obtainable. Untested, $1.00; 6 for $5.50; 12 for $10.00. J. H. GIBBS, Berlin, Md.

Golden and red-clover Italian queens; superior stock. Write for prices. WM. A. SHUFF,
Aldan, Delaware Co., Pa.

Golden queens, untested, $1.00; select untested, $1.50; breeders, $5.00 to $10.00; also Root's bee-supplies. Write for catalog. ROB'T INGHRAM, Sycamore, Pa.

FOR SALE.—Fine Italian queens, hustlers; untested, one, 75 cts.; 6 for $4.00; tested, $1.25 each.
EDW. A. REDDOUT, Baldwinsville, N. Y.

FOR SALE.—Golden Italian queens. Tested, $1.00; select tested, $1.25; untested, 60 cts.; dozen, $7.00.
D. T. GASTER, Rt. 2, Randleman, N. C.

FOR SALE.—Bees by the pound with tested queen, purely mated, one year old, Root-Moore stock, $1.00 per lb. Queen alone, 40 cts. I have more than I care to feed. D. G. LITTLE, Hartley, Ia.

FOR SALE.—Sixteen colonies of Moore and other three-banders in Danz. and Dovetailed one-story hives at $3.00 each. No disease. S. A. PECK,
Northumberland, Pa.

CHEAP QUEENS.—I have a lot of black and hybrid queens that I bought from the farmers, and will mail them, as long as they last, at 25 cts. each.
JOHN W. CASH, Bogart, Ga.

FOR SALE.—Black and mismated Italian queens, 35 cts. each, and light extracted honey at 8½ cents per lb. in new 60-lb. cans.
JULIUS BUEGELER, New Ulm, Texas.

Bees by the pound, nucleus, or colony. Italian queens; prices reasonable. Bee-supplies and second-hand incubators. Catalogs.
DEROY TAYLOR, Lyons, N. Y.

FOR SALE.—A limited number of Banat-Italian queens—all young, vigorous, fine honey-gatherers; 50 cts. each, to close out.
EDW. A. REDDOUT, Baldwinsville, N. Y.

FOR SALE.—Italian queens, untested, 75 cts.; tested, $1.00. Bees by the pound, nucleus, or full colony. Red-clover bees. EUGENE S. WATSON,
Rt. 2, Madison, Maine.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Bradley's Store, Va.

Italian queens, good as the best; untested, 75 cts.; tested, $1.00. Shipments begin April 1st for bees by the pound and nucleus. Write for prices.
C. B. BANKSTON, Buffalo, Leon Co., Texas.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction.
W. W. DAKIN, Hood River, Ore.

High-grade Italian bees. Colonies, $8.00; queens, tested, $1.25; untested, 85 cts.; 1 lb. bees, $1.50; ½ lb., 90 cts. My bees get the honey. Try them. Satisfaction guaranteed. GEO. H. REA, Reynoldsville, Pa.

SPECIAL.—The benefits from 11 years' testing of stock secured from 11 leading queen-breeders; will please the most critical bee-keeper. A trial will convince. Untested, $1.00; tested, $1.50; breeder, $5.00. J. B. HOLLOPETER, Pentz, Pa.

Hybrid queens the rest of the season, 35 cts.; 3 for $1.00; pure Italians, 50 cts. Safe introduction of all queens guaranteed. I tell you how. Extra choice Italians, guaranteed to please, or will replace next season—$1.00.
E. W. BROWN, Box 171, Willow Springs, Ill.

Golden queens — very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

J. E. Hand's headquarters for the celebrated Highland Farm strain of three-banded red-clover Italians, line bred for honey-gathering qualities, 75 cts. each; six, $4.00. Valuable information free.
J. E. HAND, Birmingham, O.

Do you wish for bees in the early spring
When the winter's cold is over,
To build up swarms both good and strong
For the raspberries and white clover?
Now is the time to head your swarms with best queens from best Italian mothers for best profits. One queen, 75 cents: 12, $7.00. Special rates by the hundred. EMILY H. JACKSON.
Route 2, Kibbie, Mich.

FOR SALE.—Moore's strain and golden Italian queens, untested, $1.00; six, $5.00; twelve, $9.00. Carniolan, Banat, and Caucasian queens, select, $1.25; six, $6.00, twelve, $10.00. Tested, any kind, $1.50; six, $8.00. Choice breeders, $3.00. Circular free.
W. H. RAILS, Orange, Cal.

QUEENS! QUEENS!—Fine Italian queens ready to mail; satisfaction guaranteed; reared exclusively from Root's and Davis' stock. We cull our virgins. Three-banded untested, 60 cts.; ½ doz., $3.50; dozen, $7.00; tested, $1.00; select tested, $1.25. Our Golden yard is 3¼ miles from three-band. Price of golden the same as three-band.
H. B. MURRAY, Liberty, Randolph Co., N. C.

FOR SALE.—Italian queens, bred from the best honey-gathering strain obtainable. Untested, 75 cts.; select, $1.00; tested, $1.25; select tested, $1.50; breeding-queens, $3.00; select breeding-queen, $5.00; nuclei without queen, one-frame, $1.25; two-frame, $2.00; three-frame, $2.75. For queens and nuclei in quantity lots, write for prices.
ROBERT B. SPICER, Wharton, N. J.

California queens from The A. I. Root Co.'s $12.00 breeder and J. M. Davis' select stock. We offer 1000 select untested queens (three-banded Italians) in lots of 12 and upward at $9.00 per dozen; $70.00 per 100, cash with order. All queens reared in full colonies above queen-excluder, and mated in large nuclei. Fifteen years' experience in queen-rearing and honey-production. Address H. L. WEEMS,
Sup't Bee Dep't Kern Co. Land Co., Wasco, Cal.

FOR SALE.—In Central Florida 100 colonies bees, $500; 200 colonies bees, $800; 150 colonies bees, $600; in South Georgia, 50 colonies bees, $175; 70 colonies bees, $200; 125 colonies bees, $625; 150 colonies bees, located in three apiaries, two of which are located in progressive towns with fine surrounding territory—a good location for a big bee business. Surplus-yielding honey-plants are ty-ty, poplar, tupelo gum, gallberry, and cotton. A bargain at $900. The most of the above bees are owned by farmers, are in modern hives, and well located.
J. J. WILDER, Cordele, Ga.

Poultry

April-hatched Indian Runner ducks, fawn and white; $2.00 each; $3.50 a pair; $5.00 per trio. White-egg strain. KENT JENNINGS, Mt. Gilead, Ohio.

INDIAN RUNNER DUCKS.—Full-grown young stock for sale, either fawn and white or penciled, from best strains in America. Eggs for hatching. All sales guaranteed as represented.
C. O. YOST, Rt. 4, Winchester, Ind.

FOR SALE.—Duston White Wyandottes, $2.00; 15 eggs, $1; $5 per 100. ELMER GIMLIN, Taylorville, Ill.

Buttercups for utility and beauty; selected pens; unlike others. H. V. MEEKER, Earl St., Toledo, O.

White-faced Black Spanish eggs for hatching; 15, $1.00; 50, $3.00; 100, $5.00. Also dealer in bee-keepers' supplies of all kinds. A. W. SWAN, Centralia, Kan.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St, Joseph, Mo.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, $1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school.
W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1911; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 60 cts.; select, 75 c.; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices see large advertisement.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

ENGRAVINGS for "GLEANINGS"
MADE BY GRAY PRINTING CO., Fostoria, O.

Convention Notices.

NATIONAL PROGRAM.

There will undoubtedly be reception committees who will meet all incoming trains the forenoon of August 30. Hotel information can be secured from them. Those arriving in the afternoon will go direct to the convention room.

Place of meeting, G. A. R. Hall, Court-house, Minneapolis, Minn.

Time, August 30 and 31, 1911.

SESSIONS.

1. Foul brood, 1:30 P.M., Aug. 30.
2. Honey-selling, 7 P.M., Aug. 30.
3. Business, 8:30 A.M., Aug. 31.
4. Miscellaneous, 1:30 P.M., Aug. 31.
5. Coöperation, 7 P.M., Aug. 31.
6. Free trolley ride around the city, courtesy of Minneapolis Commercial Club, 9 A.M., Sept. 1.

HOTELS.

Radisson, Dyckman, $1.50 per day and upward.

West, Nicollet, Vendome, Rogers, Camfield, $1.00 per day and upward.

Majestic, Golden West, Beaufort, Pauly, Russell, 75 cts. per day and upward.

PROGRAM IN DETAIL.

Foul-brood session begins at 1:30 P.M., Aug. 30, and is subdivided into the following topics:

1. The present status of the campaign against foul brood.
2. Advantage of apiary inspection under the supervision of the State Entomologist.
3. How can a national campaign be conducted against foul brood?
4. How to get State foul-brood laws.
5. The agricultural college and inspection.
6. Curing foul brood; inspectors' methods: what are they?
7. Appointment of committees.
8. Question-box.

Honey-selling session begins at 7 P.M., Aug. 30, and is subdivided into the following topics:

1. Is a national advertising campaign for selling honey practical?
2. How can a national campaign be conducted for developing the wholesale honey markets?
3. A mail-order honey trade—how conducted.
4. Developing the home markets.
5. What sized package should be used for the retail trade?

6. Question-box.

Business session begins at 8:30 A.M., Aug. 31, and is subdivided into the following topics:

1. President's address.
2. General manager's report.
3. Secretary's report.
4. Shall the National be one separate association, or an aggregation of smaller ones?
5. The new constitution and by-laws.
6. Publication of annual convention report; is any change desirable?
7. National Association bulletins; what have they accomplished?
8. Nomination of officers.

Miscellaneous session begins at 1:30 P.M., Aug. 31, and is subdivided into the following topics:

1. Mating-stations conducted by the government; would they be practical?
2. Uncapping-melters; are they being used extensively?
3. Steam-heated uncapping-knives; are they practical?
4. Uncapping-machines; are they a success?
5. Adulteration of honey; to what extent is it practiced? What can be done to stop it?
6. Uniform shipping-cases; if adopted, what size should they be? Why?
7. Question-box.

Coöperation session begins at 7 P.M., Aug. 31, and is subdivided into the following topics:

1. What the Colorado Honey-producers' Association is doing.
2. Coöperative efforts in California.
3. The Michigan plan, or what the Michigan Association is doing.
4. What can the National do along coöperative lines?
5. Obstacles to be met in coöperative efforts, and how to overcome them.
6. Question-box.

You will notice that in the above program the names of those to take part are not given. There is a two-fold object in this. First, we want the persons who are to lead in the handling of the topics to be present. Second, we want every member to come prepared to take part in the discussions, as we want this to be a convention of live members, and not have the majority sit still while a few do the talking. Remember, *you* may be called on to take part.

In conclusion let me say that there will be some competent person there to handle each one of the above subjects. Prominent bee-keepers from all over the country will be there, and these topics will be assigned to some of them before the session starts. But it is expected that every member will plan to take part. E. B. TYRRELL, Sec.

Special Notices

By OUR BUSINESS MANAGER

We have just received a car, and have others on the way, of fine water-white honey. If your crop is short this year and you do not have enough for home trade, write us for prices and samples.

BUCKWHEAT SEED.

The season is now rather late for sowing buckwheat, and our stock of seed is exhausted at Medina. If any is wanted we can furnish silverhull from Toledo, O., and Japanese from Dexter, Mo., at $1.50 per bushel; 15 cts. each extra for bags. After the new crop is harvested we expect to have seed to offer at much lower prices.

CHANGE CAUSED BY DEATH IN THE RANKS OF OUR AGENTS.

After several months of suffering, our loyal friend Geo. E. Hilton, of Fremont, Mich., died July 12, at his home, from what proved to be cancer of the stomach. He worked up to the last, taking prompt care of his orders, and at his request his bee-supply business and stock of supplies is turned over to M. H. Hunt & Son, at Lansing, Mich., by whom all orders will be filled. Mr. Hunt has a stock of Hilton chaff hives and Hilton T supers and separators, and will take good care of the wants of Mr. Hilton's customers.

SECOND-HAND FIVE-GALLON CANS.

We still have a good supply of good second-hand cans, bright inside, packed two in a case, at $3.00 for 10 boxes; $25.00 per 100 boxes. A limited number can also be furnished from our Chicago warehouse at the same prices. We have saved only the best of the cans out of those emptied; and if you can use any thing poorer than new cans you will be well pleased with these. They will, of course, need cleaning out before filling, as we leave the honey adhering so as to prevent rusting.

YELLOW-SWEET-CLOVER SEED.

If any of our readers know of any biennial yellow sweet clover, *Melilotus officinalis*, from which seed may be harvested, we would appreciate it very much if you would put us in touch with the proper parties by sending their address. We want to secure a supply of seed. We have contracted for our supply of unhulled white, and have an abundant supply of the annual yellow; but we want to contract for hulled white and the kind first mentioned, either hulled or unhulled.

BARGAINS IN SHIPPING-CASES.

We have some special bargains to offer in shipping-cases for 4¼ sections, which are first class, but of styles which we no longer catalog—chiefly two-row cases for 12 or 16 sections. If any one has honey to pack, and wants a cheap case, we are prepared to make attractive prices to those who write, naming about the quantity needed. State also whether your honey is for sale, and what kind it is. We are in the market for choice comb and extracted honey in almost any quantity.

QUEENS.

We are caught up on our orders for untested queens, and from now on expect to be able to send out queens in reasonable quantities, by return mail. Quantity prices for August delivery are as follows:

6 for $5.00; 12 for $9.00; 25 for $17.50; 50 for $30.00; 100 for $50.00; 200 for $90.00.

Our stock is up to the usual high standard, and we think it will pay our friends to take advantage of these special prices.

Special Notices

By A. I. ROOT

E. G. LEWIS, THE WOMAN'S NATIONAL DAILY, ETC.

From the St. Louis *Post-Dispatch* we clip the following:

RECEIVER NAMED FOR ALL LEWIS CONCERNS.

This lengthy bill of complaint recites a marvelous story. If it recites the truth, or if a small per cent of the recitals are the truth, then we have for consideration one of the most gigantic frauds that has been perpetrated in many a day.—*From the Receivership Order made by Judges Dyer and McPherson.*

We also learn from the above paper that the total capital of his various enterprises involved about six million dollars. We are told also that he promoted or was interested in something like 19 different speculations first and last.

THE BEST POULTRY-BOOK.

Every few days the friends write me, asking what poultry-book they had better purchase—which one I would recommend above all others, etc. Well, to get right down to it there is no *best* poultry-book. There are many good ones, but no one book contains *all* this good. The one that is most emphatic against humbugs and frauds, especially expensive medicines for dosing chickens, etc., is one I have frequently referred to—"The Dollar Hen." Now, while this is an excellent book—one of the very best ever published, perhaps—there are very many valuable things to be found in other books that this book hardly touches o.n As we have been offering it at a low price, clubbed with GLEANINGS, we have been several times out of stock, and at one time we thought we could not get any more, and so it was taken out of our book-list. We have now a good supply, however, and can furnish you the book for $1.00 postpaid. But if you renew your subscription to GLEANINGS at the same time, we will furnish the book and GLEANINGS for $1.50.

Cans and Containers
. . FOR . .
Extracted Honey

As in previous seasons, we have prepared a very complete stock of honey-containers of almost every commendable shape and style. In our warehouse—ready for immediate shipment to you—are considerable quantities of tumblers, jars, tins, etc., all of the finest quality and all priced right.

There is Much Satisfaction

in knowing that there is a dependable source of supply so near to all Texas bee-keepers and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet to fall down at a critical time. Sometimes we feel that it is not wise for bee-keepers to trust entirely to the supply-house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when YOU are ready WE are.

Honey-extractors

We can quickly supply the famous ROOT HONEY-EXTRACTORS in whatever size your requirements call for. We have interesting printed matter which fully describes these quality machines, and a booklet which tells of the ecomomy of a power honey-extractor. Better get this information and prices right away.

Sell Us Your Honey and Beeswax

We desire, as usual, to buy all the first-class white honey we can obtain. We are now paying for bulk comb honey of the above grade, properly put up f. o. b. the bee-keeper's railroad shipping-point—

9½c per pound for 2--60. 10½c per pound for 10--6.
10c per pound for 10--12. 11c per pound for 20--3.

If you wish to sell us some, kindly send sample, stating how much you have and how it is put up, and we will send you shipping instructions.

TOEPPERWEIN & MAYFIELD COMPANY
Cor. Nolan and Cherry Sts., San Antonio, Texas



A Building for You, by You.

You are respectfully and earnestly requested to contribute to the cost of the site and construction of this building—it and its surroundings known as Arcadia—the home of the Agassiz Association. The editor of this magazine believes in the worthiness of this cause, and has contributed this space wherein this appeal may be made to you. You also are in sympathy with it because you love nature, the great outdoors, education, recreation, inspiration, health, happiness, and humanity.

The Agassiz Association, established in 1875, incorporated in 1892 (Massachusetts) and in 1910 (Connecticut), is world-wide in its work. It was recently made homeless by an unfortunate misunderstanding. It is an interesting and surprising story. We will tell it to you if you will let us. The charter of the Agassiz Association says:

> The purposes for which said corporation is formed are the following, to wit: The promotion of scientific education; the advancement of science; the collection in museums of natural and scientific specimens; the employment of observers and teachers in the different departments of science, and the general diffusion of knowledge.

You believe in those purposes. That is why we ask your aid, and wish to be of service to you. No officer of the association has or will receive a salary. Its altruism in all its purposes and the height of its ideals are excelled by no organization.

The full story is told in a beautifully illustrated magazine, *The Guide to Nature*, its official organ. A copy will be mailed free to you upon request. Contributors of less than ten dollars will receive the magazine the number of years there are dollars in their contribution. Contributors of ten dollars or more are entered as life subscribers—as long as they and the magazine are in existence. Write for further particulars.

The Agassiz Association,

Arcadia, Sound Beach, Connecticut

Edward F. Bigelow, President, and Managing Editor of "The Guide to Nature."



200 Pages; Nearly 500 Subjects

A NEW Edition of This Popular Book

ADVANCED BEE CULTURE

By W. Z. HUTCHINSON

E. R. ROOT, editor of *Gleanings in Bee Culture*, who revised Mr. Hutchinson's book which has just been published, has to say in *Gleanings:*

As a writer on bees Mr. Hutchinson has few equals. For clearness of style and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and the useful from an extended discussion is intuitive. The last edition of "Advanced Bee Culture," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by a master of the art of boiling down discussions.

I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced bee-keeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it in connection with some other work like the "A B C and X Y Z of Bee Culture," or any textbook designed especially for the beginner class.

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The A. I. Root Co., Medina, Ohio. GBC 8-1-11

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ADVANCED BEE CUTLTURE costs $1.00 per copy. GLEANINGS IN BEE CULTURE (semi-monthly) — known and read by bee-keepers throughout the world— price $1.00 for an annual subscription. It is our pleasure, however, to offer this interesting and most useful combination — the book here described and GLEANINGS one year, both for $1.50. It is a value you will very seldom find—really it is a good $2.00 worth for $1.50.

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The A. I. Root Co., Medina, O.

Gleanings in Bee Culture

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Heads of Grain

Our Homes

Complete Service At Chicago!

CHARACTERISTIC of the **Root Way** is our ready-for-service equipment at the Chicago Branch. In no detail have we neglected to anticipate the patronage of our bee-keeping friends in the territory contiguous to this great distributing center. Let us recount our preparations for your benefit:

SUPPLIES AND STOCK

Abundant room in this branch enables us to carry a very large stock which represents practically every article in the big Root line. All goods listed in former price lists, and still on sale, are here, together with the new and improved lines shown in this 100th, edition of our catalog. Carload lots of fresh supplies continually come from our factory to keep our stock complete. No delay in filling even the largest orders at Chicago, is our policy

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With 25 great railroads and 7 express companies ready to distribute our goods in all directions; freight close at hand, with every facility for quick packing and delivery at railroad, express office, or boat, we await your call. Immediate attention is our invariable rule, and we augment our facilities in the busy season with extra employees so that shipments may be quickly cleared on all occasions.

PACKING.

We do not charge for packing, boxing, or delivering to freight or express offices here in Chicago. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B., Chicago. If no, agent at your station notify us and we will prepay, and bill charges after shipment. Often during the busy season much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what charges will be from Chicago.

We Aim to Get All Mail and Express Orders Off the Same Day They are Received. Freight Orders are Filled in Order of receipt. No Order is too Small or Large for Our Personal Attention

OUR LOCATION.—We are pleasantly located at 213-231 Institute Pl., one block north of Chicago Ave., on the 6th floor of the Jeffrey Bldg. Fine elevator service—both passenger and freight. Large, light, well-fitted display rooms, with complete line of supplies, booklets, etc., always on exhibition. You and your friends are always welcome.

HOW TO REACH US.—Telephone, telegraph, write, or call. Take any Northwestern Elevated train; get off at Chicago Ave.; walk one block north on Franklin St. and half block east on Institute Pl., or take any car running north of 5th Ave. and Wells St.; get off at Institute Pl., and walk half a block west to Jeffrey Bldg.

OUR MANAGER at the Chicago branch is an experienced bee-keeper who thoroughly understands the requirements of those engaged in this business, either for profit or pleasure. He has been identified with the **Root Line** for some twenty years, and has both the knowledge and desire to make his services of value to whoever seek his assistance.

THE A. I. ROOT COMPANY,

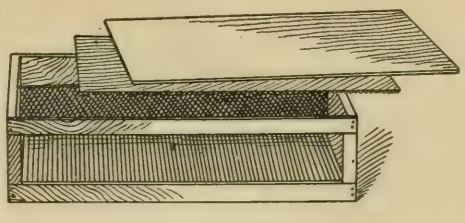
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R. W. BOYDEN, Mgr. :-: **Tel. 1484 North.**

"Falcon"

Shipping-Cases

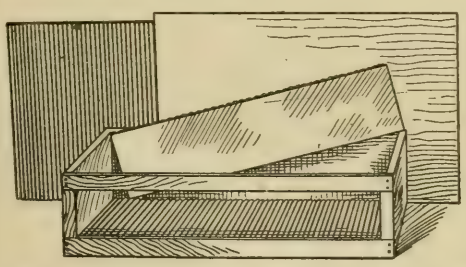
Lined with Corrugated Paper



A good crop of section comb honey to bring the highest price must be marketed in the best shipping-cases obtainable. Poor cases cut the price one to two cents a pound. Use, therefore, only the best and most attractive cases. Such are the cases made at the "FALCON" factory.

Corrugated paper has been proven far superior to the old no-drip sticks. Two sheets, one for bottom drip under sections and one for top (should the crate accidentally be turned bottom side up or receive any heavy blows on top), are supplied with each case. Notice, in the illustration, the corrugated follower to wedge the sections tight.

Corrugated paper above, below, and back of sections, drip-paper top and bottom, extra heavy ends, one-piece wooden covers and bottoms, and heavy slats for glass are furnished in "Falcon" cases. Use no other if you wish your honey to bring the highest price.



Prices

"Falcon" CASES with extra sheets of corrugated paper and corrugated follower cost no more than cases without these sold by others.

24-lb. for Beeway Sections

Showing Four

This case is 11⅜ inches wide, holds 24 sections 4¼x1⅞ to 1¾ or 20 sections, 2 or 1 15-16.

No. 11 with 3-inch glass,	10, $2.00	100, $18.00
No. 11 with 2-inch glass,	10, $1.90	100, $17.00
No. 1 without glass,	10, $1.80	100, $16.00

12-lb. for Beeway Sections

Showing Three

Holds 12 sections 4¼x1⅞. A convenient standard size.

No. 13 with 3-inch glass,	10, $1.30	100, $11.50
No. 13 with 2-inch glass,	10, $1.25	100, $10.75
No. 3 without glass,	10, $1.20	100, $10.00

24-lb. for Plain Sections

Showing Four

Holds 24 sections, 4¼x1½.

No. 11½ with 3-inch glass,	10, $2.00	100, $17.00
No. 11½ with 2-inch glass,	10, $1.90	100, $16.00
No. 1½ without glass,	10, $1.70	100, $15.00

24-lb. for Ideal Sections

Showing Four

Holds 24 sections 3⅝x5x1½.

No. 16 with 3-inch glass,	10, $1.80	100, $16.00
No. 6 without glass.	10, $1.60	100, $14.00

24-lb. for Tall Sections

Showing Four

For 24 sections 4x5x1⅜.

No. 18 with 3-inch glass,	10, $1.80	100, $16.50
No. 8 without glass,	10, $1.60	100, $14.50

Write for prices on cases for sections other than named above.

Buy cases from nearest dealer. See back copies GLEANINGS list of dealers, or write us.

Price List of "falcon" Queens

Three-banded and Golden Italians, Caucasians, and Carniolans

Untested (after July 1) . . . . . One, 75c; six, $4.25; twelve, $8.00
Select Untested (after July 1) . . . . One, $1.00; six, $5.50; twelve, $10.00
Tested, $1.50 each. . . Select Tested, $2.00 each.

All queens are reared in strong vigorous colonies, and mated from populous nuclei. Safe arrival and satisfaction guaranteed.

Buy "falcon" Queens and Increase Your Honey Yields!

W. T. Falconer Mfg. Company

Factory and Main Office
FALCONER, NEW YORK

Branch
117 No. Jefferson St., Chicago, Ills.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy white comb honey at 15 to 16; No. 1 ditto, 14 to 15; white extracted, 11 to 12. Beeswax, 30. BLAKE-LEE CO.

4 Chatham Row, Boston, Aug. 3.

CHICAGO.—Consignments of the yield of 1911 are appearing on sale, with No. 1 to fancy comb honey selling at 17 to 18; extracted white, 8 to 9; amber, 7 to 8. Beeswax, if clean, brings 31 to 32 on arrival. Prices as above given are likely to prevail. Producers generally are reporting a meager harvest.

Chicago, Aug. 1. R. A. BURNETT CO.

CINCINNATI.—We have our first car of comb honey, which is selling at 16½. Water-white honey is selling at 9½ to 10. Light amber in 60-lb. cans is selling at 8; in barrels, at 7. There is do demand for amber grades. Beeswax is in fair demand at $33.00 per 100 lbs. The above are our selling prices, not what we are paying.

C. H. W. WEBER & CO.

Cincinnati, Ohio, Aug. 4.

INDIANAPOLIS.—Demand for white-clover comb honey exceeds the supply. Fancy white brings 18 cts. readily. Extracted is more plentiful, and sells for 11 to 12 in five-gallon cans. The pound jar, which has always retailed for 20 cts., is a thing of the past, and is now a 25-cent article. Producers are being paid about 9 cts. for extracted, but there are no established prices on comb honey. Beeswax is in good demand, and producers are being paid 30 cts. per pound.

Indianapolis, Aug. 2. WALTER S. POUDER.

LOS ANGELES.—There has been practically no change in the California honey market since we last wrote you, although on a limited quantity of white and water-white sage we believe business could be done at ⅛ ct. under quotations in our letter of July 12th. We therefore quote, subject to confirmation, sage water white, at 7½ to 7⅝, and sage white at 7¼ to 7⅜ for prompt shipment. Sage, light amber, is held firmly at 6¼, but we consider the market on alfalfa light amber a trifle weaker. While we can not offer for less than 6¼, we should be willing to entertain slightly lower offers, and would do our best to confirm the same. We offer mesquite white honey, for immediate shipment, at 6½. There is very little of this grade to be had; and as this price is at least ¾ ct. less than the price of sage white, it should be readily sold.

HAMILTON & MENDERSON.

Los Angeles, Cal., July 25.

Continued on page 5.

WANTED!

Comb and Extracted Honey

Let us hear from you with your best price on your Comb and Extracted Honey, freight paid to Cincinnati. We buy every time price justifies. No lot too large or too small. We remit day shipment arrives.

THE FRED W. MUTH CO.

51 Walnut Street **"The Busy Bee Men"** **Cincinnati, Ohio**

HONEY

We Want to Buy . . We Offer for Sale

We are always in the market for honey, both extracted and comb. Send samples and state lowest price. If in need of honey we will gladly submit sample and make quotation.

It is possible that, on account of conditions, you did not order any extra supplies; and now that the honey is coming in fast, you find yourself short of some important items. This is where we come in. Our stock is large and complete, and we are ready to fill your orders immediately on receipt.

SHIPPING-CASES

Having produced a fine crop of honey, it is folly to market it in any thing but the best and neatest package. Good shipping-cases add much to the value of your honey, and you can not expect to secure the highest price unless your package as well as your product is the best. We supply all kinds of honey-packages—cases, bottles, cans, cartons, etc.

SECTIONS

We sell the best grade of sections made. If you want a hundred or ten thousand or a hundred thousand, we can fill your order promptly with goods which are bound to please. You may judge of the popularity of these sections when we tell you that the manufacturers make upward of twenty-five million of them every season.

FOUNDATION

Another article we handle in considerable quantities is Comb Foundation. There is nothing more important to the up-to-date bee-keeper than to have foundation just when he needs it, and of the best quality. We sell nothing but Root's Weed-process Foundation, the recognized standard of the world. The bees appreciate the good points of this foundation, and every bee-keeper knows that it is the best. All grades and sizes constantly on hand. A pound or a ton, just as you like.

SHIPPING

Whether you are ordering in ample season or whether you have put off until the last moment, you may rest assured that our service will give you delivery of goods at a minimum of expense and time. Having so many years' experience in this work, we know the best routes and we have the best facilities for serving you. Just tell us your needs briefly and send us definite orders, and we will demonstrate what we can do for you.

POWER HONEY-EXTRACTORS

A thirty-two-page booklet that has a lot of valuable information for the bee-keeper who produces extracted honey. A copy free on request. Catalog and price list of the best bee-supplies made, for the asking.

C. H. W. Weber & Co.

2146 Central Ave. Cincinnati, Ohio

Gleanings in Bee Culture

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Extracted HONEY Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

CINCINNATI.—New honey is coming quite lively at present, and for strictly choice comb honey we are getting from 15 to 16½ by the case from the stores here. Strictly fancy extracted honey for table use brings from 8 to 9 in crates of two 60-lb. cans; amber honey in barrels, from 6 to 7. The above are our selling prices. We expect to buy at prices cheaper than the above. For choice bright yellow beeswax we are paying from 28 to 30, delivered here, according to quality.

Cincinnati, Aug. 3. THE FRED W. MUTH CO.

CHICAGO.—At this writing only very few shipments of new comb and extracted honey have reached this market. Such shipments, however, sold promptly on arrival at good prices, and we encourage bee-keepers who have any honey for early shipment to let it come forward at once. We quote our market on fancy No. 1 white comb honey at 17 to 18; No. 2 white and light amber, 15 to 16; medium amber and other inferior grades at correspondingly less prices; white extracted, put up in 60-pound cans, 8 to 9. Bright pure beeswax, 31 to 32.

Chicago, Ill., Aug. 7. S. T. FISH & Co.

ST. LOUIS.—The honey business is still very slow, as the new season has not opened on comb honey. So far there have been no receipts, and the little old honey on the market at present moves out slowly at the following quotations, which are more or less nominal: Fancy white comb honey, none on the market; No. 1, 14 to 15; choice amber, 12 to 13. The receipts of Southern extracted honey keep up, and arrivals are salable at 7 cts. for choice light amber, 6 to 6½ for dark. The same class of honey will bring ½ ct. per lb. more in five-gallon cans. Beeswax is in good demand at 30 cts. for prime; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Aug. 7.

THE NATIONAL BEE-KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey.

MEMBERSHIP DUES

One dollar a year.

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VICE-PRESIDENT.—W. D. Wright, Altamont, N. Y.
SECRETARY.—E. B. Tyrrell, Detroit, Mich.
TREASURER AND GENERAL MANAGER.—Newell E. France, Platteville, Wis.

Are you a member? If not, why not send the annual dues ($1.00) at once to Treasurer France? Every progressive bee-keeper should be a member of this, the greatest bee-keepers' organization in North America.

Honey-Packages!

You will soon need packages for honey. 1-lb. screw-cap jar, $5 gross. These are heavier glass than generally sold. Tested Italian queens, $1.10; untested, 75c. Catalog of every thing a bee-keeper uses, free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

KANSAS CITY.—Small shipments of new comb honey are commencing to arrive, and the demand is sufficient to take all of our receipts upon arrival. There is no extracted, either old or new, on the market. We quote No. 1 white comb, 24 section cases, $3.50; No. 2, ditto, $3.25; No. 1 amber, in 24-section cases, $3.25; No. 2, ditto, $3.00. White extracted, 9; amber, 7½ to 8. Beeswax, 25 to 30.

C. C. CLEMONS PRODUCE CO.

Kansas City, Mo., Aug. 2.

DENVER.—We quote No. 1 white comb honey, per case of 24 sections, at $3.60; No. 1 light amber, $3.35; No. 2, $3.15. White extracted honey, 8½ to 9 per lb.; light amber, 7½ to 8. These are our quotations to the jobbing trade, and apply to new-crop honey only. Old comb honey is not wanted at any price, and is practically all cleaned up. We pay 26 cts. in cash, 28 in trade, for clean yellow beeswax delivered here.

THE COLORADO HONEY PRODUCERS' ASS'N.

Denver, Col., Aug. 3.

ZANESVILLE.—The midsummer lull in general business extends to the honey business, and calls are light. Offerings are few, and indications are that the supply will be inadequate when the demand starts up, and that prices will be correspondingly high. The market is not established, but producers would probably receive 14 to 15 for best grades of white-clover comb, and 8½ to 9 for extracted. Producers receive for beeswax 28c in cash, 30 in exchange for bee-supplies.

Zanesville, O., Aug. 1. E. W. PEIRCE.

LIVERPOOL.—The honey market has been quiet. The only sales of importance are Chilian on spot at $5.76 for pile No. 3, and $4.68 for no pile—in all, about 250 barrels. A further lot of 350 barrels has been sold on the Continent at $5.52, C. i. f. For medium grades the demand, as usual, at this time of the year, is poor. Fine Jamaican hopey (liquid and set) is sold at $7.20 to $8.64. In Californian, business has been done at $9.60 for new crop water-white, C. i. f., Liverpool, shipment by overland route, and at a lower rate for steamer shipment. Light amber ex-store sales have been made at $10.08. Haitien.—A quantity of dark quality has been sold at $6.60. There is nothing fresh to report in Italian or New Zealand honey, for which the demand is slow. With larger arrivals our beeswax market is dull and easier. Sales have been made in Chilian only, and three tons for shipment at $34.78, C. i. f. Other qualities are nominally worth as follows: African, $32.64 to $34.48; American, $37.48; West Indian, $32.64 to $36.28; Chilian, $33.88 to $38.72.

TAYLOR & Co.

7 Tithebarn St., Liverpool, Eng., July 21.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873 · CIRCULATION 35,000. 62 pages Semi-monthly

A. L. BOYDEN, Advertising Manager

ADVERTISING RATES.

Twenty-five cents per agate line, flat. Fourteen lines to inch.
SPACE RATES. To be used in one issue: One-fourth page, $12.50; one-half page, $25.00; one page, $50.00.
Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover, 50 per cent additional.
Outside cover page, double price.
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Cash discount if paid in 10 days, 2 per cent.
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No medical or objectionable advertising accepted.
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Forms close 10th and 25th.
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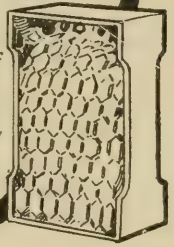
BEES PAY BIG

and require little care. All the little honey-gatherers and money-makers demand of you is to provide a home for them. They make the honey and you get the profit. What little work you must do can be made 100 per cent. easier and your profits 100 per cent. bigger if you have the

RIGHT KIND OF SUPPLIES

If you are a bee-keeper or are thinking of going into the bee business you ought to have our beautiful illustrated **New Bee Book**—just off the press. It's a complete guide to profitable bee culture. Tells you how to buy bees, what kind are best, where to locate the hives, how to care for them summer and winter, how to prepare the honey for market—in fact it tells you **all** you need to know to make bees highly profitable as a business or a side-line.

SEND FOR THIS FREE BOOK



We sell everything the bee-keeper needs and can save you money whether you keep few bees or many. Buy direct from headquarters at rock-bottom prices. Get our bee book and save money. Write now for a copy as the edition is limited.

Blanke Mfg. & Supply Co., Blanke Building St. Louis, Mo.

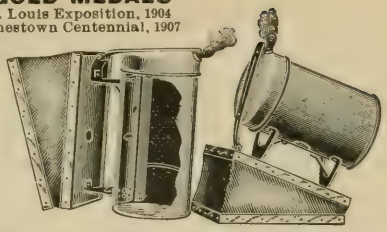
Successors to Blanke & Hauk Supply Co.

ITALIAN QUEENS

Nuclei, Bees by Pound. Ten-page descriptive list free. Untested. $1.00. Reduced rates July 1. List to select from, clubbing "The Pearce Method of Bee-keeping," price 50 cts., with a guaranteed queen for $1.10. Books by return; queens after June 10. Leaflets, "How to Introduce Queens," 15c; also "Increase," 15c; both for 25c. Send for list.

E. E. MOTT, Glenwood, Mich.

GOLD MEDALS
St. Louis Exposition, 1904
Jamestown Centennial, 1907



Danzenbaker Smoker

Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT GRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

The **ONE-PIECE** cap **CAN NOT clog.** It is the **COOLEST, CLEANEST, STRONGEST, BEST,** and **LARGEST NET CAPACITY** of all smokers, selling at one dollar ($1.00). We **GUARANTEE SATISFACTION** or **return** the price; only three complaints in **six years.**

Dan-z. 3½x7½-inch Prize Smoker, $1.00; by mail $1.25
With "Gleanings," $1.00 per year, and Prize Smoker, by mail 1.75
Dan-z. 3½x6-inch Victor Smoker, 80c; by mail 1.00
With "Gleanings," one year, 1200 pp., by mail 1.50

We send propolis shields with Danzenbaker Hives and Supers, and sell anything in the Bee-line at factory prices, also select three-banded Italian queens and bees.

Please send address of yourself and B-friends for FREE catalogs and prices on Bee-supplies, Bees, Queens, Hives, Sections, and Smokers. Address

F. Danzenbaker, 68-70 Woodside Lane, Norfolk, Va.

Protection Veil. . . .

Postpaid, all cotton, 50c; silk face, 60c; all silk, 90c; with B, or ballast cord, 10c per veil extra; extra silk faces, 10c each. Flexible-rim bee-hat, 30c. Oil duck gloves, long sleeves, 35c.

The heavy ballast cord (B) is a new feature to keep the veil from blowing in on the face. The cord A runs around the lower edge of veil, holding it down snugly on shoulders away from the neck, making a tight fit so bees do not get under. Cord C is a short one with loops in ends with cord A running through them, making it adjustable.



Middlebury, Vt., May 26, 1911.

A. G. Woodman Co., Grand Rapids. Mich.

Veils received, and we think the ballast-cord a great improvement in your veil, which was already the best to be had. J. E. CRANE & SON.

A. G. Woodman Co., Grand Rapids, Mich.

A YORK'S HONEY QUEEN FOR ONLY 25c



To introduce the AMERICAN BEE JOURNAL and also the STANDARD-BRED ITALIAN "YORK'S HONEY" QUEENS to NEW readers, we will make a special price of only $1.25 for the American Bee Journal one year ($1.00 alone) and one of the fine "York's Honey" Queens (75c alone). This low price of $1.25 for the Journal and a queen will stand for the rest of the year of 1911 to NEW subscribers. . . . . We will mail three of the Queens to any one for $2.10; 6 for $4.00 or 12 for $7.50. We are filling orders now by RETURN MAIL. Better try a few of our fine Queens and also the old American Bee Journal, if you are not now a regular reader of it. Sample copy free. Address



George W. York & Co., 117 No. Jefferson St., Chicago, Illinois

. . The . .

White-Honey Season

is nearing to a close, and
your next need will be

Shipping-cases

Your orders for cases will
have our prompt attention

The A. I. Root Company

Syracuse, N. Y.

"Griggs Saves You Freight"

TOLEDO

**is the place to buy
your BEE-WARE...**

When your crop is off don't make that mistake of putting it up in cheap shoddy cases.

Root's Extra Polished Cases

are the cheapest in the long run; your honey looks better and will bring the highest price. We carry a large stock of these cases, all sizes, and can ship promptly.

Honey, Honey, Honey!

We handle large quantities, both comb and extracted. Mail small sample of extracted, and state how comb is put up, size of section used, etc. Full particulars by return mail. Beeswax always wanted, cash or in trade.

S. J. Griggs & Co.

25 No. Erie St., Toledo, Ohio

"Griggs, the King Bee"

We Save You Money!

We Manufacture Dovetailed Hives, Sections, Shipping-cases, Brood-frames, Separators, Section-holders, Berry Crates and Boxes.

QUALITY Our hives are made of best grade white pine, cut accurate and smooth to standard measure. Sections are of basswood, polished on both sides. There are no better goods made.

PRICE Our factory is well equipped, and we make goods as cheap as or cheaper than anybody else. We sell first hand, and can save you the middleman's profit. Will quote delivered prices by return mail, if you state your wants. Our prices will surprise you.

SERVICE We carry a complete line of everything used in the apiary—foundation, smokers, and extractors always on hand. Shipping facilities are as good as can be found anywhere. We want your business; no order is too small for careful attention; none too large for us to handle. We guarantee prompt and satisfactory service. Catalog is free.

Minnesota Bee-Supply Company

Minneapolis, Minn.

COMB-HONEY OUTFIT No. 5

It is a matter of some difficulty for the average beginner to decide exactly what he requires as an outfit for the first start in bee-keeping. To relieve the beginner of all perplexity we list certain outfits which we think will meet his needs. The one we give below is what may be fairly considered the best. Each item has been very carefully selected, and we doubt the wisdom of leaving any article out; but the purchaser may do so without altering the prices on the other items.

1 A B C and X Y Z of Bee Culture (536 p.),	$1.50
1 copy "Facts about Bees"	.10
1 year's subscription to "Gleanings," .	1.00
1 Root Smoker	.65
1 pair cotton bee-gloves (small, med., or large)	.50
1 silk-front bee-veil	.60
1 full col. Italian bees in Danzenbaker hive (Complete with 32 section honey-boxes)	12.00
1 untested Italian queen	1.50
2 Danz. hives complete for comb honey . (Nailed and painted, ready for the bees)	6.80
1 Porter bee-escape and board . . . (For taking honey from the bees)	.35

Special Offer Delivered at any express office north Ohio River and east Mississippi River **$25.00**

For delivery to points outside of the above free limit, we will make terms on application.

The colony of bees is as near perfect as we can make them. The combs are beautifully straight and well filled with brood. The breeding of the queen is of the very best, so that one has the nucleus of a fine stock of bees. In many cases a return of $10.00 in honey has been secured the first year from just such an outfit as this, and in addition one or two swarms may be secured, which practically doubles the value of the investment. Order at once.

The A. I. Root Co., Medina, Ohio

Bee-keepers who Have

THOROUGHBRED CHICKENS

and want to sell eggs and stock at good prices should use space under the POULTRY heading in the

Classified Pages

In proportion to the cost it is doubtful if any other medium offers as good an opportunity for profitable returns on such offerings as

Gleanings in Bee Culture

Read this from one of our satisfied advertisers:

> "I will say that what little advertising we did in GLEANINGS has brought us about all the business we can attend to this season."

—and others say the same.

Read the POULTRY advertisements yourself. Read Mr. A. I. Root's talks on CHICKENS—advertise in GLEANINGS, and GET results.

Shipping-cases...

It pays to pack your honey in neat cases. We have them.

Five-gallon Cans

Two cans in a case. The standard package for extracted honey.

Sections and Foundation

here for immediate shipment.

Extractors.... .....

All sizes.
All "Root Quality."

Beeswax Wanted..

We pay 28c cash, 30c in trade for average wax delivered here.

We Buy Honey..

What have you?

M. H. HUNT & SON

Opposite Lake Shore Depot

Lansing, Michigan

Greatest Premium Offer
Ever Made by an Eastern Poultry Journal

Send for ILLUSTRATED PREMIUM CATALOG

which describes over two thousand useful articles, and tells the number of subscriptions required to secure them. Do you want a watch, jewelry, silverware, clock, jardinier, vase, lamp, fountain pen, musical instrument, large bible, album, furniture of any description, trunk, suit-case, handbag, lace curtains, brass bed, mattress, Smyrna rugs; ingrain, Brussels, and Axminster art squares, furs, baby-carriage, washing-machine, stoves, granite and enameled ware, breakfast, dinner, or tea sets, and numerous other articles. All for a little of your time getting subscriptions for Poultry Item.

Send for complete outfit and start at once to secure the subscriptions. They will come easy as soon as The Poultry Item is shown them, and earn without much trouble one of these elegant premiums.

The Poultry Item.....Sellersville, Pennsylvania

If YOU Want Them YELLOW Try the GENTLE



Strain of Swarthmore Pedigreed GOLDEN Queens, Swarthmore, Pa.

NEW ENGLAND BEE-KEEPERS!

EVERY THING IN SUPPLIES
NEW GOODS
FACTORY PRICES
SAVE FREIGHT

Cull & Williams Co. . Providence, R. I.



Italian Queens

Fine young prolific three and five banded Italian queens by return mail. Untested, 75 cts.; extra-fine queen, $1.00; tested, 95 cts. Full colonies in eight-frame new hive with queen, $4.75. Three-frame nuclei with queen, $2.75.

C. J. FAJEN, Stover, Mo.

Nature Education and Recreation

For Boys and Girls:
NATURE AND SCIENCE (of St. Nicholas Magazine), . Per year, $3.00

For Men and Women:
THE GUIDE TO NATURE (monthly, illustrated) . . Per year, 1.00
$4.00
BOTH, ONE YEAR, $3.00; sample of either, 10c.

For Teachers:
"How Nature Study Should be Taught," (203 pgs.) . Postpaid, $1 00

For Everybody:
"The Spirit of Nature Study," (222 pgs., illustrated) . postpaid, $1.00
"Walking; a Fine Art," (164 pgs., illustrated) . . . Postpaid, $1.50
"Three Kingdoms," the handbook of the AA . . . Postpaid, .75

For Plants:
Sachs Nutrient Tablets, a box, post., 10c.

For You (to aid and be aided):
The Agassiz Association (Popular Nature Society).

For Correspondents:
(To write for further information.)

Edward F. Bigelow
Arcadia : : Sound Beach, Connecticut



"If goods are wanted quick, send to Pouder." . . . Twenty-second Year.

BEE-SUPPLIES

A large and complete stock of the Root Goods offered at the factory schedule of prices. My system of rotating does not permit any accumulation of old stock. My comb foundation is always fresh from the mills; my sections fresh and bright, and hives have all latest improvements. I accept beeswax in payment for goods, or I will pay highest market price for wax in cash. I am in need of more wax at all times.

My **Perfection Tight-seal Jars** are acknowledged as being the best for extracted honey, and I assume all responsibility in shipping, guaranteeing safe arrival. I mean exactly what I say.

My new **Paper Honey-jars** are cheap enough for retailers to give away with their honey. No more waiting to exchange jars or crocks when you deliver your honey. My catalog tells all about these things, and is sent free.

WALTER S. POUDER, 859 Massachusetts Avenue, Indianapolis, Indiana

Boston Is the Shipping Center of **New England**

Bee-keepers should bear this in mind when ordering their supplies. . A full line of supplies always in stock. . . . . Send for catalog.

H. H. JEPSON

182 Friend Street . BOSTON, MASS.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine

J. B. MASON, Manager

It Pays Well to Use Foundation
It Pays Better to Use . . . .

DADANT'S FOUNDATION

It has been proven BEST by TEST by many leading bee-keepers.

We have AGENTS near you.

Why use any other make?

Drop us a line and we will tell you where you can get our goods near you, and save time and freight.

BEE-SUPPLIES OF ALL KINDS

DADANT & SONS, Hamilton, Ill.

YOU HAVE HEARD OF T. B. TERRY

AND HIS WONDERFUL BOOK

"HOW TO KEEP WELL AND LIVE LONG"

But unless you **OWN** and **READ** this valuable publication you will never know or understand what the author says about HOW TO REACH THE CENTURY MARK.

Read this remarkable introduction, written by the author—WHAT I KNOW ABOUT THE MATTER.

MY mother had eleven children. Only three lived to mature age. Of course I am one of them. But you can see my start in life was not a strong one. I was a sickly child like the rest. In college I broke down from too much confinement and study, stayed out a year, tried it again, but had to give up. Doctor told me I must get outdoors to work. Did so, and soon got better. We moved on to our farm where we now reside, 38 years ago. Then I got along fairly well by hiring help to do all the heaviest work, as soon as we could make enough to pay them I learned to do the studying, the directing, laid out the work, kept everything in order and moving, and did myself mostly easy jobs, like riding on a spring seat. Thus in due time we succeeded quite well, and the out of-door employment gave me moderately good health. But after a few years we began to make so much on our little farm that public attention was attracted, and I was urged to write for leading agricultural papers. And about this time farmers' institutes began in Ohio and several other States, and I was asked to help at them. I didn't want to do this work as it would take me from home, and, of course, my farming would suffer as a result. But the demand was strong, and soon I found myself away from home all winter long, speaking two or three times a day, breathing bad air in the halls, living irregularly, often traveling nights, and putting in every spare hour writing articles for the papers. Then on top of this was the constant worry over trying to keep the farm in as good order and producing as well as when I could give my full time to it. I did so want to keep my practice up to my preaching! At home I worked when the weather was fine, and rushed in to write when it rained, as well as at night. This wasn't so much to make money as that all this business had come to me, and I did not like to give any of it up. One hardly needs to tell that the result, some ten years ago, was—

A Complete Breakdown

I had so much ambition and push that I kept driving on after nature had given several danger signals. In fact, I did not consider them at all—hadn't time. The end came when I was in New York. The doctor said I was in a critical condition. But I surprised him by getting up long before he expected, from sheer will power, and then started for home by easy stages; kept up until I got there, then I was sick indeed. Would gain some at times, then be worse again, until life became a burden that I was really anxious to lay down. Our good old doctor seemed powerless to help me much. I remember writing two articles in those dark days when I was flat on my back, so hard was it for me to give up. My pen had almost to run itself. I hardly knew what I was writing. At last I urged our doctor to tell me frankly if I could ever again be as well as I had been before He replied that he didn't think I could: that my kidneys were worn out, liver was in bad condition, I had serious prostatic and bladder troubles, rheumatism, piles, etc. He said that he could patch me up a little from time to time perhaps, but there was no chance for a cure; that one should bear these things philosophically, as they came to all and there was no help for it. Now, do you know he could not have said anything that would have done me more real good? Up to that time I had faith in a first-class physician. I thought he could cure one when he was sick. His words knocked out all of this feeling, and I paid him up, really in pretty good spirits. Why? Well, it thoroughly aroused what little will-power I had left. I said to myself, "I don't know what I will do, but I know that I will not die. I am going to get well in some way."



T. B. TERRY
In his sixty-seventh year

Where there is a Will there is a Way

I began to study this matter of health and proper living for all I was worth. Of course, I was years slowly working my way up, making mistakes, but gradually gaining. It was with much pleasure that I met our doctor one day years after, on the street. I was stepping off like a boy, just as I felt. The doctor looked so completely beaten that I really felt sorry for him. And he said: "Terry, I don't see how in the world I could have been so mistaken in your case." He was not mistaken. If I had gone on living in the old common way it would have turned out just as he said. Probably 99 men out of 100 would have died just as he laid out for them to do. I was obstinate. I have never recognized any such word as "fail." To-day my kidneys are as good as any man could ask for. Every organ is in ideal order. I have the strong, vigorous, quick pulse of a young man. Have not had a trace of piles, rheumatism, or constipation for several years. In fact, I am sound and well in every way. Breathing, eating, sleeping, working—all are genuine pleasures. I really do not think I ever enjoyed as perfect health before in all my life as I have during the past five years. And, wonder of wonders—

I am Still Gaining

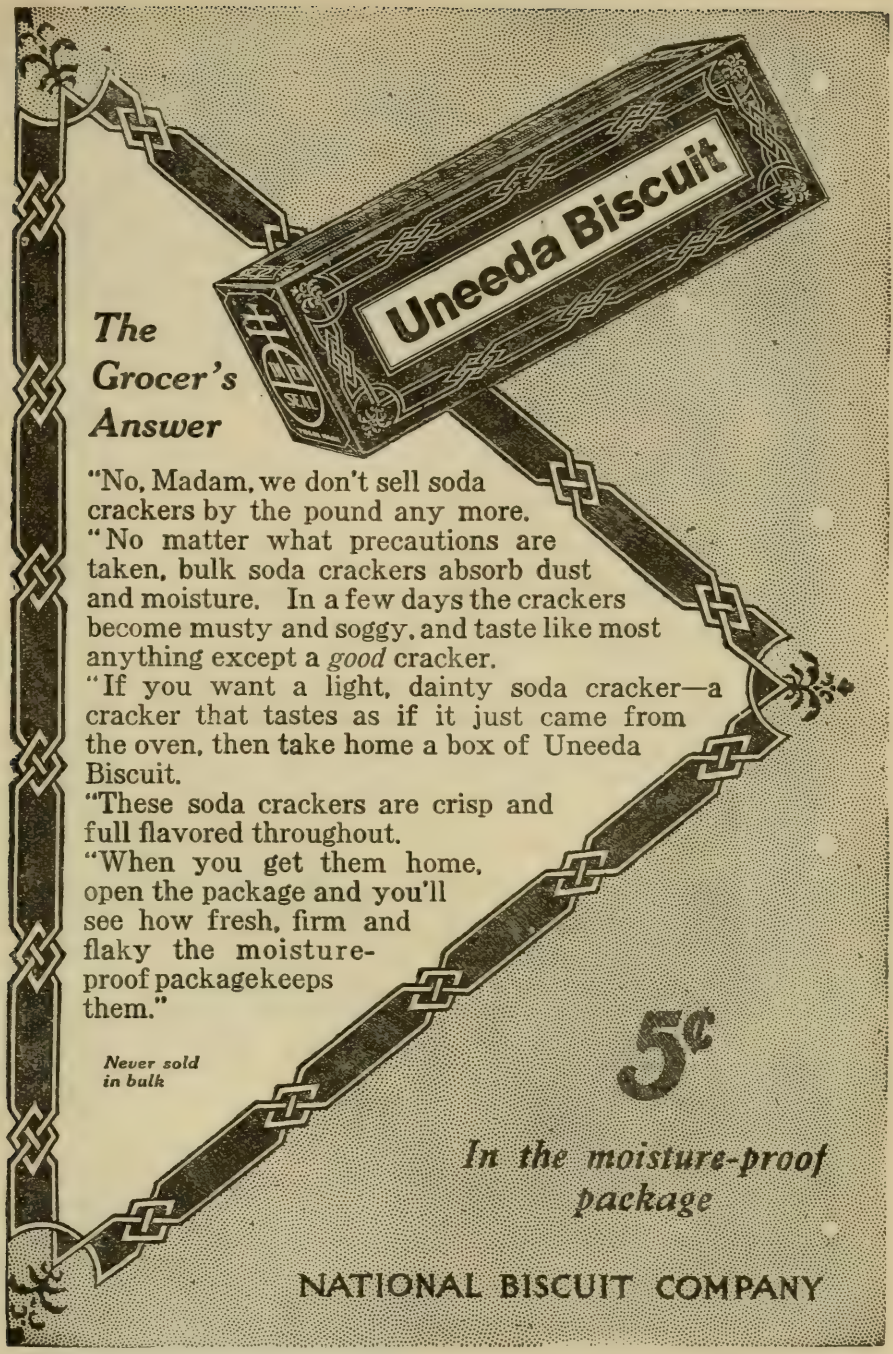
If you are ailing, as most people are, you can cure yourselves same as I have myself, and as thousands of others have done. You can become so well as not to know what it is to have an ache or pain or bad feeling. I will tell you just how to do it. If you are well now, or when you get well, you can keep so by continuing the same simple, natural, healthful way of living. I have long been urged to write a book of this kind, but have held off until years of personal success and study give me the right to speak quite positively. It is my aim to make these pages entirely reliable, a safe guide for busy people who haven't the time to work for years sifting truth from a mass of error. This book is most earnestly dedicated to all the people of America.

T. B. TERRY.

Mr. Terry's book, bound in cloth, is sold for $1.00 or given with a year's subscription to GLEANINGS IN BEE CULTURE for $1.50

Nearly a thousand copies of this helpful book have been distributed through the publishers of GLEANINGS IN BEE CULTURE, and not a single reader has expressed regret at his bargain. Mr. A. I. Root heartily endorses Mr. Terry's writings on health subjects.

In connection with a year's subscription to GLEANINGS, 30 cents additional is required for orders from Canada, or 60 cents additional for orders from foreign countries.



LOCKHART'S - SILVER - GRAY - CARNIOLANS

"LINE BRED" for the past 25 years. They are VERY hardy, gentle, prolific, great workers, and builders of VERY WHITE combs, and use mostly wax in place of propolis. Untested queen, $1.00; six for $5.00; dozen for $9.00. Select untested queen, $1.25; six for $6.00; dozen for $11.00. Tested queen, $2.00; six for $9.00; dozen for $15.00. Select tested, $3.00. Best breeder, $5.00. Extra select, the very best we have, $10.00. Prices of nuclei and full colonies quoted on application. Safe arrival guaranteed in United States and Canada. No foul brood here.

F. A. LOCKHART & CO., Lake George, New York.

D&C LAKE LINES

THE COAST LINE TO MACKINAC

DETROIT
CLEVELAND
BUFFALO
NIAGARA FALLS



TOLEDO
PT. HURON
GODERICH
ALPENA
ST. IGNACE

THE LUXURY OF A LAKE TRIP

Where will you spend your summer vacation? Why not enjoy the charms of our Inland Seas, the most pleasant and economical outing in America?

WHERE YOU CAN GO

All the important ports on the Great Lakes are reached regularly by the excellent service of the D. & C. Lake Lines. The ten large steamers of this fleet are of modern steel construction and have all the qualities of speed, safety and comfort.

Daily service is operated between Detroit and Cleveland, Detroit and Buffalo; four trips weekly between Toledo, Detroit, Mackinac Island and way ports; daily service between Toledo, Cleveland and Put-in-Bay.

A Cleveland to Mackinac special steamer will be operated two trips weekly from June 15th to September 10th, stopping only at Detroit every trip and Goderich, Ont. every other trip.

Special Day Trips Between Detroit and Cleveland, During July and August

RAILROAD TICKETS AVAILABLE:—Tickets reading via any rail line between Detroit and Buffalo and Detroit and Cleveland will be honored for transportation on D. & C. Line Steamers in either direction.

Send 2 cent stamp for Illustrated Pamphlet and Great Lakes Map.
Address: L. G. Lewis, G. P. A., Detroit, Mich.
Philip H. McMillan, Pres. A. A. Schantz, Gen'l Mgr.

Detroit & Cleveland Navigation Company

GREATEST NET PROFITS



ARE MADE IN THE LAND OF MANATEE ON THE WEST COAST OF FLORIDA, GROWING ORANGES, GRAPEFRUIT AND VEGETABLES.

Highest prices secured in Northern and Eastern Markets. Quick transportation—low freight rates via. S. A. L. Ry. Cheap lands—ideal climate—two and three crops a year—$500 to $1500 net per acre. People who locate here are satisfied. Write for free illustrated booklet. Address:

J. A. PRIDE,
GEN'L INDUSTRIAL AGENT,
SEABOARD AIR LINE RY.
DEPT. J NORFOLK, VA.

THE "BEST" LIGHT



Gives 500 candle power. Casts no shadow. Costs 2 cents per week. Makes and burns its own gas. Over 200 styles. Every lamp warranted. No dirt. No odor. No grease. Agents wanted. Write for catalog, now.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

Handy Wagons
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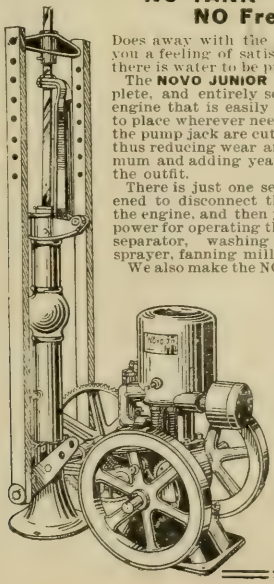
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The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

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5 | Tomato Culture 35

In three parts. Part first.—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second.—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third.—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general.

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This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

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White-faced Black Spanish eggs for hatching; 15, $1.00; 50, $3.00; 100, $5.00. Also dealer in bee-keepers' supplies of all kinds. A. W. SWAN, Centralia, Kan.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog. L. E. ALTWEIN, originator, St. Joseph, Mo.

COCKERELS FOR SALE.—Mr. A. I. Root says my Kellerstrass White Orpingtons are the prettiest chickens he has ever seen. They have size, style, and quality—direct descendants from the best in the world. March-hatched cockerels for sale at $7.50 and $5.00 each. A few BUTTERCUP cockerels from original importer's stock. Buy them now at a bargain—$5.00 each; have also S. C. Reds—Tompkins strain—5 months; beauties, and in perfect condition; $5.00 each. Several thoroughbred S. C. White Leghorn cockerels, bred from prize-winners, $5.00, $3.00, and $2.00 each. Satisfaction guaranteed. Write requirements. SEC, POULTRY ASSOCIATION, Medina, Ohio.

Bees and Queens

Italian queens, 75 cts.; tested, $1.00; breeders, $5.00.
W. T. HELLYER, St. Louis, Mo.

Queens (hybrid) from New Hampshire, 50 cents.
W. B. BURLINGAME, Exeter, N. H.

Bees and queens of quality. Supplies. Catalog.
Stringham, 10 Park Place, New York City.

FOR SALE.—Italian queens; untested, 75 cts; 6 for $4.00. E. A. SIMMONS, Greenville, Ala.

FOR SALE.—Italian queens, 50 cents each.
J. F. MICHAEL, Winchester, Ind.

FOR SALE.—100 or more colonies of bees at $3.50.
R. J. SMITH, Ticonderoga, N. Y.

FOR SALE.—Bees and queens. Untested, 50 cents; tested, 75. O. F. SNOW, East Dennis, Mass.

FOR SALE.—16 colonies of bees in eight-frame hives; empty hives, supers, etc.
GUY COX, Ada, Ohio.

FOR SALE.—20 hives of Italian bees in new Dovetailed hives, $5.50 per hive.
Box 202, Cornwall, N. Y.

Italian queens, Doolittle strain direct. Untested, 80 cts.; dozen, $7.00. Catalog.
F. M. BABCOCK, Fredonia, N. Y.

FOR SALE.—Nine colonies of Italian bees at $5.00 per colony. F. A. MAYERS, Leipsic, Ohio.

Golden Italian queens and nuclei. No disease. Write for prices. J. H. WAGNER,
Box 305, Beatrice, Neb.

Missouri-bred Italian queens; none better; prices right. Write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

SPECIAL.—Golden queens from now until Nov. 1, 60 cents each; $6.50 per dozen. Guaranteed purely mated. R. O. COX, Rt. 4, Greenville, Ala.

Fine golden queens ready to mail right now at 75 cts. each; $7.50 per dozen.
J. B. CASE, Port Orange, Fla.

FOR SALE.—50 to 300 colonies, eight-frame, good condition. Sept. 15.
E. F. ATWATER CO., Meridian, Idaho.

Improved red-clover Italian queens bred from the best honey-gatherers obtainable. Untested, $1.00; 6 for $5.50; 12 for $10.00. J. H. GIBBS, Berlin, Md.

FOR SALE.—Fine Italian queens, hustlers; untested, one, 75 cts.; 6 for $4.00; tested, $1.25 each.
EDW. A. REDDOUT, Baldwinsville, N. Y.

FOR SALE.—Golden Italian queens. Tested, $1.00; select tested, $1.25; untested, 60 cts.; dozen, $7.00.
D. T. GASTER, Rt. 2, Randleman, N. C.

FOR SALE.—100 choice tested Italian queens at 75 cents each, as long as they last; untested queens, 70 cents each. Let us hear from you at once if you want some of these choice queens.
FRED LEININGER & SON, Delphos, O.

Bees by the pound, nucleus, or colony. Italian queens; prices reasonable. Bee-supplies and second-hand incubators. Catalogs.
DEROY TAYLOR, Lyons, N. Y.

SPECIAL.—The benefits of 11 years' testing of stock received from 11 leading queen-breeders; will please the most critical; first trial, 75 cts. each; afterward, $1.00; 6, $5.00; 12, $9.00; breeder, $5.00.
J. B. HOLLOPETER, Pentz, Pa.

FOR SALE.—Italian queens, untested, 75 cts.; tested, $1.00. Bees by the pound, nucleus, or full colony. Red-clover bees. EUGENE S. WATSON,
Rt. 2, Madison, Maine.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Bradley's Store, Va.

Italian queens, good as the best; untested, 75 cts.; tested, $1.00. Shipments begin April 1st for bees by the pound and nucleus. Write for prices.
C. B. BANKSTON, Buffalo, Leon Co., Texas.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction.
W. W. DAKIN, Hood River, Ore.

High-grade Italian bees. Colonies, $8.00; queens, tested, $1.25; untested, 85 cts.; 1 lb. bees, $1.50; ½ lb., 90 cts. My bees get the honey. Try them. Satisfaction guaranteed. GEO. H. REA, Reynoldsville, Pa.

QUEENS.—248 lbs. of comb honey was taken off my breeding-queens. Prices: Untested selected, 75 cts.; average queen, 65 cts.; tested, $1.00 each; limited number at $7.00 per dozen. Try these queens.
CHESTNUT HILL APIARY, Biglerville, Pa.

FOR SALE.—Moore's strain and golden Italian queens, untested, $1.00; six, $5.00; twelve, $9.00. Carniolan, Banat, and Caucasian queens, select, $1.25; six, $6.00, twelve, $10.00. Tested, any kind, $1.50; six, $8.00. Choice breeders, $3.00. Circular free.
W. H. RAILS, Orange, Cal.

Golden queens — very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

J. E. Hand's headquarters for the celebrated Highland Farm strain of three-banded red-clover Italians, line bred for honey-gathering qualities, 75 cts. each; six, $4.00. Valuable information free.
J. E. HAND, Birmingham, O.

FOR SALE.—Italian queens, bred from the best honey-gathering strain obtainable. Untested, 75 cts.; select, $1.00; tested, $1.25; select tested, $1.50; breeding-queens, $3.00; select breeding-queen, $5.00; nuclei without queen, one-frame, $1.25; two-frame, $2.00; three-frame, $2.75. For queens and nuclei in quantity lots, write for prices.
ROBERT B. SPICER, Wharton, N. J.

QUEENS! QUEENS!—Our famous long-tongued red-clover queens ready to mail. We cull our queens. All are strictly fine layers. Positively no brood disease. Untested, 60 cts. each; dozen, $7.00; tested, $1.00; select tested, $1.25. Our Golden yard is 3¼ miles from our red-clover yard. Price of Goldens same as for red-clovers.
H. B. MURRAY, Liberty, N. C.

Do you wish for bees in the early spring
When the winter's cold is over,
To build up swarms both good and strong
For the raspberries and white clover?

Now is the time to head your swarms with best queens from best Italian mothers for best profits. One queen, 75 cents: 12, $7.00. Special rates by the hundred. EMILY H. JACKSON.
Route 2, Kibbie, Mich.

For Sale

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

FOR SALE.—20 colonies, 30 feeders, new, half price. Write. E. E. COLIEN, Manawa, Wis.

Beagle hounds—best blood, and bottom prices. D. S. HALL, Marshfield, Vt.

FOR SALE.—New crop of sweet-clover seed, $3.50 per measured bushel. R. B. HENDERS, Dancy, Ala.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, O.

I solicit your orders for Root's peerless goods. Catalog on request. L. W. CROVATT, Box 134, Savannah, Ga.

FOR SALE.—No. 1 barreled apples in car lots or less; all varieties; also want to hear from parties where there is a large crop. F. W. DEAN, New Milford, Pa.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO., (Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—5000 lbs. yellow-sweet-clover seed, new crop, biannual; 4 lbs. hulled, by mail, prepaid, $1.10; 50 to 100 lbs., at 15 cts.; unhulled, 3 cts. per lb. less. Alfalfa seed, $16.00 per 100 lbs. R. L. SNODGRASS, Rt. 4, Augusta, Kan.

FOR SALE.—Root's bee-supplies and American honey-cans. Finest warehouse and largest stock between Missouri River and Pacific Coast assure prompt shipment at low prices. SUPERIOR HONEY CO., Idaho Falls, Ida., and Ogden, Utah.

FOR SALE.—100 eight-frame comb-honey supers complete, nailed and painted, fence separators, for 4 x 5 plain sections, mostly Root make, 35 cts. each, or $30.00 for the lot. Also a quantity of extracted honey, clover-basswood, with just enough buckwheat so it could not be sold for white honey; well ripened; thick body; sample free. In 60-lb. new tin cans, two in a case, at 8 cts. per lb., f. o. b. P. TEN BROECK, Rt. 4, Saugerties, N. Y.

FOR SALE.—20 hives, wired frames, at 60 cts.; 6 hives, 4-in. starters, at 90 cts.; 11 hives, drawn comb, at $1.00; 28 hives, second-hand frames, at 40 cts.; 43 Higginsville covers, at 20 cts.; 18 Colorado covers, at 25 cts.; 60 one-inch reversible bottoms, at 20 cts.; 25 supers full of sections with foundation or drawn comb, at 60 cts. All ten-frame; only a few used one year; no disease; 3 coats of white lead; Hoffman frames; 30 Alexander feeders, at 13 cts.; 14 entrance feeders, at 5 cts.; 25 division-boards, at 4 cts.; 11 Coverdale feeders, at 5 cts.; 60 hive-slats, lot, 15 cts.; 23 lbs. medium brood foundation, at 50 cts. NORMAN GUTE, Owosso, Mich.

Real Estate

FOR SALE.—A fruit-farm in the mineral belt, thus affording an excellent home market; 2½ miles from a county-seat of 4000 inhabitants; 157 acres, more than half open; 40 acres in fruit, mostly apple, ¾ bearing, 4 to 12 years old, near good school, in good neighborhood; good house; excellent water. Satisfactory reason for selling. Easy terms. Address early— MRS. E. L. DINES, Fredericktown, Madison Co., Mo.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, $1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school. W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1911; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 60 cts.; select, 75 c.; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices see large advertisement. QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

GRAY PRINTING CO., Fostoria, O.
Make ENGRAVINGS for GLEANINGS

State Fair Premium Lists.

MINNESOTA STATE FAIR, SEPT. 4–9, HAMLINE, MINN.

The following is the premium list offered at the Minnesota State Fair, on honey, bees, and apiarian supplies:

Most attractive and finest display of comb honey, not including the four following	$14	$11	$8	$5
Case white-clover comb honey, 12 or more sections	10	7	5	3
Case basswood or linden comb honey, 12 or more sections	10	7	5	3
Case of alfalfa honey, 12 or more sections	10	7	5	3
Case of buckwheat honey, 12 or more sections	10	7	5	3
Case of other white comb honey, 12 or more sections	10	7	5	3
Case of amber comb honey, 12 or more sections	10	7	5	3
Display of comb honey in extracting-frames	10	7	5	3
Most original and attractive design in comb honey	10	7	5	3
Most attractive and finest display of extracted honey, not including the three following	14	11	8	5
Case extracted white-clover honey, 12 lbs. or more in glass, labeled	10	7	5	3
Case extracted basswood or linden honey, 12 lbs. or more in glass, labeled	10	7	5	3
Case extracted buckwheat honey, 12 lbs. or more in glass, labeled	10	7	5	3
Case alfalfa honey, 12 lbs. or more in glass, labeled	10	7	5	3
Case other white extracted honey, 12 lbs. or more in glass, labeled	10	7	5	3
Case extracted amber honey, 12 lbs. or more in glass, labeled	10	7	5	3
Display extracted honey, granulated or candied	10	7	5	3
Beeswax, best quality, 10 lbs. or more	8	6	4	2
Best and most attractive design in beeswax	10	7	5	3
Honey vinegar, not less than 1 gal. in glass, with recipe for making	8	6	4	2
Nucleus golden-yellow Italian bees and queen in observation hive	10	8	6	4
Nucleus of dark leather-colored Italian bees and queen in observation hive	10	8	6	4

Largest and most attractive exhibit in this department, all things considered, including all other lots..	15	12	9	6

FARMERS' COLLECTION.

Entries and exhibits in this class are limited to those residing 25 miles or more from either St. Paul or Minneapolis.

Most attractive and finest display of comb honey, not including the five following lots	14	11	8	5
Case white-clover honey, 12 or more sections	10	7	5	3
Case of basswood or linden comb honey, 12 or more sections	10	7	5	3
Case buckwheat honey, 12 or more sections	10	7	5	3
Case other white comb honey, 12 or more sections	10	7	5	3
Case of amber comb honey, 12 or more sections	10	7	5	3
Display of comb honey in extracting-frames	10	7	5	3
Most original and attractive design in comb honey	10	7	5	3
Most attractive and finest display of extracted honey, not including the five following lots	14	11	8	5
Case extracted white-clover honey, 12 lbs. or more in glass, labeled	10	7	5	3
Case extracted basswood or linden honey, 12 lbs. or more in glass, labeled	10	7	5	3
Case extracted buckwheat honey, 12 lbs. or more in glass, labeled	10	7	5	3
Case other white extracted honey, 12 lbs. or more in glass, labeled	10	7	5	3
Case extracted amber honey, 12 lbs. or more in glass, labeled	10	7	5	3
Beeswax, best quality, 10 lbs. or more	8	6	4	2
Best and most attractive design in beeswax	10	8	6	4

OPEN TO THE WORLD.

Candies made of honey instead of sugar; quantity, quality, and display considered	6	4	2
Best display of cooking with honey used in place of sugar for sweetening	6	4	2
Best hive for comb honey	5	3	2
Best hive for extracted honey	5	3	2
Best display of apiarian tools and fixtures	7	5	2

NEWCASTLE COUNTY FAIR, AT NEW CASTLE, DELAWARE, AUG. 29 TO SEPT. 1.

Dr. Joel S. Gilfillan, Superintendent, Newark, Del.

Mr. Wm. A. Selser, Assistant Superintendent, Proprietor of the Jenkintown Apiaries, and Eastern Representative of The A. I. Root Co., at 10th and Vine Sts., Philadelphia, Pa.

Ten dollars in gold will be given to the one who guesses the name of the queen. Mr. Root will name one of his famous queens and forward her to us. She will be on exhibition during the fair.

Fifteen dollars and two fine queens will be given to those who write the best description of one of Root's noted queens. This queen will be on exhibition. These prizes may be competed for by any scholar in the schools of Delaware, the eastern shore of Maryland, and Chester and Delaware counties in Pennsylvania.

There will be two contests:

I. Open to all scholars in any of the grades up to and including the eighth, in the public schools or any other school or institution of like grade.

First prize.....$5 00
Second prize..... 2 50
Third prize.....Fine queen

II. Open to all scholars in any of the grades from ninth to twelfth, inclusive, in the public schools or any institution of learning of like grade.

First prize.....$5 00
Second prize..... 2 50
Third prize.....One queen

The honey and bee display will be the most attractive that has ever been on exhibition in this State.

The live-bee exhibit will comprise a large number of colonies shown under glass, portraying the various occupations and activities of the busy bees. It will be educative, in that it will reveal the process of bee-life and exhibit the wonders of the hive.

Daily demonstrations with a full colony of bees, in a wire enclosure, will show all the manipulations of the apiarist, and show the manner of handling the bees.

There will be the finest display of bee-supplies ever brought together here.

The superintendent and his assistant will not compete for the prizes.

Ribbons will be awarded to all exhibits of merit, but cash prizes will be paid only when there is competition.

HONEY.

Largest and best display of comb honey, not less than 30 lbs. displayed under glass	$5.00	$2.00
Largest and best display of extracted honey, not less than 30 lbs. in glass bottles or jars	5.00	2.00
Best one dozen sections comb honey	1.00	.50
Best sample of extracted honey, not less than 10 lbs	1.00	.50

WAX.

Best display of beeswax	.50	.25
Best sample of beeswax		Ribbon

BEES.

Best colony of bees shown in observatory hive—Italian	3.00	1.50
Caucasian	3.00	1.50
Carniolan	3.00	1.50
Black or common bee	3.00	1.50
Hybrid	3.00	1.50
Best display of bees shown in observatory hives, not less than three	10.00	3.00

BEE-KEEPERS' SUPPLIES.

Lest display of bee-keepers' supplies	2.00	1.00

Convention Notices.

NATIONAL PROGRAM.

There will undoubtedly be reception committees who will meet all incoming trains the forenoon of August 30. Hotel information can be secured from them. Those arriving in the afternoon will go direct to the convention room.

Place of meeting, G. A. R. Hall, Court-house, Minneapolis, Minn.

Time, August 30 and 31, 1911.

SESSIONS.

1. Foul brood, 1:30 P.M., Aug. 30.
2. Honey-selling, 7 P.M., Aug. 30.
3. Business, 8:30 A.M., Aug. 31.
4. Miscellaneous, 1:30 P.M., Aug. 31.
5. Coöperation, 7 P.M., Aug. 31.
6. Free trolley ride around the city, courtesy of Minneapolis Commercial Club, 9 A.M., Sept. 1.

HOTELS.

Radisson, Dyckman, $1.50 per day and upward.

West, Nicollet, Vendome, Rogers, Camfield, $1.00 per day and upward.

Majestic, Golden West, Beaufort, Pauly, Russell, 75 cts. per day and upward.

PROGRAM IN DETAIL.

Foul-brood session begins at 1:30 P.M., Aug. 30, and is subdivided into the following topics:

1. The present status of the campaign against foul brood.
2. Advantage of apiary inspection under the supervision of the State Entomologist.
3. How can a national campaign be conducted against foul brood?
4. How to get State foul-brood laws.
5. The agricultural college and inspection.
6. Curing foul brood; inspectors' methods: what are they?
7. Appointment of committees.
8. Question-box.

Honey-selling session begins at 7 P.M., Aug. 30, and is subdivided into the following topics:

1. Is a national advertising campaign for selling honey practical?
2. How can a national campaign be conducted for developing the wholesale honey markets?
3. A mail-order honey trade—how conducted.
4. Developing the home markets.
5. What sized package should be used for the retail trade?
6. Question-box.

Business session begins at 8:30 A.M., Aug. 31, and is subdivided into the following topics:

1. President's address.

2. General manager's report.
3. Secretary's report.
4. Shall the National be one separate association, or an aggregation of smaller ones?
5. The new constitution and by-laws.
6. Publication of annual convention report; is any change desirable?
7. National Association bulletins; what have they accomplished?
8. Nomination of officers.

Miscellaneous session begins at 1:30 P.M., Aug. 31, and is subdivided into the following topics:

1. Mating-stations conducted by the government; would they be practical?
2. Uncapping-melters; are they being used extensively?
3. Steam-heated uncapping-knives; are they practical?
4. Uncapping-machines: are they a success?
5. Adulteration of honey: to what extent is it practiced? What can be done to stop it?
6. Uniform shipping-cases; if adopted, what size should they be? Why?
7. Question-box.

Coöperation session begins at 7 P.M., Aug. 31, and is subdivided into the following topics:

1. What the Colorado Honey-producers' Association is doing.
2. Coöperative efforts in California.
3. The Michigan plan, or what the Michigan Association is doing.
4. What can the National do along coöperative lines?
5. Obstacles to be met in coöperative efforts, and how to overcome them.
6. Question-box.

You will notice that in the above program the names of those to take part are not given. There is a two-fold object in this. First, we want the persons who are to lead in the handling of the topics to be present. Second, we want every member to come prepared to take part in the discussions, as we want this to be a convention of live members, and not have the majority sit still while a few do the talking. Remember, *you* may be called on to take part.

In conclusion let me say that there will be some competent person there to handle each one of the above subjects. Prominent bee-keepers from all over the country will be there, and these topics will be assigned to some of them before the session starts. But it is expected that every member will plan to take part. E. B. TYRRELL, Sec.

Special Notices

By A. I. ROOT

"CAMPING AND WOODCRAFT."

Our friends may remember that I gave this book an extended notice in our issue for Nov. 15, last year, and, as a consequence, it has had quite an extended sale; and I am glad of it, because it gives the best description of insect pests, especially chiggers, redbugs, etc., of the South, of any thing we ever got hold of. The price of the book is $1.50; but we have an arrangement so we can furnish it clubbed with GLEANINGS for $1.75. If you are already paid up on GLEANINGS for one year or more we will mail the book to you for an even 75 cts. That is half price, as you will notice. We make this low rate because we have quite a few books yet in stock.

"LARGE HAY CROPS."

The above is the title of a 52-page pamphlet sent out by G. M. Clark, of Higganum, Ct. Friend Clark made quite a sensation in the agricultural world a few years ago by his wonderful crops of hay, mostly timothy, from one acre of ground. I was so much taken up with it that I put in one meadow according to his directions, and for years it has given us tremendous yields of timothy, although we did not comply with all his instructions. Briefly, he has been enabled to get, on an average, *nine tons* of hay per acre for a period of eleven years. The present price of hay has just brought the matter to mind; but what called my attention to it now is that, in preparing the soil before seeding, he goes over it *thirty-two times!* I think it will pay every farmer who grows an acre or more of hay to have this little pamphlet. Of course, it is an advertisement of the tools that he uses in getting these enormous crops; but it teaches us a useful lesson in regard to *thorough preparation of the soil* for growing any crop, even a little garden in your back yard.

TERRY'S BOOK ON POTATO-GROWING.

In 1885 T. B. Terry gave an address to our Medina people on the subject of growing potatoes. I was astonished at the story he had to tell; and I predicted then and there that Mr. Terry was destined to be soon known, not only throughout Ohio but throughout the whole United States. As the years have passed, my prediction has become verified, and I feel not a little gratified to know that *once* in my life at least I recognized genius when I came across it. I interviewed Mr. Terry, and told him he would have to put his talk into book form. He did so, and the book went all over the world, and was even translated into several foreign languages. In eight years the edition was exhausted, and a new one was called for; and in 1901 a third edition was called for; and now, after a lapse of ten years, I have been exceedingly busy during the past few days in going ever it carefully and preparing it for a *fourth* edition of 10,000 copies. And while I have that experience in my mind, let me tell you it will pay almost every man, woman, and child to read Terry's *potato*-book, no matter whether you ever did or ever will grow any potatoes or not. If you have had Terry's recent book, "How to Get Well and Live Long," you will know that he is a student of nature, and a delver after God's gifts and God's secrets; and this potato-book, on every page, shows his remarkable gift. He is a philosopher of modern date; and his love for God's gifts, as well as his love for his fellow-men, shines out on every page. Another thing, this book was written in the prime of his life. It was written with the enthusiasm, energy, and strength of youthful manhood. His studies of potatoes, it occurs to me, paved the way in his explorations in his later work in regard to how we should live and keep our health. The new book will probably be ready soon after this meets your eye.

Let me digress a little. A lot of the friends of humanity are now at work teaching our *children* to love agriculture. Friend Philo has discovered and explained how every family, almost without exception, can keep half a dozen chickens. It has proven to be a success all over our land. Well, potatoes are almost one of the necessaries of life as well as eggs. And it just now occurs to me, while potatoes are more than $2.00 a bushel (70 cts. a peck),* that every family could have a little potato-patch as well as a little poultry-house, and make *another* short cut from "producer to consumer," in the back yard, even if you have only a few square feet of ground. The poultry-droppings will make the very best fertilizer in the world to grow some early potatoes when the prices are away up, as they always are in July. When potatoes get down to 30 or 40 cts. a *bushel* (instead of 50 to 75 cts. a *peck*), after your early potatoes are dug, turn the chickens in and let them work it up well and fertilize it for your potato crop next year. Meanwhile get the potato-book and get the children interested in growing potatoes, just as they are already interested in growing chickens. And, by the way, if you will excuse me for this little digression, Mrs. Root and I decided last evening to visit a neighbor who has 450 White Leghorn hens all in one pen not more than 40 feet square. It is a basement under a large barn. These laying hens are kept in this laying room winter and summer. He told me the feed for that whole flock cost only about $1.50 a day while the eggs are sold right along for from $5.00 to $7.00 a day, and this in July. Now, at the very outset I decided there was some skilled and educated genius back of my good friend Blakeslee, who is about my age; and he confessed that it was his *daughter's* project. She is a bright educated woman, and before she went into this enterprise she posted herself clear up to date; and when she had gotten the whole thing in working order she turned it over to her father and mother, and is now on a tour in Europe. This poultry-ranch is conducted on what is called the "Corning" system; but it illustrates the result of giving our children a taste in their childhood for rural pursuits, and giving them the advantages of an up-to-date *agricultural* education.

* Besides the big price, the potatoes at 70 cts. a peck are sunburned and green, and more or less wilted, and not to be compared with the "home grown."

Cans and Containers
. . FOR . .
Extracted Honey

As in previous seasons, we have prepared a very complete stock of honey-containers of almost every commendable shape and style. In our warehouse—ready for immediate shipment to you—are considerable quantities of tumblers, jars, tins, etc., all of the finest quality and all priced right.

There is Much Satisfaction

in knowing that there is a dependable source of supply so near to all Texas bee-keepers and others in the great Southwest. Experience has taught us to anticipate properly the needs of our patrons, and we have as yet to fall down at a critical time. Sometimes we feel that it is not wise for bee-keepers to trust entirely to the supply-house for eleventh-hour assistance, but we concentrate our energies, nevertheless, on complete preparation, and when YOU are ready WE are.

Honey-extractors

We can quickly supply the famous ROOT HONEY-EXTRACTORS in whatever size your requirements call for. We have interesting printed matter which fully describes these quality machines, and a booklet which tells of the ecomomy of a power honey-extractor. Better get this information and prices right away.

Sell Us Your Honey and Beeswax

We desire, as usual, to buy all the first-class white honey we can obtain. We are now paying for bulk comb honey of the above grade, properly put up f. o. b. the bee-keeper's railroad shipping-point—

9½c per pound for 2--60. 10½c per pound for 10--6.
10c per pound for 10--12. 11c per pound for 20--3.

If you wish to sell us some, kindly send sample, stating how much you have and how it is put up, and we will send you shipping instructions.

TOEPPERWEIN & MAYFIELD COMPANY
Cor. Nolan and Cherry Sts., San Antonio, Texas

The Great MAJESTIC

Malleable and Charcoal Iron RANGE

Why It Should Be In Your Kitchen

Before deciding upon a range, the wise woman will examine closely into the superior points of merit of the ***Great Majestic***—the range with a reputation, built on honor—of the best materials. Read some of them:

Outwears Three Ordinary Ranges

It is the only range made entirely of malleable Iron and charcoal iron. Charcoal iron won't rust like steel—malleable iron can't break, and while the first cost of a ***Great Majestic*** may be more than others, ***it outwears 3 ordinary ranges.***

Perfect Baker—Fuel Saver

The ***Majestic*** is put together with rivets (not bolts and stove putty) making it absolutely air tight, like an engine boiler. The joints and seams will remain air tight forever as neither expansion, nor contraction can affect or open them.

The oven is lined with guaranteed ***pure asbestos board,*** ¼ inch thick, covered with an iron grate—put there to stay—***you can see it.*** No heat escapes, or cold air gets into the oven, thus with but half the fuel used in other ranges, you get an absolutely even, dependable baking heat.

All Copper Movable Reservoir

Heated like a tea kettle through copper pocket (stamped from one piece of copper) setting against left hand lining of fire box. Boils 15 gallons of water in a few moments and, by turning lever, the frame—and reservoir—moves away from fire. This feature is patented—found only on the ***Majestic.***

Other Exclusive Features

All doors drop down and form perfect and rigid shelves. No springs anywhere to get out of fix. ***Malleable oven racks*** slide out automatically, holding anything they contain. ***Open end ash pan***—no more shoveling ashes out of ash pit. ***Ventilated ash pit*** prevents floor from burning. ***Ash cup*** catches ashes that would otherwise fall on the floor. It's the best range at any price, and should be in YOUR kitchen.



Made In Four Other Patterns

Ask Your Dealer About The Greatest Improvement Ever Put In A Range

Don't buy any range "unsight, unseen"—what ever range you buy get it from a local dealer—and it will pay you to drive many miles to closely examine the ***Majestic*** before investing your money in any range.

The ***Majestic*** is for sale by the best dealers in nearly every county in 40 states. Write for our booklet, ***"Range Comparison."*** Every farmer's wife should read it before buying any other range.

Majestic Mfg. Co., Dept. 4 St. Louis

The Range With A Reputation

THIS 33-PIECE DINNER SET GIVEN TO YOU FREE

Here is one of the prettiest sets of dishes I have ever seen. It is exquisite chinaware, and is beautifully decorated with red roses in center and dainty gold border. The style and shape of every single piece is very latest design. Now I want YOU to have a complete set. I will give it free for a very little work. I don't want a cent of your money. What I ask you to do is very easy. When you get these dishes on your table you will have something to be proud of indeed. Write me today for full particulars. I will mail you at once a large picture of the set in natural colors and explain my new, easy plan. Send no money, just your name and address, right now.

G. A. VOLLMER, Vice-President, Profitable Farming, St. Joseph, Missouri.



200 Pages; Nearly 500 Subjects

A NEW Edition of This Popular Book

ADVANCED BEE CULTURE

By W. Z. HUTCHINSON

E. R. ROOT, editor of *Gleanings in Bee Culture*, who revised Mr. Hutchinson's book which has just been published, has to say in *Gleanings:*

As a writer on bees Mr. Hutchinson has few equals. For clearness of style and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and the useful from an extended discussion is intuitive. The last edition of "Advanced Bee Culture," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by a master of the art of boiling down discussions.

I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced bee-keeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it in connection with some other work like the "A B C and X Y Z of Bee Culture," or any textbook designed especially for the beginner class.

Nearly 500 Subjects Pertinent to MODERN Bee-keeping are Authoritatively Discussed

ADVANCED BEE CULTURE is a beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that the many fine illustrations are unusually clear in every detail. The book has been bound in attractive and substantial cloth with clover design in natural colors on cover. All together it is a volume whose appearance and unquestionable worth justly entitle it to a place in the library of every bee-keeper. No more important work on this fascinating subject has recently appeared.

The A. I. Root Co., Medina, Ohio. GBC 8-15-1

For the enclosed remittance of $1.50 please send Gleanings to

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Send Advanced Bee Culture to

Name _____

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If Gleanings is to be sent to same party as book, sign only in last 2 blank lines.

$1.50 Buys a $2.00 Value

ADVANCED BEE CUTLTURE costs $1.00 per copy. GLEANINGS IN BEE CULTURE (semi-monthly) — known and read by bee-keepers throughout the world— price $1.00 for an annual subscription. It is our pleasure, however, to offer this interesting and most useful combination — the book here described and GLEANINGS one year, both for $1.50. It is a value you will very seldom find—really it is a good $2.00 worth for $1.50.

USE THE COUPON

The A. I. Root Co., Medina, O.

Gleanings in Bee Culture

VOL. XXXIX SEPTEMBER 1, 1911 NO. 17



DR. C. C. MILLER
Author of
"Fifty Years Among the Bees"

Order From DES MOINES

THE A. I. ROOT COMPANY Branch at Des Moines had a most auspicious start through our good fortune in taking over the old and well-established supply-business of Jos. Nysewander. Thorough acquaintance with all bee-keepers in this section and with their general requirements has placed this branch in an enviable position for giving satisfactory service. Needless to say, it is our aim to conduct all transactions at this branch in a way that will creditably reflect upon the good reputation that ROOT'S GOODS have gained among bee-keepers in Iowa and throughout the Middle West.

Let us tell you of advantages in dealing in Des Moines:

1911 Supplies and Stock

We are fully prepared to meet the demands of the coming season, which bids fair to be a big one. Our warehouse, completed last fall, gives much greater capacity for stock than we have previously enjoyed. This, with the older building, gives us the advantage of arranging our stock in such a manner that orders can be packed very quickly with no waste of time. Carlots of fresh supplies continually come from our factory to keep our stock complete.

Shipping Facilities

Des Moines is favorably known as a shipping center that has few equals. With our warehouse conveniently located and our facilities for quick and careful packing we can get goods off on the numerous steam or interurban lines in very short order. Through trunk lines, a net work of trolleys running in practically every direction—all these insure not only the saving of time but a desirable saving in freight or express charges as well. No delay in filling even the largest orders at Des Moines is our policy.

Packing

We do not charge for packing, boxing, or delivering to freight or express offices in Des Moines. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B. Des Moines. If no agent at your station, notify us and we will prepay, and bill charges after shipment. Often during the busy season much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what charges will be from Des Moines.

Careful Attention and Prompt Service is Our Aim. We Try to Ship Mail and Express Orders the Day They are Received. Freight Orders are Filled in Order of Receipt. No Order is Too Small or Large for Our Personal Attention.

Root Goods are Standard Goods!

Remember that ROOT'S Bee-keepers' Supplies are recognized all over the world as the STANDARD—standard in dimensions, standard in quality. Every part and place fits exactly in the place it was intended for. All parts are made with the utmost care and accuracy, and can be placed in any other hive of the same style without a hitch in fit. Our lumber is selected with a view to getting the best to be procured. It is carefully sorted and throughly seasoned. And no less care is taken in the choice of any material whatever that goes into a product which, when finished, is to bear the ROOT label.

The Des Moines Branch has the benefit of the experience of a manager who thoroughly understands the requirements of those engaged in this business either for profit or pleasure. He couples with his knowledge the desire to make his service valuable to you upon any occasion. Do not be afraid to make known your wants—come to Des Moines, or write and we will show you every possible consideration.

The A. I. Root Co., Des Moines, Iowa

Iowa Phone 968 **Formerly Jos. Nysewander, Bee-Supplies**

"Falcon"

Goods on the Pacific Coast

JOHN C. FROHLEGER, 257-9 Market Street, San Francisco, Calif., carries a full stock of our famous bee-keepers' supplies for CALIFORNIA

THE MAN.—Mr. Frohleger has been a bee-keeper for many years. Hundreds have spent a pleasant evening listening to an illustrated talk from this practical bee-keeper. For nearly ten years he has been a partner in one of the largest supply and honey houses in the Central States, still retaining this connection. Bee-keepers will find it a pleasure to deal with him, and no one more eminently fitted could be selected to handle **"falcon"** quality goods in San Francisco.

THE GOODS.—For nearly forty years we have studied the wants of bee-keepers—**"falcon"** goods are the result. The lumber and workmanship can not be excelled. A complete line is furnished, not only including every wooden article, but also smokers, wax and honey extractors, and tin and glass honey-packages.

California Bee-keepers, ask for quotations on your 1912 wants, less September 6 per cent discount and write for the FALCON RED catalog to—

John C. Frohleger

257-9 Market Street, San Francisco, California, also
1642 Melvia Street, Berkley, California

Early-order Discount---6 per cent for September--October

A special inducement offered to the businessman bee-keeper for orders during this our dull season, and to relieve the glut of orders in the busy season.

Hives and supplies purchased now can be gotten ready during the rainy days and idle times, thus costing less to put together in addition to making big interest on the money invested for only a few months.

Send us a list of supplies wanted and let us quote you. We can furnish anything you are now using, even if you do not find it in our catalog.

Write the nearest **"falcon"** dealer. If you don't know the name, ask us.

W. T. Falconer Mfg. Company

Factory, FALCONER, NEW YORK - 117 No. Jefferson St., Chicago, Ills.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

COLUMBUS.—No native honey on our market. Selling Western white comb at 18 cts. per lb.

Columbus, O., Aug. 27. EVANS & TURNER CO.

BOSTON.—We quote No. 1 to fancy white comb honey at 17 to 18 cts.; No. 2 white and light amber, 15 to 16; white extracted, 11; light amber, 10. Beeswax, 30. BLAKE-LEE CO.

4 Chatham Row, Boston, Aug. 18.

ALBANY.—Honey market not opened here yet to any great extent. Can hardly quote sure prices yet. Some white comb would sell at 16 cts.. but demand is later than last season. Receipts light this season so far.

Albany, N. Y., Aug. 25. H. R. WRIGHT.

BUFFALO.—Very little new comb honey coming in. Price is high. The good trade is asking for it, and are willing to pay 17 to 18 for No. 1 to fancy. Buyers, I think, would not buy freely at this price; but considerable can be sold in one and two crate lots. No. 2 white comb will sell. Some sale for extracted at about 7 for dark, and 8 to 8½ for white. The prospects look very good for the season.

Buffalo, Aug. 19. W. C. TOWNSEND.

CINCINNATI.—We have our first car of comb honey, which is selling at 16½ f. o. b. Cincinnati, for No. 1 white. There is no demand for off grades. We are selling white extracted at 10, and amber in barrels at 7. Beeswax is in fair demand at $33.00 per 100 lbs. These are our selling prices, not what we are paying.

C. H. W. WEBER & CO.

Cincinnati, Ohio, Aug. 17.

NEW YORK.—A few little lots of new comb honey from the State have arrived. Prices on quantity lots have not been established as yet. It will be a couple of weeks longer before we can expect any good-sized shipments. What little lots have arrived and are coming in are selling at from 13 to 16, according to quality and style of package. No new buckwheat comb honey as yet; in fact, we can not say at this date how the crop will turn out. From the reports we are receiving, the outlook is not very bright for the new crop. Extracted honey is in good demand. California is selling as follows: Water-white sage, 9½ to 10; white sage at 9; light amber, 8½; Southern, from 65 to 85 cts. per gallon, according to quality. Beeswax is quiet at 29 to 30.

New York, Aug. 18. HILDRETH & SEGELKEN.

Continued on page 5.

WANTED!

Comb and Extracted Honey

Let us hear from you with your best price on your Comb and Extracted Honey, freight paid to Cincinnati. We buy every time price justifies. No lot too large or too small. We remit day shipment arrives.

THE FRED W. MUTH CO.

51 Walnut Street "The Busy Bee Men" **Cincinnati, Ohio**

WE BUY... HONEY WE SELL

What of your honey crop—sold out yet? Remember, we are in the market for honey, both extracted and comb, in carload lots or less. Send samples and state lowest prices —you'll hear from us by return mail or wire. .˙ .˙ .˙

If You Want to Buy Honey

see Weber first. Get our prices and samples, and you will agree that we are prepared to give you a superior product at the right price. Satisfactory service, too—which means much after you have placed your order and want quick delivery.

A NEW HIVE for Outdoor Wintering in Any Climate!

The very latest in bee-hives is the ROOT CHAFF HIVE WITH REMOVABLE BOTTOM. It is in many ways the most satisfactory hive ever manufactured. Completely solves the wintering problem. Let us send you descriptive literature on this new hive and get your order in now so you can try it out this winter. We'll guarantee satisfaction.

SHIPPING-CASES

Having produced a fine crop of honey, it is folly to market it in any thing but the best and neatest package. Good shipping-cases add much to the value of your honey, and you can not expect to secure the highest price unless your package as well as your product is the best. We supply all kinds of honey-packages—cases, bottles, cans, cartons, etc.

POWER HONEY-EXTRACTORS

A thirty-two-page booklet that has a lot of valuable information for the bee-keeper who produces extracted honey. A copy free on request. Catalog and price list of the best bee-supplies made, for the asking.

REMEMBER, too, that we are always ready to give prompt attention to your orders for supplies of all kinds. Our stock is complete, and always fresh and new. We make a specialty of prompt shipments, and can handle your orders to the best advantage possible. No order too small or too large for us to handle. Root's goods only at factory prices. Send for catalog or ask for quotation on any list.

C. H. W. Weber & Co.

2146 Central Ave. Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT, Editor — A. I. ROOT, Editor Home Dept. — H. H. ROOT, Ass't Editor — J. T. CALVERT, Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, Mrs. H. G. Acklin.

$1.00 per year. When paid in advance: 2 years, $1.50; 3 years, $2.00; 5 years, $3.00.

POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian Postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

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Extracted HONEY Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

SCHENECTADY.—There is but little doing in honey here. The crop of white is reported short in this State. There was considerable comb honey carried over, mostly mixed and buckwheat. We are having a few calls for white extracted, but have none as yet to offer; too early to quote reliable prices.

Schenectady, Aug. 21. CHAS. MACCULLOCH.

CHICAGO.—The offerings of honey are few considering the season of year. Choice grades of comb bring 17 to 18, with a fair demand. Extracted is selling at 8 to 9 for white. Light ambers, 7 to 8. There is a tendency with both parties, to await the autumn flow before marketing. Beeswax is selling upon arrival at 31 to 32 if clean.

Chicago, Aug. 17. R. A. BURNETT CO.

ST. LOUIS.—We have received some shipments of Southern comb honey. There is, however, barely any demand for it on account of the heat we had of late, but presume the goods will move as soon as cool weather sets in. We quote fancy white comb at 16 to 16½; No. 1, 15 to 15½; fancy light amber, 14 to 15; dark, 11 to 13; Southern extracted light amber, in barrels, 7; dark, 6 to 6½; same grade in five-gallon cans, ½ cent higher. Beeswax is in good demand at 30 cts. for prime; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Aug. 19.

INDIANAPOLIS.—Demand for white-clover comb honey exceeds the supply. Fancy white brings 18 cts. readily. Extracted is more plentiful, and sells for 11 to 12 in five-gallon cans. The pound jar, which has always retailed for 20 cts., is a thing of the past, and is now a 25-cent article. Producers are being paid about 9 cts. for extracted, but there are no established prices on comb honey. Beeswax is in good demand, and producers are being paid 30 cts. per pound.

Indianapolis, Aug. 17. WALTER S. POUDER.

THE NATIONAL BEE-KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey.

MEMBERSHIP DUES

One dollar a year.

OFFICERS AND EXECUTIVE COMMITTEE

PRESIDENT.—George W. York, Chicago, Ill.
VICE-PRESIDENT.—W. D. Wright, Altamont, N. Y.
SECRETARY.—E. B. Tyrrell, Detroit, Mich.
TREASURER AND GENERAL MANAGER.—Newell E. France, Platteville, Wis.

Are you a member? If not, why not send the annual dues ($1.00) at once to Treasurer France? Every progressive bee-keeper should be a member of this, the greatest bee-keepers' organization in North America.

Honey-Packages!

You will soon need packages for honey. 1-lb. screw-cap jar, $5 gross. These are heavier glass than generally sold. Tested Italian queens, $1.10; untested, 75c. Catalog of every thing a bee-keeper uses, free.

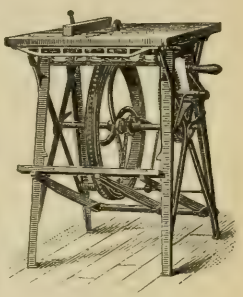
I. J STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

CHAS. ISRAEL & BROS.

488-490 Canal Street, NEW YORK
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments solicited. Established 1875.

BARNES' Hand and Foot Power MACHINERY

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.



Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JNO. BARNES CO.,
545 Ruby St.,
ROCKFORD, . ILLINOIS.

ZANESVILLE.—So small an amount of new honey is arriving that prices are not yet established. For best grades of white clover comb, producers would receive first hand about 15 to 15½, and for extracted 8½ to 9 delivered. Wholesale prices would probably run 2 cts. higher. Producers are being paid for beeswax 28 cts. cash or 30 cts. in exchange for bee supplies. Selling prices are arbitrary.

Zanesville, O., Aug. 17. E. W. PEIRCE.

CINCINNATI.—New comb honey is arriving quite lively, and we are selling it at from 16 to 18, according to quality, in a small way only. Extracted honey is also moving quite lively. Amber honey in barrels sells at from 6 to 7½; white and water-white honey in 60-lb. cans, two in a crate, from 8½ to 10, according to quality and quantity purchased. We are paying from 28 to 30 cts. for strictly fancy beeswax delivered here.

Cincinnati, Aug. 21. THE FRED W. MUTH CO.

DENVER.—Owing to continued hot weather, local trade in honey is light but demand for carlots is good. We quote our local market as follows: No. 1 white, per case of 24 sections, $3.35; No. 1 light amber, $3.15; No. 2, $2.95; white extracted, 8½ to 9; light amber, 7½ to 8½. We pay 25 cts. cash and 27 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY PRODUCERS' ASS'N.

Denver, Col., Aug. 19.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873 CIRCULATION 35,000. 62 pages Semi-monthly

A. L. BOYDEN, Advertising Manager

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Twenty-five cents per agate line, flat. Fourteen lines to inch.
SPACE RATES. To be used in one issue: One-fourth page, $12.50; one-half page, $25.00; one page, $50.00.
Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover, 50 per cent additional.
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Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.
Column width, 2⅝i nches.
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Columns to page, 2 (regular magazine page).
Forms close 10th and 25th.
Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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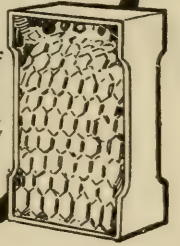
BEES PAY BIG

and require little care. All the little honey-gatherers and money-makers demand of you is to provide a home for them. They make the honey and you get the profit. What little work you must do can be made 100 per cent. easier and your profits 100 per cent. bigger if you have the

RIGHT KIND OF SUPPLIES

If you are a bee-keeper or are thinking of going into the bee business you ought to have our beautiful illustrated **New Bee Book**—just off the press. It's a complete guide to profitable bee culture. Tells you how to buy bees, what kind are best, where to locate the hives, how to care for them summer and winter, how to prepare the honey for market—in fact it tells you **all** you need to know to make bees highly profitable as a business or a side-line.

SEND FOR THIS FREE BOOK

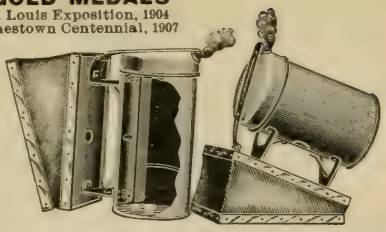


We sell everything the bee-keeper needs and can save you money whether you keep few bees or many. Buy direct from headquarters at rock-bottom prices. Get our bee book and save money. Write now for a copy as the edition is limited.

Blanke Mfg. & Supply Co., Blanke Building
St. Louis, Mo.
Successors to Blanke & Hauk Supply Co.

GOLD MEDALS

St. Louis Exposition, 1904
Jamestown Centennial, 1907



Danzenbaker Smoker

Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT GRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

The **ONE-PIECE** cap **CAN NOT clog.** It is the **COOLEST, CLEANEST, STRONGEST, BEST,** and **LARGEST NET CAPACITY** of all smokers, selling at one dollar ($1.00). We **GUARANTEE SATISFACTION** or **return** the price; only three complaints in **six years.**

Dan-z, 3½x7½-inch Prize Smoker, $1.00; by mail $1.25
With "Gleanings," $1.00 per year, and Prize Smoker, by mail 1.75
Dan-z, 3½x6-inch Victor Smoker, 80c; by mail 1.00
With "Gleanings," one year, 1200 pp., by mail 1.50

We send propolis shields with Danzenbaker Hives and Supers, and sell anything in the Bee-line at factory prices, also select three-banded Italian queens and bees.

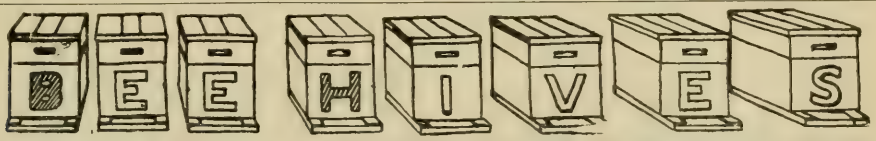
Please send address of yourself and B-friends for FREE catalogs and prices on Bee-supplies, Bees, Queens, Hives, Sections, and Smokers. Address

F. Danzenbaker, 68-70 Woodside Lane, Norfolk, Va.

ITALIAN QUEENS

Nuclei, Bees by Pound. Ten-page descriptive list free. Untested. $1.00. Reduced rates July 1. List to select from, clubbing "The Pearce Method of Bee-keeping," price 50 cts., with a guaranteed queen for $1.10. Books by return; queens after June 10. Leaflets, "How to Introduce Queens," 15c; also "Increase," 15c; both for 25c. Send for list.

E. E. MOTT, Glenwood, Mich.



are our specialty. Winter your bees in PROTECTION HIVES. Liberal early-order discounts.

A. G. Woodman Co., Grand Rapids, Michigan

BEE-SUPPL ES

WE ARE WESTERN AGENTS FOR
"FALCONER"

Write for fall discounts—we can save you money.

C. C. Clemons Bee-Supply Co., Kansas City, Mo.
128 Grand Avenue

QUEENS for QUALITY

GUARANTEED TO PLEASE

or will replace free. Light-colored Italian; easy to handle; good breeders, and great honey-makers. No transaction is considered complete until my customer is satisfied. Don't go into winter quarters with poor queens. It is money in your pocket to buy really good ones, especially if there is foul brood in your locality. Directions for introducing furnished. One select queen, $1; 6 for $5.00, and $9.00 per dozen. Tested queen, suitable for breeding, $2.00. **E. W. BROWN, Box 171, Willow Springs, Ills.**

A YORK'S HONEY QUEEN FOR ONLY 25c



To introduce the AMERICAN BEE JOURNAL and also the STANDARD-BRED ITALIAN "YORK'S HONEY" QUEENS to NEW readers, we will make a special price of only $1.25 for the American Bee Journal one year ($1.00 alone) and one of the fine "York's Honey" Queens (75c alone). This low price of $1.25 for the Journal and a queen will stand for the rest of the year of of 1911 to NEW subscribers. . . . . We will mail three of the Queens to any one for $2.10; 6 for $4.00 or 12 for $7.50. We are filling orders now by RETURN MAIL. Better try a few of our fine Queens and also the old American Bee Journal, if you are not now a regular reader of it. Sample copy free. Address



George W. York & Co., 117 No. Jefferson St., Chicago, Illinois

. . The . .

White-Honey Season

is nearing to a close, and
your next need will be

Shipping-cases

Your orders for cases will
have our prompt attention

The A. I. Root Company

Syracuse, N. Y.

"Griggs Saves You Freight"

TOLEDO

**is the place to buy
your BEE-WARE...**

When your crop is off don't make that mistake of putting it up in cheap shoddy cases.

Root's Extra Polished Cases

are the cheapest in the long run; your honey looks better and will bring the highest price. We carry a large stock of these cases, all sizes, and can ship promptly.

Honey, Honey, Honey!

We handle large quantities, both comb and extracted. Mail small sample of extracted, and state how comb is put up, size of section used, etc. Full particulars by return mail. Beeswax always wanted, cash or in trade.

S. J. Griggs & Co.

25 No. Erie St., Toledo, Ohio

"Griggs, the King Bee"

We Save You Money!

We Manufacture Dovetailed Hives, Sections, Shipping-cases, Brood-frames, Separators, Section-holders, Berry Crates and Boxes.

QUALITY Our hives are made of best grade white pine, cut accurate and smooth to standard measure. Sections are of basswood, polished on both sides. There are no better goods made.

PRICE Our factory is well equipped, and we make goods as cheap as or cheaper than anybody else. We sell first hand, and can save you the middleman's profit. Will quote delivered prices by return mail, if you state your wants. Our prices will surprise you.

SERVICE We carry a complete line of everything used in the apiary—foundation, smokers, and extractors always on hand. Shipping facilities are as good as can be found anywhere. We want your business; no order is too small for careful attention; none too large for us to handle. We guarantee prompt and satisfactory service. Catalog is free.

Minnesota Bee-Supply Company

Minneapolis, Minn.

Growing Vegetables under Glass—

is a pleasant and profitable diversion. At a very small expense a hotbed, or miniature greenhouse, can be erected; and, with a little care and attention, will yield a rich harvest.

Lettuce from Your Own Garden for Christmas Dinner!

is a possibility, and other delicious vegetables, too, can be quickly matured under glass regardless of weather conditions.

The preparation of a winter garden is very simple, and the cost of the few necessities almost not worth figuring.

Buy hot-bed sash from us and we will gladly give you all the information you desire.

ROOT cold-frames, or hot-bed sash, are made of cypress—the wood that will not decay—and every possible care is taken to make our sash show high quality of workmanship. These sash are usually shipped knocked down, at a low rate of freight, and can be put together by anybody. The regular size is three feet and four inches by six feet, and each sash holds twenty-eight panes of glass.

PRICE of one sash in the flat for sample, without glass, 90 cts.; five in the flat, 85 cts. each; ten in the flat, 80 cts. each; put together, 10 cts. each extra. Glass, 8x10, just right for the above, $3.00 per box of 90 lights; five boxes, $2.80; ten boxes, $2.70 each.

The A. I. Root Co., Medina, Ohio

Bee-keepers who Have

THOROUGHBRED CHICKENS

and want to sell eggs and stock at good prices should use space under the POULTRY heading in the

Classified Pages

In proportion to the cost it is doubtful if any other medium offers as good an opportunity for profitable returns on such offerings as

Gleanings in Bee Culture

Read this from one of our satisfied advertisers:

"I will say that what little advertising we did in GLEANINGS has brought us about all the business we can attend to this season,"

—and others say the same.

Read the POULTRY advertisements yourself. Read Mr. A. I. Root's talks on CHICKENS—advertise in GLEANINGS, and GET results.

Announcement



We wish to announce that we will look after the trade of the late Geo. E. Hilton, Fremont, Mich., and wish to assure his customers that we will give their orders our special attention.



We will carry the Hilton chaff hive and super in stock together with our complete stock of Root's Goods.



We will place a limited number of dealers in that section of the State at points which will best supply Northern and Western Michigan.



In combining the two stocks of goods, we find that we are overstocked with seasonable supplies. We shall be pleased to quote you special prices on the goods you need. This includes shipping-cases and five-gallon cans.



We always buy beeswax and honey. What have you to offer?



M. H. HUNT & SON

Lansing, Michigan

General Agents in Michigan for Root's Goods

Greatest Premium Offer
Ever Made by an Eastern Poultry Journal

Send for ILLUSTRATED PREMIUM CATALOG

which describes over two thousand useful articles, and tells the number of subscriptions required to secure them. Do you want a watch, jewelry, silverware, clock, jardinier, vase, lamp, fountain pen, musical instrument, large bible, album, furniture of any description, trunk, suit-case, handbag, lace curtains, brass bed, mattress, Smyrna rugs; ingrain, Brussels, and Axminster art squares, furs, baby-carriage, washing-machine, stoves, granite and enameled ware, breakfast, dinner, or tea sets, and numerous other articles. All for a little of your time getting subscriptions for Poultry Item.

Send for complete outfit and start at once to secure the subscriptions. They will come easy as soon as The Poultry Item is shown them, and earn without much trouble one of these elegant premiums.

The Poultry Item.....Sellersville, Pennsylvania

If YOU Want Them YELLOW Try the GENTLE



Strain of Swarthmore Pedigreed GOLDEN Queens, Swarthmore Pa.

NEW ENGLAND BEE-KEEPERS!

EVERY THING IN SUPPLIES
NEW GOODS
FACTORY PRICES
SAVE FREIGHT

Cull & Williams Co. . Providence, R. I.

GOLDEN ITALIAN QUEENS, 75 cts.

Six for $4.00; twelve for $7.50. After as bad a spring as I have ever known, conditions have improved, and we've finequeens now.

J. B. CASE, PORT ORANGE, FLORIDA

. . THE . .
IMPERIAL-ROYAL AGRICULTURAL ASSOCIATION
Ljubljana, Carniola (Krain), Austria
Exports only pure Carniolan Alpine bees. Write for booklet and price list.

Do You Love SWEETS?
Ralph Waldo Emerson Did

He said you can attain to royalty by loving sweets.

"He who knows what SWEETS . . . are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man."

"HOW to come at these?"

Aye, there's the rub.

How many people miss them! and perhaps some of these many, strange to say, *keep bees.*

Want to know how?

Send $1.00 for a year's subscription to

The Guide to Nature
Arcadia: Sound Beach, Conn.

It is edited by Edward F. Bigelow, a sweets extractor—in other words, "a bee-man" and a naturalist.

Idaho Honey-Producers' Association

Idaho Falls, Idaho

Water-white, Sweet-clover

HONEY

Comb or Extracted

BY THE

Can or Train Load

For Prices, Address

H. A. ANDERSON, Secretary

at the Rigby, Idaho, Office

CONTAINERS

. . FOR . .

Comb and . . . . Extracted Honey

We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. . Special attention is directed to our assortment of Friction-top Pails and to tin cans of ½, 1, 5 gallon capacity.

Get full information, prices, and samples.

The A. I. Root Company

Medina, Ohio

It Pays Well to Use Foundation
It Pays Better to Use . . . .

DADANT'S FOUNDATION

It has been proven BEST by TEST by many leading bee-keepers.

We have AGENTS near you.

Why use any other make?

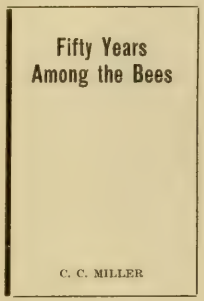
Drop us a line and we will tell you where you can get our goods near you, and save time and freight.

BEE-SUPPLIES OF ALL KINDS

DADANT & SONS, Hamilton, Ill.

This Book was Written by the . . . Nestor of American Bee-keeping

And it is a story which most vividly portrays the interest and enthusiasm which have marked the abundant success of one who has spent—



Fifty Years Among the Bees. . . . .

352 pages: illustrated throughout by the author; substantially bound in cloth; $1.00 per copy.

Read the Author's Preface:

In the year 1886 there was published a little book written by me entitled "A Year Among the Bees." In 1902 it was enlarged, and appeared under the title "Forty Years Among the Bees." In preparation for the present edition I undertook the revision with little thought of the number of changes to be made or the number of pages to be added in order to bring it up to date (about one-eighth being new matter), but it is hoped that the changes and additions may make it of more value to the reader. As I began bee-keeping in 1861, fifty years ago, the present name seems appropriate.

However much some personal friends may like the brief biographical sketch that occupies the first few pages, others may think that the space could have been better occupied. There remains, however, the privilege of skipping those few pages.

Most of the pictures are from photographs taken by myself or under my immediate supervision, at least so far as concerned "touching the button;" the Eastman Kodak Co. "did the rest." C. C. MILLER.

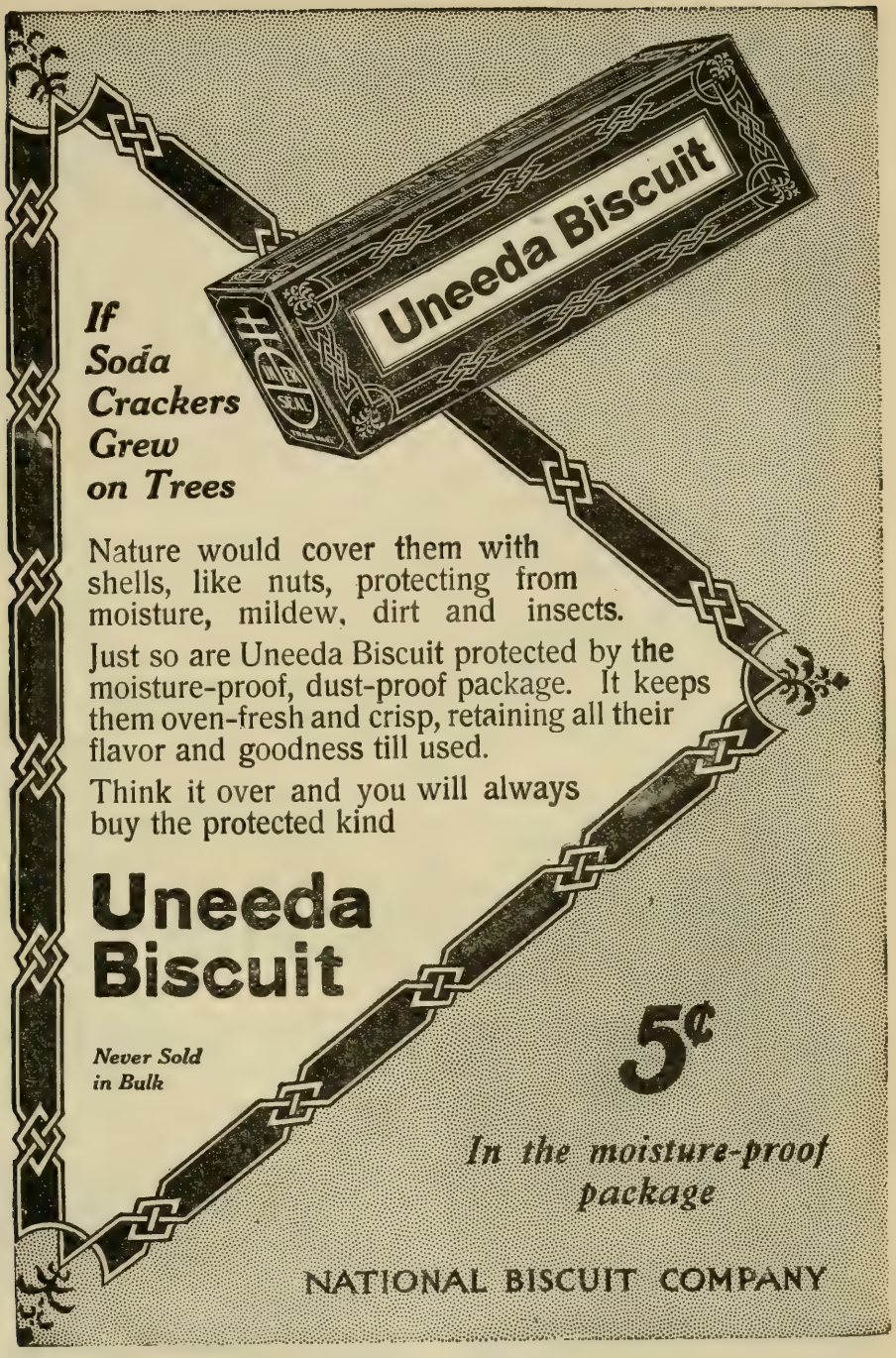
In his capacity as editor of "STRAY STRAWS," in GLEANINGS IN BEE CULTURE, Dr. C. C. Miller has become one of the most loved and widely read writers on subjects pertaining to bee-keeping. This new edition of his popular book is sure to be in considerable demand.

FIFTY YEARS AMONG THE BEES is a handsome example of the book-makers' art, and the quality of its contents, illustrations, paper, and binding all contribute to its worth.

This book at $1.00, postpaid, is a bargain such as bee-keepers are seldom privileged to enjoy

---

The A. I. Root Co. . . Medina, Ohio



"MORE THAN PAID THE PRICE OF SUBSCRIPTION."

Mr. Root:—Enclosed find $1.00 for renewal of your valuable journal. Let me say that I estimate this paper as of first class in its line. In my first years of handling bees I found in one issue of it valuable hints which more than paid the price of subscription. It has continued to do so till now, and in my opinion you run no risk if you proceed in the way you have hitherto. This I write to you as an appreciation for your endeavor to make the journal worth the money, and helpful in every way.

East Amana, Iowa, July 10, JACOB WAGNER.

BANKING BY MAIL

4%

Deposit your savings here, pending permanent investment.

The advantages offered are: Unquestioned safety and four per cent interest, compounded semi-annually.

This bank is under the supervision of the State, and its strict laws.

Its officers and directors are successful men.

Write to-day for booklet explaining our convenient banking-by-mail system.

Resources $1,000,000

Under ordinary circumstances all or any part of your deposits may be withdrawn at will.

The Savings Deposit Bank Company, . . Medina, Ohio

A. T. SPITZER, Pres. E. R. ROOT, Vice-pres.
E. B. SPITZER, Cashier

Would you like to decorate your home during the winter months with Flowering Plants?

WELL, THEN, you will be interested in a plant that will bloom in the house, with little or no care, by simply planting the bulbs in dishes of water.

The Mammoth Narcissi

are easily grown, and bloom freely, bearing a very sweet-scented flower of silvery white. It is a sure bloomer; and, as a decoration for a parlor or a dining-room table, it can not be surpassed. Thousands of these interesting and unique bulbs are planted every year, and the results are always very satisfactory; for all that is necessary is to plant the bulb in a dish of water. No care or trouble: and from the time the bulb begins to grow to the time it blooms the plant is interesting and very decorative.

We import, each year, thousands of these interesting and unique bulbs, and they are the finest we can purchase.

Six of these Mammoth Narcissi will be mailed to you for only 25 cts.

C. H. GORDINIER, Troy, N. Y.
Seedsman and Bulb Importer, Franklin Square

Fruit and Vegetable Growing in "The Land of Manatee" on The West Coast of Florida Net $500 to $1500 Per Acre.



Quick transportation and low freight rates to best Eastern and Northern Markets via S. A. L. Ry. insures the highest prices at all seasons. ORANGES, GRAPEFRUIT, CELERY AND OTHER VEGETABLES—reach the highest state of perfection in the "LAND OF MANATEE"

TEN ACRES WILL MAKE YOU INDEPENDENT.

Cheap lands can be had for a limited time, but prices are advancing as the demand is increasing rapidly. The favorable reports from the satisfied thousands who are now realizing the result of their investment are interesting the whole country.

TWO AND THREE CROPS A YEAR

are not exceptional—climate is perfect—labor abundant—pure, fresh water, supply unlimited.

Write to-day for instructive booklet fully describing this wonderful country. Address:

J. A. PRIDE, General Industrial Agent,
SEABOARD AIR LINE RAILWAY,
DEPT. J NORFOLK, VA.



THE "BEST" LIGHT



One burner will give as much light as ten ordinary oil lamps; six 16 candle power electric bulbs—six 16 candle power gas jets or 5 acetylene gas jets. Costs 2 cts. per week. Produces a pure, white, steady, safe light. Over 200 styles. Every lamp warranted. Agents wanted. Write for catalog.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

SAVE YOUR BACK

Save time, horses, work and money by using an

Electric Handy Wagon

Low wheels, broad tires. No living man can build a better. Book on "Wheel Sense" free.

ELECTRIC WHEEL CO. Box 23, Quincy, Ill.



D&C LAKE LINES

THE COAST LINE TO MACKINAC

D&C LAKE LINES

DETROIT
CLEVELAND
BUFFALO
NIAGARA FALLS



TOLEDO
PT. HURON
GODERICH
ALPENA
ST. IGNACE

THE LUXURY OF A LAKE TRIP

Where will you spend your summer vacation? Why not enjoy the charms of our Inland Seas, the most pleasant and economical outing in America?

WHERE YOU CAN GO

All the important ports on the Great Lakes are reached regularly by the excellent service of the D. & C. Lake Lines. The ten large steamers of this fleet are of modern steel construction and have all the qualities of speed, safety and comfort.

Daily service is operated between Detroit and Cleveland, Detroit and Buffalo; four trips weekly between Toledo, Detroit, Mackinac Island and way ports; daily service between Toledo, Cleveland and Put-in-Bay.

A Cleveland to Mackinac special steamer will be operated two trips weekly from June 15th to September 10th, stopping only at Detroit every trip and Goderich, Ont. every other trip.

Special Day Trips Between Detroit and Cleveland, During July and August

RAILROAD TICKETS AVAILABLE:—Tickets reading via any rail line between Detroit and Buffalo and Detroit and Cleveland will be honored for transportation on D. & C. Line Steamers in either direction.

Send 2 cent stamp for Illustrated Pamphlet and Great Lakes Map.
Address: L. G. Lewis, G. P. A., Detroit, Mich.
Philip H. McMillan, Pres. A. A. Schantz, Gen'l Mgr.

Detroit & Cleveland Navigation Company



IDEAL ALUMINUM LEG BAND

To Mark Chickens CHEAPEST AND BEST

12 for 15c; 25—25c; 50—40c; 100—75c.
Sample Band Mailed for 2c Stamp.
Frank Myers, Mfr., Box 69, Freeport, Ill.



Make Hens Lay

more eggs; larger, more vigorous chicks; heavier fowls, by feeding cut bone.

MANN'S LATEST MODEL BONE-CUTTER

cuts fast, easy, fine; never clogs. 10 **Days' Free Trial.** No money in advance. Book free
F. W. MANN CO., Box 37, MILFORD, MASS.



Grow Mushrooms

For Big and Quick Profits.

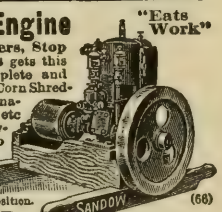
I can give practical instructions worth many dollars to you. No matter what your occupation is or where located, get a thorough knowledge of this paying business. Particulars free. **JACKSON MUSHROOM FARM, 6221 N. Western Ave., Chicago, Ill.**

Let SANDOW Run It!

Wonderful Work Engine

"Eats Work"

Farmers and Shop Owners, Stop Sweating! A few dollars gets this grand little work engine, complete and ready to run Cream Separators, Corn Shredders, Grist Mills, Feed Mills, Dynamos, Printing Presses, etc., etc. Gives a lifetime of steady service. All Sizes. 2 to 20 h. p. No cranking! No cams! No gears! Only 3 moving parts. Finest construction. Thousands in use. Guaranteed 5 years. Write for Special Introductory Proposition.



(66)

DETROIT MOTOR CAR SUPPLY CO., 72 Canton Ave., Detroit, Mich.

CORN HARVESTER with Binder Attachment

cuts and throws in piles on harvester or winrow. Man and horse cuts and shocks equal with a corn Binder. Sold in every state. Price $20 with Binder Attachment. S. C. MONTGOMERY, of Texaline, Tex., writes: "The harvester has proven all you claim for it. With the assistance of one man cut and bound over 100 acres of Corn, Kaffir Corn and Maize last year." Testimonials and catalog free, showing pictures of harvester. **New Process Mfg. Co., Salina, Kan.**

Miller's Strain Red-clover Italian Queens

By Return Mail or Money Refunded

Bred from my superior breeder for business; gentle; no better hustlers; bees just roll honey in; three-banded; northern bred; hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored, long-tongued, red-clover strains. Untested, 75c; six, $4.00; dozen, $7.50. Select untested, $1.00; six, $5.00; dozen, $9.00. Circular free. Satisfaction guaranteed. Isaac F. Miller, of Reynoldsville, Pa., a queen-specialist, is my apiarist and manager, who has been before you quite a number of years. J. S. MILLER, Rt 2, Brookville, Pa

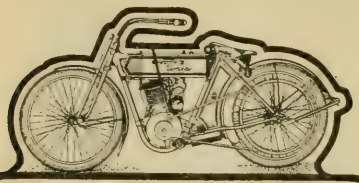
Queens of MOORE'S STRAIN of ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. My queens are all bred from my best long-tongued, three-banded, red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES—Untested, $1.00; six, $5.00; 12, $9.00. Select untested, $1.25; six, $6.00; 12, $11.00. Select tested, $2.00. Extra select tested, $3.00. Safe arrival and satisfaction guaranteed. Descriptive circular free.

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. Moore, Queen-breeder, Rt. 1, Morgan, Ky.



10 MILES FOR A CENT

You can go to town in one-fifth the time and at one-tenth the expense of driving with a

Harley-Davidson

MOTORCYCLE

The machine that holds the world's economy as well as innumerable speed and endurance records. Made and guaranteed by the largest, exclusive motorcycle factory in the world. Send for catalog.

HARLEY-DAVIDSON MOTORCYCLE CO.
941 L Street Milwaukee, Wis.

HOW TO KEEP BEES

By ANNA BOTSFORD COMSTOCK

THIS is an excellent book for the beginner. Nothing better. We cordially recommend it to all who are learning bee-keeping by their own effort. Having commenced bee-keeping three times, the talented author is in a position to furnish the right kind of advice. You can not go wrong in ordering this book. It is charmingly written and easily understood. Price $1.10 postpaid by

THE A. I. ROOT COMPANY, MEDINA, OHIO

QUEENS

and bees — an improved superior strain of Italians is what QUIRIN RAISES. All yards winter on summer stands with practically no loss. Our stock is hardy, and will ward off brood diseases.

In the spring of 1899 we sent fifty nuclei to J. D. Nixon, Lafarge, Wis., and on July 20th (same year) he wrote us, saying they did just splendid, as at that writing they had already filled their supers, and that he would have to extract them. We have files of testimonials similar to the above.

Prices after July 1	1	6	12
Select queens	$ 75	$ 4 00	$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	
Golden five-band breeders	5 00		
Two-comb nuclei, no queen	2 25	12 00	22 00
Three-comb nuc., no queen	3 25	18 00	32 00
Full colonies on 8 frames	5 00	25 00	

Add price of whatever grade of queen is wanted with nuclei and colonies; nuclei and colonies, if shipped before June 1st, add ¼, or 25%, extra to above price. No order too large and none too small. Will keep 500 to 1000 queens on hand ready to mail. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

QUIRIN-THE-QUEEN-BREEDER, BELLEVUE, O.

Clark & Pike

LANDSCAPE ENGINEERS

. WILLOUGHBY, OHIO .

Boston Is the Shipping Center of New England

Bee-keepers should bear this in mind when ordering their supplies. . A full line of supplies always in stock. . . . . Send for catalog.

H. H. JEPSON

182 Friend Street . BOSTON, MASS.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine

J. B. MASON, Manager

SEND FOR FREE ADEL BEE

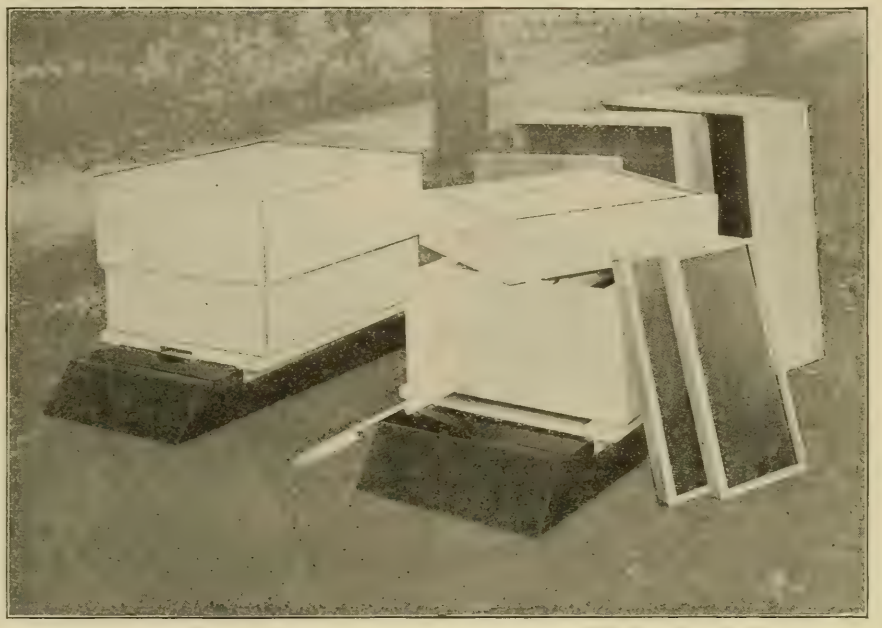
and Supply Catalog. You will save money if you buy direct from my factory. I make the finest polished sections on earth. I want to prove it to you. Send me your order for sections, or any thing in bee-supplies. 45,000 brood-frames at $1.50 per 100 as long as they last; size is 9 1-8 in. deep; top-bar is 19 1-16 in. long, V-shape or two-grove and wedge, or Simplicity, all loose-hanging frames. 65,000 section-holders at $1.00 per 100 as long as they last. They are nicely dovetailed and are for 4 1-4 by 4 1-4 by 1 1-2, and for 4 by 5 by 1 3-8 sections. Carload section orders a specialty.

Chas. Mondeng, 140 Newton Ave., N., Minneapolis, Minn.

New Root Chaff Hive

with Removable Bottom

For Wintering Outdoors in any Climate



THIS HIVE consists of a bottom-board separate and distinct from the hive itself; a double-walled hive-body; a thin board or super-cover, a tray with burlap bottom in which the packing material is placed and the telescoping cover. In the illustration above, two hives are shown—the one complete and set up ready for use; the other opened to show the several parts of which the hive consists. This is the newest thing out. It will fit any ten-frame hive furniture whether it be hive-stand, super-cover, supers, or cover. The bottom-board is made of single thickness with side flanges to cover the bottom of the double-walled hive-body.

THE hive-body is double-walled and packed with shavings, cut straw, chaff, saw-dust, or any good porous matter. This is not a so-called dead-air-spaced hive, cheaply made, without any thing to hold the packing-material, but is an out-and-out double-walled brood-chamber. The cover that goes with this hive is large enough and deep enough to telescope over the entire hive. A super-cover is provided and the chaff-tray with burlap bottom. Packing-material of any sort may be placed in the tray when the bees are ready for winter, providing the cluster is strong and providing, too, that there are sufficient stores.

The removable bottom-board of the 1911 and 1912 models is a special feature with the new hive. During hot weather the entrance may be increased or the hive may be raised up off the bottom to keep down swarming. In early spring or late winter, if the entrance is clogged, the hive may be lifted off the bottom-board and the latter scraped clean, when the hive may be put back in place.

One may use either the sealed-cover scheme of wintering or the upward-ventilation idea with absorbents. The hive is adapted for all localities; and, taking it all in all, is the best all-around hive that bee-keepers can buy, for it almost works for nothing and boards itself. Better let us send you a crate of five so you can try it out. If you haven't any dry cellar where you can maintain the proper winter temperature, you certainly need it. If your winters are changeable from cold to warm it is just the hive you need, for in such a climate you can not winter indoors. If you want a hive that you can leave out the year round without any attention from October 1st until May 1st, this is the hive to select. Don't waste your money on dead-air-spaced hives.

A DESCRIPTIVE STORY of this new hive and of the new opportunities it brings to bee-keepers, has been put in pamphlet form. Illustrations are included to show construction of each part, and point out its relation to the complete whole. This pamphlet, with a price list on the ROOT CHAFF HIVE in any quantity, set up and painted or in the flat, will be sent immediately upon application to our home or branch offices or any dealer in our superior bee-supplies.

THE A. I. ROOT CO., MEDINA, OHIO

213-231 Institute Place, Chicago **603 Evening Post Bldg., New York**

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

Extracted clover and basswood at 8½ cents.
M. ISBELL, Norwich, N. Y.

FOR SALE.—Clover honey in new 60-lb. tin cans.
C. J. BALDRIDGE, Homestead Farm,
Kendaia, N. Y.

Write us for prices on car lots of comb and extracted honey. OGDEN BEE AND HONEY CO.,
Ogden, Utah.

FOR SALE.—No. 1 white comb honey in six-case lots at $3.50 per case of 24 sections; No. 2 white, $3.00 per case. QUIRIN-THE-QUEEN-BREEDER,
Bellevue, O.

FOR SALE.—New crop of amber alfalfa and white mesquite honey in car lots. New cases and cans. Correspondence solicited.
ARIZONA HONEY EXCHANGE, Tempe, Arizona.

FOR SALE.—Raspberry honey, small admixture of clover, basswood, and willow-herb; 60-lb. cans, net, 2 in box, 10½ cts. Sample for 10 cts., which may be deducted from first order.
E. WOODALL, Goodman, Wis.

FOR SALE.—Finest quality clear raspberry extracted honey, in new cans, at $6.00 per can. Only 75 cans left. Other white honey sold. Amber extracted honey ready the last of the month. Sample free. E. D. TOWNSEND & SONS, Remus, Mich.

FOR SALE.—Fine extracted honey, clover slightly mixed with basswood, in new 60-lb. (net) square cans, two in a box; all extracted between July 27 and Aug. 3. Price 10 cts. per lb.; ten or more boxes at 9½ cts. DR. C. G. LUFT, Fremont, Ohio.

FOR SALE.—Idaho honey. Several tons of fine white-sweet-clover and alfalfa honey, put up in new 60-lb. cans—two cans in a case; 1 case of 2 cans at 9½ cts. per lb.; 10 or more cases at 8½ cts. per lb. Dealers, write for prices. J. H. STONEMAN,
Rt. 3, Blackfoot, Idaho.

FOR SALE.—Finest quality of white-clover and basswood blend of extracted honey in new 60-lb. square cans; $6.25 for single 60-lb. can, and 10 c. per lb. by the case of 120 lbs. or more, f. o. b. Flint, cash with order. This is not ordinary honey, but the finest to be had. LEONARD S. GRIGGS,
711 Avon St., Flint, Mich.

RASPBERRY HONEY.—Our honey was left on the hives until it was all sealed and thoroughly ripened. It is thick, rich, and delicious. It is put up in new 60-lb. tin cans; price $6.00 per can; large sample, 10 cts., which may be applied on the first order sent. The honey from these apiaries was formerly sold by W. Z. Hutchinson. Send orders to
ELMER HUTCHINSON, Pioneer, Mich.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—White comb honey. State price.
JOHN O. BUSEMAN,
2828 Germantown Ave., Philadelphia, Pa.

WANTED.—10,000 lbs. basswood or clover extracted honey. I will pay 9 cts. promptly on receipt.
H. C. AHLERS, West Bend, Wis.

WANTED.—White honey, both comb and extracted. Write us before disposing of your crop.
HILDRETH & SEGELKEN,
265 Greenwich St., New York.

Wants and Exchanges

WANTED.—To exchange honey-jars for cash or offers. THE SNYDER BEE AND HONEY CO.,
Kingston, N. Y.

WANTED.—A Barnes foot-power saw; must be in good order, and cheap.
M. W. SHEPHERD, Rt. 1, Wakeman, Ohio.

WANTED.—To sell second-hand 60-lb. cans, and to buy amber extracted honey. Quote prices.
A. G. WOODMAN CO., Grand Rapids, Mich.

WANTED.—To exchange a 320-acre relinquishment in Morgan Co., Col.; also 250-egg incubator, new; will exchange for bees, or what have you?
GEO. GILMORE, 302 State St., Sterling, Colo.

WANTED.—Imported queen-bees of all races. State age, where from, and price. Only queens tested in this country, and found true to race, desired. Old age or poor condition no bar, as they are not wanted to breed from.
EMPIRE CITY FARMS, Cuba, N. Y.

For Sale

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

FOR SALE.—20 colonies, 30 feeders, new, half price. Write. E. E. COLIEN, Manawa, Wis.

Beagle hounds—best blood, and bottom prices.
D. S. HALL, Marshfield, Vt.

FOR SALE.—New crop of sweet-clover seed, $3.50 per measured bushel.
R. B. HENDERS, Dancy, Ala.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case.
C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Marlin model 27—32 caliber repeating rifle; 7-shot, take down. Cost $16.00. Never used. $12.00 cash. T. P. HALLOCK, Medina, Ohio.

Root automatic ball-bearing extractor cheap. Guaranteed to be in prime condition, equal to new.
W. J. ROBINSON, 6357 Greene St., Germantown,
Philadelphia, Pa.

FOR SALE.—No. 1 barreled apples in car lots or less; all varieties; also want to hear from parties where there is a large crop.
F. W. DEAN, New Milford, Pa.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—5000 lbs. yellow-sweet-clover seed, new crop, biannual; 4 lbs. hulled, by mail, prepaid, $1.10; 50 to 100 lbs., at 15 cts.; unhulled, 3 cts. per lb. less. Alfalfa seed, $16.00 per 100 lbs.
R. L. SNODGRASS, Rt. 4, Augusta, Kan.

FOR SALE.—Root's bee-supplies and American honey-cans. Finest warehouse and largest stock between Missouri River and Pacific Coast assure prompt shipment at low prices.
SUPERIOR HONEY CO.,
Idaho Falls, Ida., and Ogden, Utah.

Bees and Queens

Italian queens, 75 cts.; tested, $1.00; breeders, $5.00.
W. T. HELLYER, St. Louis, Mo.

Queens (hybrid) from New Hampshire, 50 cents.
W. B. BURLINGAME, Exeter, N. H.

Bees and queens of quality. Supplies. Catalog.
Stringham, 10 Park Place, New York City.

FOR SALE.—Italian queens; untested, 75 cts; 6 for $4.00. E. A. SIMMONS, Greenville, Ala.

One untested Golden Italian queen, 50 cts.; three dark-colored Italian queens, $1.00.
J. F. MICHAEL, Winchester, Ind.

Italian queens, untested, 75 cents; tested, $1.00; breeders, $5.00 each. E. M. COLLYER,
75 Broadway, Ossining, N. Y.

Italian queens, Doolittle strain direct. Untested, 80 cts.; dozen, $7.00. Catalog.
F. M. BABCOCK, Fredonia, N. Y.

Golden Italian queens and nuclei. No disease. Write for prices. J. H. WAGNER,
Box 305, Beatrice, Neb.

Missouri-bred Italian queens; none better; prices right. Write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

Fine golden queens ready to mail right now at 75 cts. each; $7.50 per dozen.
J. B. CASE, Port Orange, Fla.

FOR SALE.—50 to 300 colonies, eight-frame, good condition. Sept. 15.
E. F. ATWATER Co., Meridian, Idaho.

Improved red-clover Italian queens bred from the best honey-gatherers obtainable. Untested, $1.00; 6 for $5.50; 12 for $10.00. J. H. GIBBS, Berlin, Md.

FOR SALE.—Fine Italian queens, hustlers; untested, one, 75 cts.; 6 for $4.00; tested, $1.25 each.
EDW. A. REDDOUT, Baldwinsville, N. Y.

Italian queens that will produce nicely marked gentle bees with good honey-gathering qualities. Price for Sept., 60c each; 6 for $3.35, or $6.50 per doz.
GEO. W. BARNES, Box 340, Norwalk, Ohio.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Bradley's Store, Va.

Italian queens, good as the best; untested, 75 cts.; tested, $1.00. Shipments begin April 1st for bees by the pound and nucleus. Write for prices.
C. B. BANKSTON, Buffalo, Leon Co., Texas.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction.
W. W. DAKIN, Hood River, Ore.

SPECIAL.—The benefits of 11 years' testing of stock received from 11 leading queen-breeders; will please the most critical; first trial, 75 cts. each; afterward, $1.00; 6, $5.00; 12, $9.00; breeder, $5.00.
J. B. HOLLOPETER, Pentz, Pa.

FOR SALE.—100 choice tested Italian queens at 75 cents each, as long as they last; untested queens, 70 cents each. Let us hear from you at once if you want some of these choice queens.
FRED LEININGER & SON, Delphos, O.

Golden queens — very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

FOR SALE.—Italian queens from my best honey-gathering strain for the rest of the season. Untested, 60 cts.; select, 75 cts.; tested, $1.00; select tested, $1.25. For nuclei and queens in quantity lots, write for prices. Why not order some choice stock at these prices, and requeen?
ROBERT B. SPICER, Wharton, N. J.

QUEENS.—248 lbs. of comb honey was taken off my breeding-queens. Prices: Untested selected, 75 cts.; average queen, 65 cts.; tested, $1.00 each; limited number at $7.00 per dozen. Try these queens.
CHESTNUT HILL APIARY, Biglerville, Pa.

FOR SALE.—Moore's strain and golden Italian queens, untested, $1.00; six, $5.00; twelve, $9.00. Carniolan, Banat, and Caucasian queens, select, $1.25; six, $6.00, twelve, $10.00. Tested, any kind, $1.50; six, $8.00. Choice breeders, $3.00. Circular free.
W. H. RAILS, Orange, Cal.

J. E. Hand's headquarters for the celebrated Highland Farm strain of three-banded red-clover Italians, line bred for honey-gathering qualities, 75 cts. each; six, $4.00. Valuable information free.
J. E. HAND, Birmingham, O.

FOR SALE.—Fifteen colonies of bees, three of them weak, twelve in fairly good condition. The weak stands are affected with foul brood. Also $18.00 worth of bee-fixtures, new and unopened. Whoever buys must pack and ship the bees.
MRS. S. ROXANA WINCE,
Pierceton, Kos. Co., Indiana.

FOR SALE.—A few large select young Italian queens of G. B. Howe stock, mated to drones from a heavy honey-gathering strain. Pure select mating; satisfaction and safe arrival guaranteed. As breeding-queens these will be found equal to many that sell at from three to five times as much. Price $1.00 each; 6 for $5.00. Ready to mail Sept. 10.
D. G. LITTLE, Hartley, Ia.

QUEENS! QUEENS!—Our famous long-tongued red-clover queens ready to mail. We cull our queens. All are strictly fine layers. Positively no brood disease. Untested, 60 cts. each; dozen, $7.00; tested, $1.00; select tested, $1.25. Our Golden yard is 3¼ miles from our red-clover yard. Price of Goldens same as for red-clovers.
H. B. MURRAY, Liberty, N. C.

FOR SALE.—At Rathbone, N. Y., 120 colonies of bees — 65 in chaff hives, 60 in mostly dovetailed hives, eight-frame, ptd., all nearly new; 75 dual-hive stands; 50 empty hives; 330 supers with 4000 sections and mostly full-sheet starters; 30 Porter bee-escapes; 1 Boardman solar wax-extractor; 1 Root German; 1 Hatch wax-press; 1 Cowan two-frame extractor, new; smokers, etc. All for $400.
LEROY LLOYD, Horseheads, N. Y.

Help Wanted

WANTED.- Young man to run power extractor, and help in apiary. State experience and wages.
F. B. CAVANAGH, Hebron, Ind.

WANTED.—A good salesman to sell honey. A practical bee-keeper preferred.
THE SNYDER BEE AND HONEY Co., Kingston, N. Y.

Position Wanted

WANTED.—A position in a large bee and honey business. Ten years' experience. State wages.
ERNEST W. FOX, Black River Falls, Wis.

Miscellaneous

Subscriptions taken for magazines at club rates. List free. OXLEY, New Vienna, Ohio.

Real Estate

FOR SALE.—A 20-acre fruit, poultry, truck, and bee farm near University, Va. Bargain.
V. M. CADY, Ivycroft, Charlottesville, Va.

FOR SALE.—Fine five-room cottage, 105 feet front, corner; elegant shade; water, etc.; town of 2000, in heart of the best irrigated section of the West, together with 50 stands of bees, new 10-fr. hives, 150 supers, 50 extra hives; only apiary near; most excellent locality. All for $3000.00. Asthma; want change. W. A. MARSHALL, Emmett, Idaho.

Poultry

April-hatched Indian Runner ducks, fawn and white; $2.00 each; $3.50 a pair; $5.00 per trio. White-egg strain. KENT JENNINGS, Mt. Gilead, Ohio.

INDIAN RUNNER DUCKS.—Full-grown young stock for sale, either fawn and white or pencilled, from best strains in America. Eggs for hatching. All sales guaranteed as represented.
C. O. YOST, Rt. 4, Winchester, Ind.

BUTTERCUPS.—Both young and old stock. Order early and get the best. From $3.00 up.
RIVERVIEW POULTRY FARM, Union City, Mich.

FOR SALE.—Duston White Wyandottes, $2.00; 15 eggs, $1; $5 per 100. ELMER GIMLIN, Taylorville, Ill.

Buttercups for utility and beauty; selected pens; unlike others. H. V. MEEKER, Earl St., Toledo, O.

White-faced Black Spanish eggs for hatching; 15, $1.00; 50, $3.00; 100, $5.00. Also dealer in bee-keepers' supplies of all kinds. A. W. SWAN, Centralia, Kan.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St. Joseph. Mo.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, $1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school.
W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1911; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 60 cts.; select, 75 c.; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices see large advertisement.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

ENGRAVINGS for "GLEANINGS"
MADE BY GRAY PRINTING CO., Fostoria, O.

Special Notices

By OUR BUSINESS MANAGER

QUEEN ORDERS.

We have had an unusually good trade in queens this season, and have been sending them out in large numbers every day for weeks, and our yards are still producing. However, we have just been having a few days of cold, rainy weather, and it is possible that there may be a little delay in filling orders for a few days. If our friends will be as patient as possible, they may be sure that we will do the best we can for them, and we hope that the delays will not be long in any case.

POULTRY BOOKS.

Many of the most interesting and authentic books on poultry culture that have ever been published are included in a series entitled "The Reliable Poultry Library." The reading-matter in each of these books consists largely of reprinted articles from the *Reliable Poultry Journal* and other leading poultry publications, and they are illustrated throughout with fine half-tone engravings, drawings, etc.

In looking over our stock of books we have found several numbers of the "Reliable Poultry Library" on our shelves—not a great many copies of each; but to clear these out while they last we offer each of the titles named below at a little discount from the publisher's price. Orders should be addressed to the Book Department, GLEANINGS IN BEE CULTURE, and it will be well to make known your requirements at once, as these books can not be supplied at cut prices when the present stock is exhausted.

	Publisher's Price	Our price postpaid
The Chick Book	$ .50	$ .30
The Plymouth Rock—All Varieties	1.00	.60
The Asiatics, Brahmas, Cochins, and Langshans	.50	.30
The Bantam Fowl	.50	.30
Artificial Incubating and Brooding	.50	.30
Reliable Poultry Remedies	.35	.15
The Wyandottes	1.00	.60
Capons for Profit	.50	.30
A Valuable Book on Poultry Diseases, Conkey	.25	.05

COMPLAINTS AGAINST A QUEEN-BREEDER.

A number of our friends have filed complaints against W. S. McKnight, Newton, Ala., who, after having received their orders for queens, accompanied by cash, has failed, it is reported, to make delivery, and will not now answer their letters nor make any explanation whatever.

Mr. McKnight's first advertisement appeared in the "Bees and Queens" column of GLEANINGS, April 1, 1911, and many orders were sent to him from readers of this journal. It was several weeks later before complaints began to come in, and immediately upon receipt of the first complaint we requested an explanation of the delay in filling orders received through our advertising. Mr. McKnight replied by saying that his shop was destroyed by fire during the month of May, and that the loss included most of the correspondence and queen orders he had so far received. He further requested that we ask his patrons to bear with him in his trouble, and advise at once of orders they had sent, with the amount, and what for. A special notice to this effect was published in our June 1st issue. Of course, we hoped that this would right all misunderstanding, and that Mr. McKnight would soon be in a position to catch up with his orders. Beginning a very few days after the notice mentioned above appeared, we have received in almost every mail a complaint against him. In some instances he has received only $1.00, while others report having sent sums of several times this amount for queens which have not been delivered.

We have written Mr. McKnight several times, offering him every possible encouragement by promising coöperation, etc., in satisfying his patrons, to none of which letters we have received a reply.

Later.— Since writing the foregoing we have heard from Mr. McKnight, who writes as follows:

The A. I. Root Co., Medina, Ohio.—Sickness, etc., have caused me to stay behind in filling orders, and there are still a few who are due moneys who could not use queens at this time. I inclose copy, and request that it be given a prominent place in the adv. section. The late flow is better than our earlier flows were, and I hope to get straight right away. Very respectfully, W. S. McKNIGHT.
Newton, Ala., Aug. 17, 1911.

WILL RETURN MONEY.

Queen-buyers who have not yet got money returned, where early orders were sent to us, kindly write us again, stating how much money was sent; how many queens were sent, and what amount is due, with interest added. You understand the failure to get a good honey-flow, and our loss by fire of our tool-shop where our records were in part, accounts for our delay in getting accounts settled.
W. S. McKNIGHT, Newton, Ala.

We are willing to give Mr. McKnight the benefit of a doubt, and hope he may satisfy all his customers.

Special Notices

By A. I. Root

My travels in this issue take in only the start and the finish. The middle part will be taken up in the next issue.

"THE CROWN OF DIAMONDS AND THE CROWN OF THORNS."

We first printed 2000 of the above leaflet for free distribution. A little later we printed 5000, and just now we are taking 10,000 off the press. It seems they are doing very efficient work wherever the people are becoming awakened to the importance of banishing the saloons. Ten copies will be sent free of charge, postpaid, to any one who makes application, even on a postal card. If you want 25 copies, if you feel inclined you may send us a couple of stamps to pay the postage. On 100 leaflets, send 10 cts. for postage. The new edition of 10,000 contains quite a little more matter than the first lot of 7000. In fact, these last ones contain the principal part of the Home papers as given in our issues for April 1 and July 1.

THE 75-CENT INDIAN-RUNNER DUCK-BOOK.

I am sorry to say that I did not get hold of the above book until it had been advertised in our journal from April to July, at which time I had the advertisement taken out, because the book, in my opinion, is not worth half the price charged for it; and, still worse, the author of the book advertises his goods and stock right in the middle of the book on the reading pages. Now, all those who have sent for the book and feel as I do, that it is not worth any thing near the price charged, I would advise them to tell the author what they think about it. If he declines to make the transaction satisfactory, we will give you the credit for 50 cents by extending your subscription to GLEANINGS. Of course the book contains information of value in regard to these new ducks, but it is a cheaply got-ten-up paper-coverd pamphlet of 50 pages (aside from the ads.), with but little matter on a page. Then, as I said, right in the middle of the book he advertises his ducks, Rhode Island Red and Minorca chickens, Belgian hares, etc.

E. G. LEWIS—HIS "CORRESPONDENCE SCHOOL," ETC.

I believe I have printed every favorable report that has come to me in regard to E. G. Lewis, his "League," etc. On page 119, Feb. 15, I gave a letter from Mrs. Jessie Baird, in which she said:

"I have been able to earn nearly $1500, which I could not have done had I not been a League member. The incentive came through the League. I am taking the "dressmaking course," and I find it all they claim for it."

I added that I was very glad to get so good a report from the Woman's League. It is alleged, however, that, although he got the money, his institution did not furnish the dressmaking course, nor even pay for it. See the following, clipped from the *Rural New-Yorker* of Aug. 12:

Over a year ago the Women's College of Scientific Dressmaking affiliated with the American Woman's League, and, per terms of contract, we were to give all League students, who desired, a complete course in dressmaking without charge. On the other hand, the American Woman's League were to make monthly settlements with us for work so rendered. We regret to advise that the League is over four months behind in payments, and you can imagine what it is for a dressmaking school to give instructions to 3000 pupils for four months without receiving any pay. We can stand this no longer.
WOMEN'S COLLEGE OF SCIENTIFIC DRESSMAKING.
La Crosse, Wis.

PERNICIOUS WEEDS.

It is really painful to me, when riding through the country, to see great fields overrun with weeds, especially when hay is worth all over the land from $25.00 to $30.00 a ton—possibly more in some places. Well, the Ontario Department of Agriculture has just issued a most beautiful bulletin of 144 pages in regard to the weeds of Ontario. Almost every weed is pictured, and so fully described that any farmer will know it at a glance; and then the best up-to-date methods of eradication are briefly mentioned. In the fore part of the book are pictures of weed seeds that should enable one (with a glass) at a glance to detect and name the seeds found in clover or any other seeds you may wish to buy. As the seeds of Ontario are about the same as we have in the United States (especially the Northern parts), the book becomes of great value to any one who is interested in having clean fields and clean crops. I can not tell on what terms it can be procured; but you can doubtless find out by addressing the Ontario Agricultural College, Toronto.

In describing sweet clover they say, "These plants have the redeeming feature of being nitrogen-gatherers and soil-formers." Again, in regard to eradication, they say, "Keep closely cut for two years in succession." And here is a hint for those people who persist in calling sweet clover a noxious weed. It is not only one of the best if not the *very* best nitrogen-gatherer, and therefore a good "soil-former," but all kinds of stock can be taught to eat it anywhere in the world; and cutting it off so it will not go to seed for two years in succession will get rid of it if anybody really *wants* to get rid of it.

Convention Notices.

THE MICHIGAN BEE-KEEPERS' ASSOCIATION BOOKLET.

This booklet is now ready for distribution. Send in your request on a postal card, and a copy will be sent you free. The members have much less honey to sell this year than last, so you should write soon.
E. B. TYRRELL, Sec'y,
230 Woodland Ave., Detroit, Mich.

The following is the program for the next meeting of the Oklahoma Bee-keepers' Association to be held at Oklahoma City, Tuesday evening, Oct. 3, at the State Fairgrounds:

How a Good Location may be Made Better.
B. F. Bartholomew, Norman, Okla.
Does it Pay to Keep a Tidy Bee-yard?
Grover Boardman, Shawnee, Okla.
Why Bees should Interest the Farmer.
E. Q. Couch, Jones, Okla.
Why Bees should Interest the Business Man.
Arthur Rhoads, Coyle, Okla.
The Necessity of an Association.
G. E. Lemon, Nash, Okla.
Science of the Bee.
Prof. C. E. Sanborn, Stillwater, Okla.
The Growth of the Industry in Oklahoma.
F. W. Van de Mark, Stillwater, Okla.
How I Caught the Bee-fever and Still Have it.
Joseph Heueisen, Shawnee, Okla.
Some Comparisons of North and South.
Geo. H. Coulson, Cherokee, Okla.
N. F. GARDINER, Pres., Geary, Okla.
ARTHUR RHOADS, Sec'y, Coyle, Okla.

PATENTS 25 YEARS' PRACTICE
CHAS. J. WILLIAMSON, Rooms 304 to 307, Savings Bank Bldg., 7th and E. Sts., WASHINGTON, D. C.
Patent Practice in Patent Office and Courts. **Patent Counsel of The A. I. Root Co**

Sell Us Your
Honey and Beeswax

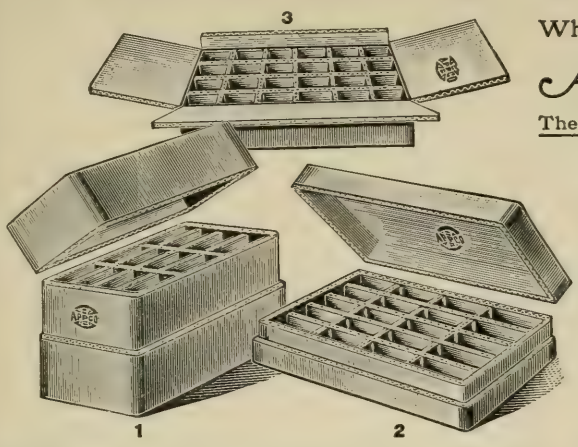
Send a sample of your new crop, and get our present prices. We pay as much as other buyers for first-quality goods, and you'll get quicker returns by shipping here.

Honey-cans and Containers

What do you now need in this line? We have a complete stock —every thing from tumblers to barrel size, and all of the right quality at the right price. . Our quick-service system holds good on shipments of honey-containers as on all other supplies, so buy here and save time and money.

TOEPPERWEIN & MAYFIELD COMPANY

Cor. Nolan and Cherry Sts., San Antonio, Texas



When you ship--ship safe--use an

APPCO Shipsafe

The APPCO Shipsafe for Shipping Honey.

The splendid appearance of your shipment on arrival has much to do with repeat orders.

APPCO Shipsafes do not split, tear nor smash. The hundreds of corrugated cushions take up all the jars and shocks of handling. When sealed are dirt and odor proof, are shower and thief proof, are collapsable, requiring but little storage room.

The stacking strength of APPCO Shipsafes excel wood up to three-eights inch thickness. No Nails, no Staples, no Packing, no Trash, etc.

APPCO Shipsafes are guaranteed the safest package ever devised for honey or any other product of this nature.

Order confidently, if at all in doubt as to their utility, write the Editor of this paper.

The Illustration shows in No. 1 a two-story Shipsafe made to carry 24 pound boxes of comb honey, price per 100, $17.50.

No. 2 shows a Shipsafe for 20 boxes of honey, per 100, $15.00.

No. 3 shows a Shipsafe for 24 tinned jelly glasses, per 100, $13.50.

ALL PRICES F. O. B. ST. LOUIS.

With every shipment of No. 3 APPCO Shipsafes is enclosed sufficient gummed tape for sealing. Moisten and apply like a postage stamp. It will never break.

No. 1 and No. 2 after packed are tied with heavy twine, which we furnish at 10c. per pound, in 5-pound ball--1,250 lineal feet to a ball.

Write for our BULLETIN of POULTRY SUPPLIES.

The American Paper Products Company, 202 Bremen Ave., St. Louis, Mo.

Cash or Credit

On This Magnificent Base Burner



A great, big, handsome double heater that's an ornament to any room and that throws more heat than you ever thought a stove could develop. Shipped right from our factory, *freight prepaid*, to your home to *try free for 30 days*, shipment in 24 hours. *Then 360 days approval test.* 170,000 have bought Kalamazoo Stoves backed by the famous $100,000 bank bond guarantee. Don't buy anywhere until you have our stove book.

Get This Stove Book

Save $5 to $40

on your purchase of heater, range, or gas stove. Why pay two prices when the Kalamazoo is guaranteed best of all. This free book tells you how you can save the dealer's and middlemen's profits and get the best stove made. Over 400 stoves to choose from and a low factory price for every purse. Write a postal giving your name and address for Catalogue No. 416.

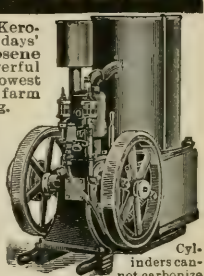
KALAMAZOO STOVE COMPANY
Manufacturers
Kalamazoo, Mich.



"A Kalamazoo Direct to You" And Gas Stoves Too

Use KEROSENE Engine FREE!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves **kerosene** cheapest, safest, most powerful fuel. If **satisfied**, pay lowest price ever given on reliable farm engine; if **not**, pay nothing.



Cylinders cannot carbonize

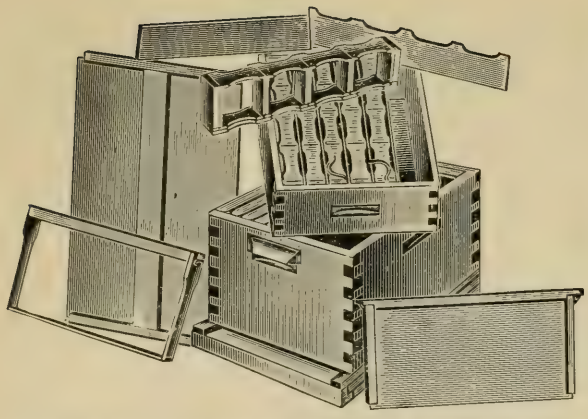
Gasoline Going Up!

Automobile owners are burning up so much gasoline that the world's supply is running short. Gasoline is 9c to 15c higher than coal oil. Still going up. **Two** pints of coal oil do work of **three** pints gasoline. No waste, no evaporation, no explosion from coal oil.

Amazing "DETROIT"

The "DETROIT" is the **only** engine that handles **coal oil** successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Basic patent—only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p., in stock ready to ship. Complete engine tested just before crating. Comes all ready to run Pumps, saws, threshes, churns, separates milk, grinds feed shells corn, runs home electric-lighting plant. **Prices (stripped), $29.50 up.**

Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate amazing, money-saving, power-saving "DETROIT." Thousands in use Costs only postal to find out. If you are first in your neighborhood to write, we will allow you **Special Extra-Low Introductory** price. Write! **Detroit Engine Works, 373 Bellevue Ave., Detroit, Mich.**



$9.75 Buys Complete Bee-keepers' Outfit

At the above price we furnish this complete outfit and every thing needed to start in this profitable business with five colonies of bees.

With this outfit we send you five complete 1½-story 8-frame Dovetailed hives, equipped with "Improved" covers, supers, section-holders, section-follower board, spring, hive-body, Hoffman self-spacing frames, and reversible bottoms, 1 Bingham smoker, 120 honey-sections, 1 swarm-catcher, 1 lb. foundation comb, 1 heavy bee-veil.

We are headquarters for Bee Supplies, and sell direct to the consumer at regular wholesale prices. No matter how small or great your requirements, we guarantee you a saving of 30 to 50 per cent.

Our Bee Supplies represent the very best quality of materials and the highest grade of workmanship. No matter whether you are an established bee-keeper or a beginner, you will be interested in our line and our great money-saving bargains. Complete outfit, as shown and described above, $9.75.

Steel Roofing, Siding, Ceiling



Economical and easy to put on, no previous experience necessary; absolutely guaranteed, brand new, clean stock — bright as a dollar. 1½-in. corrugated, unpainted steel sheets, light weight, 22 in. wide, 6 and 8 ft. long, 100 sq. ft. **$1.85**

Painted, same as above..**$1.95**

1½-inch corrugated, galvanized, rust-proof steel sheets, light wt., 22 to 24 in. wide, 2 to 7 ft. long, 100 sq. ft..... **$3.25**

We pay the freight at these prices to all points east of Colorado in the U. S. Samples mailed free. Write for prices to other points, and for our Roofing Catalog.

LUMBER and MILLWORK

We have millions of feet of *brand new* Lumber and thousands of items of millwork, doors, windows, interior finish, mantels, colonades, etc., at our Chicago plant, where you can see it before purchasing. We are prepared to furnish all material for any building from the ground up at a saving of 30 to 50 per cent.

Our FREE BOOK OF PLANS

This book shows many designs of houses, barns, bungalows, etc. These designs represent comfort, harmony, economy, and general utility. The material we furnish is all brand new, high grade, bright clean stock. Every article positively guaranteed, and prices the lowest. This Plan Book is sent you free for the asking.

Send Us Your Lumber Bill for Our Freight Paid Estimate

WIRE FENCING



This is a continuous woven Galvanized Wire Fence; 12-gauge galvanized wire is used throughout, the upper and lower cable consisting of two 12-gauge wires twisted together. Stays are spaced either 6 or 12 inches apart, and are continuous, being woven into the upper and lower cables from one stay to another. No loose ends, and the wires do not break. This is the most reliable construction possible. *Special price on Hog Fencing 25 inches high; 7 line wires; 12-inch Stays, 19½c per rod.* Other heights for Cattle, Horse, and Field Fencing at prices ranging from 19 to 36c. Send for our Special Wire and Fence List. We guarantee a saving of 30 to 50 per cent.

Our 1,000-Page Price Wrecking Catalog Free

Send for a copy at once. It is the greatest economizer the world has ever known. A thousand bargains in every line. It describes our mammoth purchases at SHERIFFS', RECEIVERS', MANUFACTURERS', AND OTHER FORCED SALES at extraordinarily low prices. Our customers get the benefit. The goods are shown true to life, and fully described.

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Saw your ad. in Gleanings in Bee Culture.

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Our broad binding guarantee to satisfy you in every particular, or refund your money together with all transportation charges, is your absolute protection when you deal with us.

Just fill out the coupon shown here, send it to us, and we will immediately send you, free of charge, this magnificent Economy Guide, "The Great Price Wrecker."

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Gleanings in Bee Culture

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Conversations with Doolittle

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Origin and Use of Propolis . . . . . *F. Greiner*

Heads of Grain
Our Homes
Notes of Travel

A MAIN POINT OF DISTRIBUTION!

NATURALLY the center of our large export business, and logically the source from which a majority of Eastern Bee-keepers expect their supplies to come, our NEW YORK BRANCH has been made A MAIN POINT OF DISTRIBUTION for all goods in the big ROOT LINE. Equipped for service in the fullest meaning of the word, well stocked, well managed, familiarity with every appliance for successful bee-keeping and the highways and byways of shipping, here, as perhaps at no other point are we thoroughly prepared to care for the wants of our Eastern bee-keeping friends.

Supplies and Stock.

We have a complete line of all goods listed in the ROOT catalog, and carloads of fresh-stock goods come on continually from our factory. The capacity of our river-front warehouse is about twenty carloads. Orders for special-sized goods may be sent here—and we will order same from our factory to be shipped in car to New York and we will re-ship from here, thus saving an item on your freight charges. When ordering goods, be specific. Try to use our "KEY TABLE" as much as possible in specifying hives or parts of hives ordered. If not familiar or uncertain of articles ordered or letters representing some of our goods, give illustration and page number. : :

Shipping Facilities.

Insure yourself of quick delivery by sending your orders to New York. Here is the terminal of nearly all railroads —north, west, south, and the main steamspip lines whereby we can ship goods direct to you without change or delay. All express companies call at our warehouse daily, thus assisting us in serving you. Our facilities for shipping by freight, express, and boat are truly unexcelled. Avail yourself of this opportunity of quick delivery and low shipping charges which you certainly will obtain by ordering your goods of the New York Branch of The A. I. Root Co. : : : :

Packing.

We do not charge for packing, boxing, or delivering to freight offices in New York or Hoboken, N. J. We do not prepay any charges unless goods are to be delivered to a prepaid station, as all our prices and quotations are F. O. B. New York. If no agent at your station, notify us and we will prepay, and bill charges after shipment. Often during the busy season much time can be saved by ordering small shipments sent by express. Your local agent will tell you about what charges will be from New York. : :

Careful Attention and Prompt Service is Our Aim. We Try to Ship Mail and Express Orders the Day They are Received. Freight Orders are Filled in Order of Receipt. No Order is too Small or Large for Our Personal Attention.

OUR LOCATION.—We are located on 6th floor of the Evening Post Building, 20-24 Vesey St., in the downtown district. Our office is convenient to surface, subway, and elevated stations and to all downtown ferries. Here you will find well-fitted display rooms, with complete line of supplies, booklets, etc., always on exhibition, and our manager or attendant always present to explain our appliances and discuss the subject of bee-keeping. You and your friends are always welcome.

REMITTANCES.—Remittance with orders should be made by draft, check, postal money order, express money order, or stamps. Do not remit in currency or coin, unless registered, as it often goes astray. We do not care to ship C. O. D.

Order your supplies early. Do not wait until you are in a rush for them. Order now. We want your acquaintance.

Our Manager at the New York branch is thoroughly familiar with every appliance required for successful bee-keeping. His knowledge of outfits for beginners will be found especially beneficial to suburbanites who may want to engage in bee-keeping on a large or small scale. You will find him always willing and ready to make his services of value to whoever seeks his assistance.

Export Orders.—We pay especial attention to all orders for export. For the use of foreign customers we can furnish catalogs in Spanish and French.

THE A. I. ROOT COMPANY, NEW YORK CITY.

Phone Cortlandt 543. **603 Evening Post Bldg.,** **20 Vesey Street.**

"Falcon"

Goods on the Pacific Coast

JOHN C. FROHLEGER, 257-9 Market Street, San Francisco, Calif., carries a full stock of our famous bee-keepers' supplies for CALIFORNIA

THE MAN.—Mr. Frohleger has been a bee-keeper for many years. Hundreds have spent a pleasant evening listening to an illustrated talk from this practical bee-keeper. For nearly ten years he has been a partner in one of the largest supply and honey houses in the Central States, still retaining this connection. Bee-keepers will find it a pleasure to deal with him, and no one more eminently fitted could be selected to handle **"falcon"** quality goods in San Francisco.

THE GOODS.—For nearly forty years we have studied the wants of bee-keepers—**"falcon"** goods are the result. The lumber and workmanship can not be excelled. A complete line is furnished, not only including every wooden article, but also smokers, wax and honey extractors, and tin and glass honey-packages.

California Bee-keepers, ask for quotations on your 1912 wants, less September 6 per cent discount and write for the FALCON RED catalog to—

John C. Frohleger

257-9 Market Street, San Francisco, California, also
1642 Melvia Street, Berkley, California

Early-order Discount---6 per cent for September--October

A special inducement offered to the businessman bee-keeper for orders during this our dull season, and to relieve the glut of orders in the busy season.

Hives and supplies purchased now can be gotten ready during the rainy days and idle times, thus costing less to put together in addition to making big interest on the money invested for only a few months.

Send us a list of supplies wanted and let us quote you. We can furnish anything you are now using, even if you do not find it in our catalog.

Write the nearest **"falcon"** dealer. If you don't know the name, ask us.

W. T. Falconer Mfg. Company

Factory, FALCONER, NEW YORK - 117 No. Jefferson St., Chicago, Ills.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy and No. 1 white comb honey at 17 to 18; fancy light amber, 16; choice and No. 2 white, 15 to 16; fancy white extracted, in five-gallon cans, 11 to 12; fancy white amber, as above, 10. Beeswax, 30. BLAKE-LEE CO.

4 Chatham Row, Boston, Sept. 5.

COLUMBUS.—New York and Michigan white comb is in good demand. Fancy white comb is selling at 18½; No. 1 ditto, 18; No. 2 ditto, 14. Western white comb, per case, $3.75.

Columbus, O., Sept. 4. EVANS & TURNER CO.

KANSAS CITY.—The receipts of new comb and extracted honey are liberal, with good demand. We quote No. 1 white comb honey, 24-section cases, at $3.50; No. 2 ditto, $3.25; No. 1 amber ditto, $3.25; No. 2 ditto, $3.00; white extracted, per lb., 8½ to 9; amber ditto, 7½ to 8. Beeswax, 25 to 30.

C. C. CLEMONS PRODUCE CO.

Kansas City, Sept. 8.

DENVER.—We quote No. 1 white, per case of 24 sections, $3.35; No. 1 light amber, $3.15; No. 2, $2.95; white extracted, 8½ to 9; light amber, 7½ to 8½. We pay 25 cents in cash and 27 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY PRODUCERS' ASS'N.

Denver, Col., Sept. 8.

CINCINNATI.—We have our second car of comb honey, which we are selling at 16½ cts. f. o. b. Cincinnati, for No. 1 white. There is no demand for off grades. We are selling white extracted at 10, and amber in barrels at 7. Beeswax is in fair demand at $33.00 per 100 lbs. The above are our selling prices, not what we are paying.

C. H. W. WEBER & CO.

Cincinnati, Ohio, Sept. 1.

ALBANY.—The demand for honey is improving, and receipts are light so far. Although the general impression is that there will be a short crop, we would advise placing honey on the market as soon as possible, while the receipts are light and while crop news is stimulating the price. There will always be a surplus of honey in October and November, no matter how light the crop. We quote white clover, comb, 15 to 16; mixed ditto, 14 to 15; buckwheat, 13 to 14; buckwheat extracted, 7; white clover, 8 to 8½. There is some comb honey on the market, but it is no factor in making prices for the new crop.

Albany, N. Y., Sept. 6. H. R. WRIGHT.

Continued on page 5.

WANTED!

Comb and Extracted Honey

Let us hear from you with your best price on your Comb and Extracted Honey, freight paid to Cincinnati. We buy every time price justifies. No lot too large or too small. We remit day shipment arrives.

THE FRED W. MUTH CO.

51 Walnut Street **"The Busy Bee Men"** **Cincinnati, Ohio**

WE BUY... HONEY WE SELL

What of your honey crop—sold out yet? Remember, we are in the market for honey, both extracted and comb, in carload lots or less. Send samples and state lowest prices —you'll hear from us by return mail or wire. . . . .

If You Want to Buy Honey

see Weber first. Get our prices and samples, and you will agree that we are prepared to give you a superior product at the right price. Satisfactory service, too—which means much after you have placed your order and want quick delivery.

A NEW HIVE for Outdoor Wintering in Any Climate!

The very latest in bee-hives is the ROOT DOUBLE-WALLED HIVE with Removable Bottom—in many ways the most satisfactory hive ever manufactured. Completely solves the wintering problem. Let us send you descriptive literature on this new hive and get your order in now so you can try it out this winter. We'll guarantee satisfaction.

SHIPPING-CASES

Having produced a fine crop of honey, it is folly to market it in any thing but the best and neatest package. Good shipping-cases add much to the value of your honey, and you can not expect to secure the highest price unless your package as well as your product is the best. We supply all kinds of honey-packages—cases, bottles, cans, cartons, etc.

POWER HONEY-EXTRACTORS

A thirty-two-page booklet that has a lot of valuable information for the bee-keeper who produces extracted honey. A copy free on request. Catalog and price list of the best bee-supplies made, for the asking.

REMEMBER, too, that we are always ready to give prompt attention to your orders for supplies of all kinds. Our stock is complete, and always fresh and new. We make a specialty of prompt shipments, and can handle your orders to the best advantage possible. No order too small or too large for us to handle. Root's goods only at factory prices. Send for catalog or ask for quotation on any list.

C. H. W. Weber & Co.

2146 Central Ave. Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT, Editor — A. I. ROOT, Editor Home Dept. — H. H. ROOT, Ass't Editor — J. T. CALVERT, Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, Mrs. H. G. Acklin.

$1.00 per year. When paid in advance: 2 years, $1.50; 3 years, $2.00; 5 years, $3.00.

POSTAGE IS PREPAID by the publishers for all subscriptions in the United States, Hawaian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian Postage is 30c per year. For all other countries in the Postal Union add 60c per year postage.

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Extracted HONEY Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

CHICAGO.—Trade on comb honey is very limited. We attribute this to the enormous quantity of fruit of all kinds arriving on this market, which is selling at ridiculously low prices. This has a tendency to restrict the sales of comb honey. Extracted honey, however, is moving more readily. We quote fancy white and No. 1 white comb at 17 to 18; No. 2 white and light amber, 15 to 17; medium amber and other off grades at correspondingly lower prices. White clover and basswood extracted are firm at 9 to 10; Southern California, light amber, extracted, 8½; white alfalfa, 8¾ to 9. Bright pure beeswax, 31 to 32.

Chicago, Sept. 7. S. T. FISH & Co.

ST. LOUIS.—Our honey market is practically unchanged since our last. The demand is very limited on account of the prevailing warm weather. We quote fancy white comb honey, 16 to 16½; No. 1, 15 to 15½; choice light amber, 14 to 15; dark, 11 to 13; extracted light amber, Southern, in barrels, 7; dark, 6 to 6½; same grade in five-gallon cans, ½ cent per lb. higher; California light amber, in five-gallon cans, 8½; white, 9 to 9½. Beeswax is in good demand at 30 cts. for prime; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Sept. 6.

ZANESVILLE.—The little white comb honey arriving sells in single-case lots at 10 to 20 cents for the better grades, producers being offered about 2 cts. less than these prices. While the supply of Northern comb is evidently very light, prices will probably not advance materially, as there is a limit to what consumers will pay, and producers have nothing to gain by holding back their crops. For best white extracted, producers are offered 8½ to 9½ in 60-lb. cans, selling prices running 1 to 2 cents above these figures. For good clean beeswax, 30 cts. in exchange for bee-supplies, or 28 cts. in cash, is being offered to producers.

Zanesville, O., Sept. 8. E. W. PEIRCE.

THE NATIONAL BEE-KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey.

MEMBERSHIP DUES

One dollar a year.

OFFICERS AND EXECUTIVE COMMITTEE

PRESIDENT.—George W. York, Chicago, Ill.
VICE-PRESIDENT.—W. D. Wright, Altamont, N. Y.
SECRETARY.—E. B. Tyrrell, Detroit, Mich.
TREASURER AND GENERAL MANAGER.—Newell E. France, Platteville, Wis.

Are you a member? If not, why not send the annual dues ($1.00) at once to Treasurer France? Every progressive bee-keeper should be a member of this, the greatest bee-keepers' organization in North America.

HONEY-JARS

No. 25 jars, the best made, $5.00 per gross.
Light honey, 9¼c lb.; amber, 8¾c lb.
Catalog of every thing a bee-keeper uses, free.

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Apiaries, Glen Cove, L. I.

CHAS. ISRAEL & BROS.

488-490 Canal Street, NEW YORK
and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments solicited. Established 1875.

SCHENECTADY.—There is but very little honey on our market yet, and local producers report white clover a short crop. We have sold some white extracted in 60-lb. cans at 9 cts., but would not call that an established price. One producer informed us he had sold some white comb in cartons in a retail way at 18 cts. We have inquiry for buckwheat extracted, but none is on hand as yet to offer.

Schenectady, Sept. 4. CHAS. MACCULLOCH.

CHICAGO.—There is a tendency toward easier prices on comb and extracted honey. Fancy comb is not plentiful, and is taken at 18 cts.; but the lower grades are not selling unless at lower prices than last quoted. Extracted, best grades of white, command 9 cts., say of clover or basswood; other kinds of white, 8 to 8½; amber, 7 to 8, according to color and quality. Beeswax is in good demand at 31 to 32, if clean and of good color.

Chicago, Sept. 1. R. A. BURNETT Co.

INDIANAPOLIS.—Demand for white-clover comb honey exceeds the supply. Fancy white brings 18 cts. readily. Extracted is more plentiful, and sells for 11 to 12 in five-gallon cans. The pound jar, which has always retailed for 20 cts., is a thing of the past, and is now a 25-cent article. Producers are being paid about 9 cts. for extracted, but there are no established prices on comb honey. Beeswax is in good demand, and producers are being paid 30 cts. per pound.

Indianapolis, Sept. 1. WALTER S. POUDER.

NEW YORK.—The crop of white comb honey will be decidedly short in the Eastern States as well as the middle West, on account of the dry weather during the summer. While the market is not established as yet, and no new stock has arrived, prices undoubtedly will rule higher than those of last year. We expect arrivals of the new crop the first part of this month, and fancy white stock will probably sell at from 15 to 16 cts.; No. 2 and No. 1 at from 13 to 14. Extracted honey is in good demand. Quite heavy shipments are arriving from the West Indies, principally from Porto Rico, and finds ready sale at from 75 to 80 cts. per gallon, according to quality. New crop of California sage is now on the market, and sells at from 9 to 10 cts. for white and water-white, and 8½ for light amber, with a fair demand. HILDRETH & SEGELKEN.

New York, Sept. 2.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873 CIRCULATION 35,000. 62 pages Semi-monthly

A. L. BOYDEN, Advertising Manager

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Twenty-five cents per agate line, flat. Fourteen lines to inch.
SPACE RATES. To be used in one issue: One-fourth page, $12.50; one-half page, $25.00; one page, $50.00.
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Column width, 2⅝i nches.
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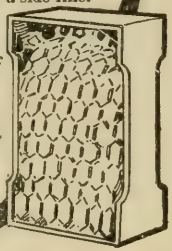
BEES PAY BIG

and require little care. All the little honey-gatherers and money-makers demand of you is to provide a home for them. They make the honey and you get the profit. What little work you must do can be made 100 per cent. easier and your profits 100 per cent. bigger if you have the

RIGHT KIND OF SUPPLIES

If you are a bee-keeper or are thinking of going into the bee business you ought to have our beautiful illustrated **New Bee Book**—just off the press. It's a complete guide to profitable bee culture. Tells you how to buy bees, what kind are best, where to locate the hives, how to care for them summer and winter, how to prepare the honey for market—in fact it tells you **all** you need to know to make bees highly profitable as a business or a side-line.

SEND FOR THIS FREE BOOK



We sell everything the bee-keeper needs and can save you money whether you keep few bees or many. Buy direct from headquarters at rock-bottom prices. Get our bee book and save money. Write now for a copy as the edition is limited.

Blanke Mfg. & Supply Co., Blanke Building St. Louis, Mo.

Successors to Blanke & Hauk Supply Co.

ITALIAN QUEENS

Nuclei, Bees by Pound. Ten-page descriptive list free. Untested. $1.00. Reduced rates July 1. List to select from, clubbing "The Pearce Method of Bee-keeping," price 50 cts., with a guaranteed queen for $1.10. Books by return; queens after June 10. Leaflets, "How to Introduce Queens," 15c; also "Increase," 15c; both for 25c. Send for list.

E. E. MOTT, Glenwood, Mich.

GOLD MEDALS

St. Louis Exposition, 1904
Jamestown Centennial, 1907



Danzenbaker Smoker

Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT GRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

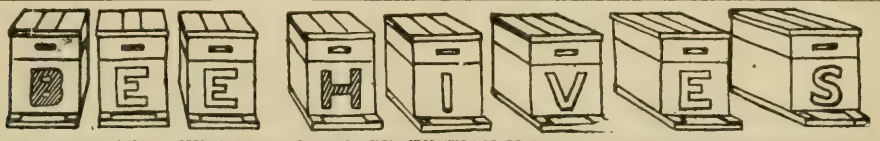
The **ONE-PIECE** cap **CAN NOT clog.** It is the **COOLEST, CLEANEST, STRONGEST, BEST,** and **LARGEST NET CAPACITY** of all smokers, selling at one dollar ($1.00). We **GUARANTEE SATISFACTION** or **return** the price; only three complaints in **six years.**

Dan-z. 3½x7½-inch Prize Smoker, $1.00; by mail $1.25
With "Gleanings," $1.00 per year, and Prize Smoker, by mail 1.75
Dan-z. 3½x6-inch Victor Smoker, 80c; by mail 1.00
With "Gleanings," one year, 1200 pp., by mail 1.50

We send propolis shields with Danzenbaker Hives and Supers, and sell anything in the Bee-line at factory prices, also select three-banded Italian queens and bees.

Please send address of yourself and B-friends for FREE catalogs and prices on Bee-supplies, Bees, Queens, Hives, Sections, and Smokers. Address

F. Danzenbaker, 68-70 Woodside Lane, Norfolk, Va.



are our specialty. Winter your bees in PROTECTION HIVES. Liberal early-order discounts.

A. G. Woodman Co., Grand Rapids, Michigan

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR

"FALCONER"

Write for fall discounts--we can save you money.

C. C. Clemons Bee-Supply Co., Kansas City, Mo.
128 Grand Avenue

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25 YEARS' PRACTICE

CHAS. J. WILLIAMSON, Rooms 304 to 307, Savings Bank Bldg., 7th and E. Sts., WASHINGTON, D. C.

Patent Practice in Patent Office and Courts.

Patent Counsel of The A. I. Root Co

A YORK'S HONEY QUEEN FOR ONLY 25c



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George W. York & Co., 117 No. Jefferson St., Chicago, Illinois

. . The . .

White-Honey Season

is nearing to a close, and
your next need will be

Shipping-cases

Your orders for cases will
have our prompt attention

The A. I. Root Company

Syracuse, N. Y.

"Griggs Saves You Freight"

TOLEDO

**is the place to buy
your BEE-WARE...**

When your crop is off don't make that mistake of putting it up in cheap shoddy cases.

Root's Extra Polished Cases

are the cheapest in the long run; your honey looks better and will bring the highest price. We carry a large stock of these cases, all sizes, and can ship promptly.

Honey, Honey, Honey!

We handle large quantities, both comb and extracted. Mail small sample of extracted, and state how comb is put up, size of section used, etc. Full particulars by return mail. Beeswax always wanted, cash or in trade.

S. J. Griggs & Co.

25 No. Erie St., Toledo, Ohio

"Griggs, the King Bee"

We Save You Money!

We Manufacture Dovetailed Hives, Sections, Shipping-cases, Brood-frames, Separators, Section-holders, Berry Crates and Boxes.

QUALITY Our hives are made of best grade white pine, cut accurate and smooth to standard measure. Sections are of basswood, polished on both sides. There are no better goods made.

PRICE Our factory is well equipped, and we make goods as cheap as or cheaper than anybody else. We sell first hand, and can save you the middleman's profit. Will quote delivered prices by return mail, if you state your wants. Our prices will surprise you.

SERVICE We carry a complete line of everything used in the apiary—foundation, smokers, and extractors always on hand. Shipping facilities are as good as can be found anywhere. We want your business; no order is too small for careful attention; none too large for us to handle. We guarantee prompt and satisfactory service. Catalog is free.

Minnesota Bee-Supply Company

Minneapolis, Minn.

Growing Vegetables under Glass—

is a pleasant and profitable diversion. At a very small expense a hotbed, or miniature greenhouse, can be erected; and, with a little care and attention, will yield a rich harvest.

Lettuce from Your Own Garden for Christmas Dinner!

is a possibility, and other delicious vegetables, too, can be quickly matured under glass regardless of weather conditions.

The preparation of a winter garden is very simple, and the cost of the few necessities almost not worth figuring.

Buy hot-bed sash from us and we will gladly give you all the information you desire.

ROOT cold-frames, or hot-bed sash, are made of cypress—the wood that will not decay—and every possible care is taken to make our sash show high quality of workmanship. These sash are usually shipped knocked down, at a low rate of freight, and can be put together by anybody. The regular size is three feet and four inches by six feet, and each sash holds twenty-eight panes of glass.

PRICE of one sash in the flat for sample, without glass, 90 cts.; five in the flat, 85 cts. each; ten in the flat, 80 cts. each; put together, 10 cts. each extra. Glass, 8x10, just right for the above, $3.00 per box of 90 lights; five boxes, $2.80; ten boxes, $2.70 each.

The A. I. Root Co., Medina, Ohio

Bee-keepers who Have

THOROUGHBRED CHICKENS

and want to sell eggs and stock at good prices should use space under the POULTRY heading in the

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In proportion to the cost it is doubtful if any other medium offers as good an opportunity for profitable returns on such offerings as

Gleanings in Bee Culture

Read this from one of our satisfied advertisers:

> "I will say that what little advertising we did in GLEANINGS has brought us about all the business we can attend to this season."

—and others say the same.

Read the POULTRY advertisements yourself. Read Mr. A. I. Root's talks on CHICKENS—advertise in GLEANINGS, and GET results.

EARLY ORDER DISCOUNTS

Sept. and Oct.,	7 per cent
November, .	6 "
December, . .	5 "
January, . .	4 "
February, . .	3 "
March, . .	2 "

These discounts apply to cash orders for goods for next season's use. They do not apply to glassware or tin cans.

Careful buyers get Root Goods early, and have them ready for business before spring.

Remember we have the Hilton Hive for Northern Michigan bee-keepers.

Beeswax wanted.

Honey wanted.

Take advantage of the discount.

M. H. HUNT & SON

Lansing, Michigan

Opposite
Lake Shore Depot

Greatest Premium Offer
Ever Made by an Eastern Poultry Journal

Send for ILLUSTRATED PREMIUM CATALOG

which describes over two thousand useful articles, and tells the number of subscriptions required to secure them. Do you want a watch, jewelry, silverware, clock, jardinier, vase, lamp, fountain pen, musical instrument, large bible, album, furniture of any description, trunk, suit-case, handbag, lace curtains, brass bed, mattress, Smyrna rugs; ingrain, Brussels, and Axminster art squares, furs, baby-carriage, washing-machine, stoves, granite and enameled ware, breakfast, dinner, or tea sets, and numerous other articles. All for a little of your time getting subscriptions for Poultry Item.

Send for complete outfit and start at once to secure the subscriptions. They will come easy as soon as The Poultry Item is shown them, and earn without much trouble one of these elegant premiums.

The Poultry Item.....Sellersville, Pennsylvania

For Sale: 50 Young Italian Queens

MANY TESTED

at 75 cts. each, or entire lot for 50 cts. each; 100 (good as new) Heddon hive bodies with frames (of cypress wood); 250 Dovetailed hive bodies with Hoffman frames (second-hand, but as good as new). Write for prices. A bargain for some one.

E. T. Flanagan & Sons, Belleville, Ills.

GOLDEN ITALIAN QUEENS, 75 cts.

Six for $4.00; twelve for $7.50. After as bad a spring as I have ever known, conditions have improved, and we've finequeens now.

J. B. CASE, PORT ORANGE, FLORIDA



Established 1885
WE CARRY AN UP-TO-DATE LINE OF
Bee-keepers' Supplies
Write for our 50-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle the best make of goods for the bee-keeper. Freight facilities good. Let us hear from you.

JOHN NEBEL & SON SUPPLY CO., High Hill, Mo.

How to Keep Bees

By Anna B. Comstock

¶ This is a charmingly written manual. The outfit, first steps, and methods are given clearly and in detail; and the author's well-known literary ability has combined with her enthusiasm for the subject to produce a very unusual volume.

"Mrs. Comstock carries the same wise and witty style of narration past her opening chapter, telling of the initial steps in the art, and cataloguing the tools necessary, as well as directing the care of the bees and the extraction of the honey in a way so delightful that it will repay the attention even of city dwellers who have no expectation of putting her precepts into practice." — *Philadelphia Public Ledger.*

Many photographic illustrations. Cloth. Postpaid, $1.10; net, $1.00.

Doubleday, Page & Company
Garden City New York

Do You Love SWEETS?

Ralph Waldo Emerson Did

He said you can attain to royalty by loving sweets.

"He who knows what SWEETS . . . are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man."

"HOW to come at these?"

Aye, there's the rub.

How many people miss them! and perhaps some of these many, strange to say, *keep bees*.

Want to know how?

Send $1.00 for a year's subscription to

The Guide to Nature
Arcadia: Sound Beach, Conn.

It is edited by Edward F. Bigelow, a sweets extractor—in other words, "a bee-man" and a naturalist.

CONTAINERS

. . FOR . .

Comb and . . . . Extracted Honey

We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. . Special attention is directed to our assortment of Friction-top Pails and to tin cans of ½, 1, 5 gallon capacity.

Get full information, prices, and samples.

The A. I. Root Company
Medina, Ohio

It Pays Well to Use Foundation
It Pays Better to Use . . . .

DADANT'S FOUNDATION

It has been proven BEST by TEST by many leading bee-keepers.

We have AGENTS near you.

Why use any other make?

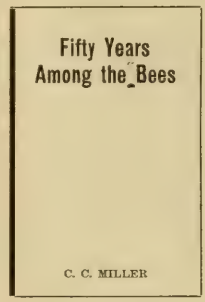
Drop us a line and we will tell you where you can get our goods near you, and save time and freight.

BEE-SUPPLIES OF ALL KINDS

DADANT & SONS, Hamilton, Ill.

This Book was Written by the . . . Nestor of American Bee-keeping

And it is a story which most vividly portrays the interest and enthusiasm which have marked the abundant success of one who has spent—



Fifty Years Among the Bees. . . . .

352 pages; illustrated throughout by the author; substantially bound in cloth; $1.00 per copy.

Read the Author's Preface:

In the year 1886 there was published a little book written by me entitled "A Year Among the Bees." In 1902 it was enlarged, and appeared under the title "Forty Years Among the Bees." In preparation for the present edition I undertook the revision with little thought of the number of changes to be made or the number of pages to be added in order to bring it up to date (about one-eighth being new matter), but it is hoped that the changes and additions may make it of more value to the reader. As I began bee-keeping in 1861, fifty years ago, the present name seems appropriate.

However much some personal friends may like the brief biographical sketch that occupies the first few pages, others may think that the space could have been better occupied. There remains, however, the privilege of skipping those few pages.

Most of the pictures are from photographs taken by myself or under my immediate supervision, at least so far as concerned "touching the button;" the Eastman Kodak Co. "did the rest." C. C. MILLER.

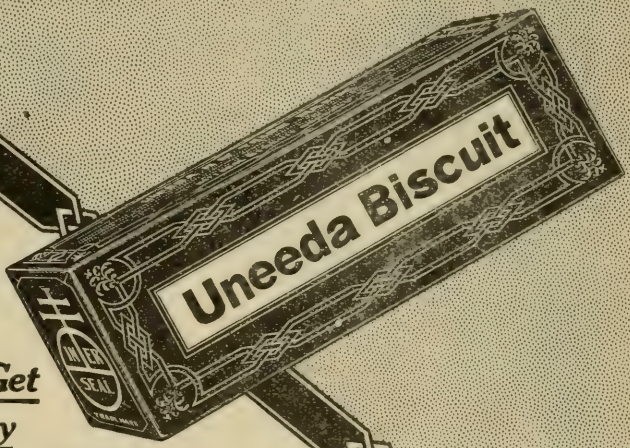
In his capacity as editor of "STRAY STRAWS," in GLEANINGS IN BEE CULTURE, Dr. C. C. Miller has become one of the most loved and widely read writers on subjects pertaining to bee-keeping. This new edition of his popular book is sure to be in considerable demand.

FIFTY YEARS AMONG THE BEES is a handsome example of the book-makers' art, and the quality of its contents, illustrations, paper, and binding all contribute to its worth.

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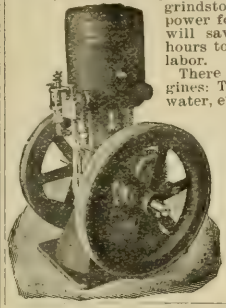
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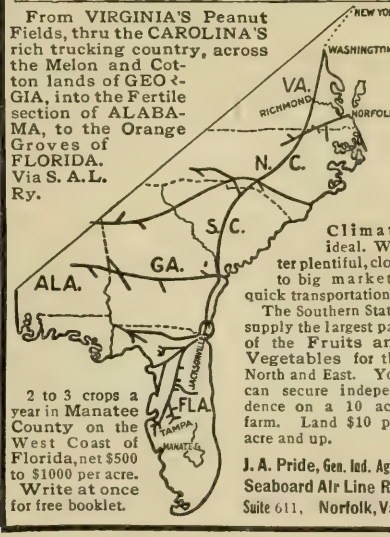
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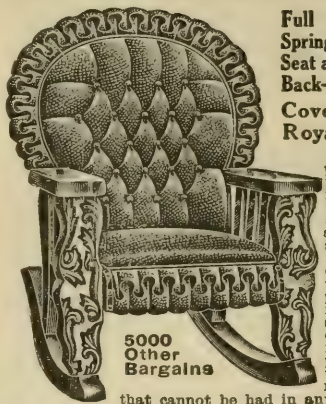
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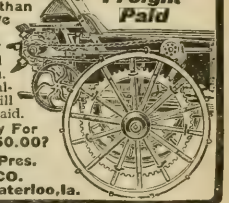
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Gives 500 candle power. Casts no shadow. Costs 2 cents per week. Makes and burns its own gas. Over 200 styles. Every lamp warranted. No dirt. No odor. No grease. Agents wanted. Write for catalog, now.

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200 TESTED red-clover and golden young queens after 20th of September, 50c each. Evansville Bee & Honey Co., Evansville, Ind.

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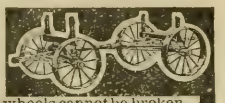
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E. Grainger & Co., Deer Park, Toronto, announce to Canadian bee-keepers that they have a reasonably full line of Root Bee-supplies on hand for shipment from Toronto. Large shipments will be made direct from the factory, and in many cases a considerable saving may be effected by placing orders with us.

See What Our Customers Say!

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E. Grainger & Co., Toronto.

Dear Sirs:—The goods we received from you, manufactured by The A. I. Root Co., are most satisfactory. We find the frames fit beautifully; in fact, all the woodwork is so perfect and so clean and nice that we would not think of using any other make now. They are well worth the extra they cost. A. W. O.

SEND ALL ORDERS TO

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How to Produce

EXTRACTED HONEY

THIS is the title of a neatly printed, illustrated booklet, the second edition of which has just been published. Each operation in the process of extracted-honey production is explained in detail, with photographic reproductions and drawings to make the text more plain. Beginning with the chapter on "Preparing Colonies for the Honey-flow," the booklet concludes with a description of "Packages for Extracted Honey."

Many helpful and valuable suggestions will be found within the 44 pages this booklet contains, and it is a pleasure to announce its addition to our Bee-keepers' 10-cent Library. Order by name or specify Number 25.

THE A. I. ROOT COMPANY

NEW YORK MEDINA, O. CHICAGO

Buyer's Bureau

Near the close of last year we announced that the publishers of this journal had decided upon a rather novel innovation—the founding of a department in GLEANINGS IN BEE CULTURE which would be entirely devoted to those of our readers who were confronted with buying problems. The purpose of the "Buyers' Bureau," as announced at the time of its inauguration, is to furnish detailed information on whatever article or articles pertaining to bee-keeping, farming, poultry-raising, home-keeping, or, in fact, any subject whatever that may for the time hold the interest of our inquirer. If you are thinking of buying any thing, from a queen-bee to a kitchen-stove, an automobile or a lawn-mower, a washing-machine or a piano; then, if you desire our services, you are right in line to ask and receive our coöperation.

No charge whatever is made for services rendered by the "Buyers' Bureau."

MANY READERS, MANY REQUIREMENTS.

It is truly wonderful to learn of the many different articles in which a large family of readers—such as GLEANINGS IN BEE CULTURE boasts—are interested. Almost deaily we receive inquiries for information on quality, price, or source from which obtained, on goods ranging from automobiles to water-filters and Western lands. Naturally we devote considerable time and attention to every request, and duplicate reports of facts obtained are systematically filed in our "Buyers' Bureau," where ready reference to them may be had for any other inquirer. So far our ready-reference file numbers some fifty compartments into which catalogs, manufacturers' bulletin sheets, etc., are placed, each compartment containing literature, etc., with reference to a particular line of goods: No. 14, for illustration, hardware supplies; No. 38, clothing, dry goods, shoes, etc. Thus it will be seen that our efforts to make the "Buyers' Bureau" of real service to every one of our readers are most sincere. Use this department freely whenever you can. Frequent use helps us to keep the service down to date.

State Fair Premium List.

The following is a list of premiums to be awarded at the Arkansas State Fair, to be held at Hot Springs, Oct. 9—14.

Best case of 12 sections of honey from fall flowers	$5	$3
Largest display of comb honey not including the above	5	3
Best 20 lbs. of extracted honey, fall flowers	5	3
Largest display of extracted honey not including the above	5	3
Best 10 lbs. of beeswax	5	3
Best display of beeswax, not less than 20 lbs., not including the above	5	3
Most attractive display of comb and extracted honey, wax, bees, and implements, not including any of the above	7	5
Golden Italian bees and queen in single-comb observatory hive	5	3
Three-banded Italian bees and queen in single-comb observatory hive	5	3
Albino bees and queen in single-comb observatory hive	5	3
Black bees and queen in single-comb observatory hive	5	3
Largest and best display of bees and queens not including the above	7	5
Best and most useful implement for the apiary, invented by an Arkansan, nothing exhibited in the above to enter the contest	5	3

J. L. WADLEY, Sec'y.

The A. I. Root Co.:—Of course, I could not keep bees and do without GLEANINGS. While a little late in sending in my renewal it is because I was contemplating ordering a bill of goods. Not that I could think of doing without GLEANINGS. To make up for slackness I will order it for three years.

Woodford, Wis., Aug. 22, H. H. MOE.

Miller's Strain Red-clover Italian Queens

By Return Mail or Money Refunded

Bred from my superior breeder for business; gentle; no better hustlers; bees just roll honey in; three-banded; northern bred; hardy and vigorous; winter well; not inclined to swarm; bred from best leather-colored, long-tongued, red-clover strains. Untested, 75c; six, $4 00; dozen, $7.50. Select untested, $1.00; six, $5.00; dozen, $9.00. Circular free. Satisfaction guaranteed. Isaac F. Miller, of Reynoldsville, Pa., a queen-specialist, is my apiarist and manager, who has been before you quite a number of years. J. S. MILLER, Rt 2, Brookville, Pa.

Queens of MOORE'S STRAIN of ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. My queens are all bred from my best long-tongued, three-banded, red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES—Untested, $1.00; six, $5.00; 12, $9.00; 24, $16.00; 50 or more, 60 cts. each. Safe arrival and satisfaction guaranteed. Descriptive circular free.

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. Moore, Queen-breeder, Rt. 1. Morgan, Ky.

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"The Manual of the Apiary"

By PROF. A. J. COOK

This interesting book is a very complete treatise on bees and bee-keeping, and is particularly valuable where one is interested in the anatomy and physiology of the bee, which has been very completely covered in this work. It is also valuable for its chapter on honey-plants, or bee-botany; 540 pages with good illustrations; bound in cloth. Price, by mail, $1.15; $1.00 by express or freight. . . Order from the author,

A. J Cook, Pomona College, Claremont, Cal.
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APPLE GROWING

The healthier the tree, the better the fruit. The longer trees are sprayed with "SCALECIDE" the more beautiful, healthful and fruitful they become. "SCALECIDE" is the acknowledged leader of all soluble oils—the only one containing distinct fungicidal properties. "SCALECIDE" will positively kill all soft-bodied sucking insects without injury to the tree. Let us prove these statements. Send today for free booklet "SCALECIDE—the Tree Saver." Address B. G. PRATT CO., Mfg. Chemists, 50 Church St., N. Y. City.

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and bees — an improved superior strain of Italians is what QUIRIN RAISES. All yards winter on summer stands with practically no loss. Our stock is hardy, and will ward off brood diseases.

In the spring of 1899 we sent fifty nuclei to J. D. Nixon, Lafarge, Wis., and on July 20th (same year) he wrote us, saying they did just splendid, as at that writing they had already filled their supers, and that he would have to extract them. We have files of testimonials similar to the above.

Prices after July 1	1	6	12
Select queens	$ 75	$ 4 00	$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens . . .	1 50	8 00	15 00
Breeders	3 00	15 00	
Golden five-band breeders .	5 00		
Two-comb nuclei, no queen	2 25	12 00	22 00
Three-comb nuc., no queen	3 25	18 00	32 00
Full colonies on 8 frames .	5 00	25 00	

Add price of whatever grade of queen is wanted with nuclei and colonies; nuclei and colonies, if shipped before June 1st, add ¼, or 25%, extra to above price. No order too large and none too small. Will keep 500 to 1000 queens on hand ready to mail. Safe delivery and pure mating guaranteed. Over 20 years a breeder. Testimonials and circular free.

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Bee-keepers should bear this in mind when ordering their supplies. . A full line of supplies always in stock. . . . . Send for catalog.

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remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

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J. B. MASON, Manager

LOCKHART'S - SILVER - GRAY - CARNIOLANS

"LINE BRED" for the past 25 years. They are VERY hardy, gentle, prolific, great workers, and builders of VERY WHITE combs, and use mostly wax in place of propolis. Untested queen, $1.00; six for $5.00; dozen for $9.00. Select untested queen, $1.25; six for $6.00; dozen for $11.00. Tested queen, $2.00; six for $9.00; dozen for $15.00. Select tested, $3.00. Best breeder, $5.00. Extra select, the very best we have, $10.00. Prices of nuclei and full colonies quoted on application. Safe arrival guaranteed in United States and Canada. No foul brood here.

F. A. LOCKHART & CO., Lake George, New York.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

Extracted clover and basswood at 8½ cents.
M. ISBELL, Norwich, N. Y.

FOR SALE.—Clover honey in new 60-lb. tin cans.
C. J. BALDRIDGE, Homestead Farm,
Kendaia, N. Y.

Write us for prices on car lots of comb and extracted honey. OGDEN BEE AND HONEY CO.,
Ogden, Utah.

FOR SALE.—Fine table honey, clover and raspberry mixed; also light buckwheat. Sample, 10 cents, which may be deducted from order.
JAMES MCNEILL, Hudson, N. Y.

FOR SALE.—Fine extracted honey, clover slightly mixed with basswood, in new 60-lb. (net) square cans, two in a box; all extracted between July 27 and Aug. 3. Price 10 cts. per lb.; ten or more boxes at 9½ cts. DR. C. G. LUFT, Fremont, Ohio.

FOR SALE.—Until further notice, fine extracted honey, a blend of the clovers, $10.80 per case; in five-case lots, $10.20 per case. Sample, 10 cts. Comb, similar in quality, nearly full pound to the section, packed ready for safe carriage, in six and eight case lots, $3.84 per case. Extra white Wisconsin white clover, $4.20 per case. B. WALKER, Clyde, Ill.

FOR SALE.—Finest quality of white-clover and basswood blend of extracted honey in new 60-lb. square cans; $6.25 for single 60-lb. can, and 10 c. per lb. by the case of 120 lbs. or more, f. o. b. Flint, cash with order. This is not ordinary honey, but the finest to be had. LEONARD S. GRIGGS,
711 Avon St., Flint, Mich.

RASPBERRY HONEY.—Our honey was left on the hives until it was all sealed and thoroughly ripened. It is thick, rich, and delicious. It is put up in new 60-lb. tin cans; price $6.00 per can; large sample, 10 cts., which may be applied on the first order sent. The honey from these apiaries was formerly sold by W. Z. Hutchinson. Send orders to
ELMER HUTCHINSON, Pioneer, Mich.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—Comb and extracted honey. Send a sample, with price f. o. b. at your station.
ARTHUR J. SCHULTZ, Ripon, Wis.

WANTED.—10,000 lbs. basswood or clover extracted honey. I will pay 9 cts. promptly on receipt.
H. C. AHLERS, West Bend, Wis.

WANTED.—White honey, both comb and extracted. Write us before disposing of your crop.
HILDRETH & SEGELKEN,
265 Greenwich St., New York.

Position Wanted

WANTED.—A position in a large bee and honey business. Ten years' experience. State wages.
ERNEST W. FOX, Black River Falls, Wis.

WANTED.—A position with a good bee-keeper in California by Feb. 15 or March 1, 1912. Sober and industrious. JACOB PROBST, Florence, N. J.

WANTED.—A position with an up-to-date apiarist in Cuba, or bees on shares. LLOYD HOLMES,
Care W. L. Coggshall. Groton, N. Y.

Wants and Exchanges

WANTED.—Second-hand Barnes foot-power saw.
CHAS. L. KRUSE, Paris, Ill.

WANTED.—To exchange or sell apple-trees (forty kinds), strawberry-plants, S. C. R. I. Red cockerels, bees, extractor, foundation-mill, hives, supers, 20 vols. Gleanings, books, bicycle, graphophone.
F. H. MCFARLAND, Hyde Park, Vt.

WANTED.—Imported queen-bees of all races. State age, where from, and price. Only queens tested in this country, and found true to race, desired. Old age or poor condition no bar, as they are not wanted to breed from.
EMPIRE CITY FARMS, Cuba, N. Y.

For Sale

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

FOR SALE.—Choice winter apples in barrels or boxes. F. E. SCHRIVER, Rt. 3, Grafton, O.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case.
C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Marlin model 27—32 caliber repeating rifle; 7-shot, take down. Cost $16.00. Never used. $12.00 cash. T. P. HALLOCK, Medina, Ohio.

FOR SALE.—7000 fence separators and section-holders for 4¼ x 4¼ x 1½ sections, nearly new, delivered at your station at half price.
D. C. ROBERTS, Ordway, Colo.

FOR SALE.—No. 1 barreled apples in car lots or less; all varieties; also want to hear from parties where there is a large crop.
F. W. DEAN, New Milford, Pa.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successor to J. M. Jenkins.) Penn, Miss.

FOR SALE.—5000 lbs. yellow-sweet-clover seed, new crop, biannual; 4 lbs. hulled, by mail, prepaid, $1.10; 50 to 100 lbs., at 15 cts.; unhulled, 3 cts. per lb. less. Alfalfa seed, $16.00 per 100 lbs.
R. L. SNODGRASS, Rt. 4, Augusta, Kan.

Miscellaneous

SEED.—B. locust and basswood (or linden), per package, 10 cts.; 3 for 25 cts. Great honey-producing and ornamental trees. From now until winter is the time to plant. Full directions sent.
DORSEY T. ASHBY, Crellin, Md.

WANTED.—GOOD HOUSEKEEPING MAGAZINE requires the services of a representative in every State to look after subscription renewals and to extend circulation by special methods which have proved unusually successful. Salary and commission. Previous experience desirable but not essential. Whole time or spare time. Address, with references, J. F. FAIRBANKS, Good Housekeeping Magazine, 381 Fourth Ave., New York City.

THE MICHIGAN BEE-KEEPERS' ASSOCIATION BOOKLET.

This booklet is now ready for distribution. Send in your request on a postal card, and a copy will be sent you free. The members have much less honey to sell this year than last, so you should write soon.
E. B. TYRRELL, Sec'y,
230 Woodland Ave., Detroit, Mich.

Bees and Queens

Queens (hybrid) from New Hampshire, 50 cents.
W. B. BURLINGAME, Exeter, N. H.

Bees and queens of quality. Supplies. Catalog.
Stringham, 10 Park Place, New York City.

FOR SALE.—100 stands of bees, all fixtures.
G. H. BARNES, S. A. R. No. 1, East Highland, Cal.

FOR SALE.—80 colonies of pure Italian bees, 8 and 10 frame hives, all in good shape. Price $300.
W. P. TURNER, Peoria Heights, Ill.

Strong colonies of Italian bees and supplies for sale. FRANK KAUFFMANN,
216 West Main St., Norwalk, Ohio.

One untested Golden Italian queen, 50 cts.; three dark-colored Italian queens, $1.00.
J. F. MICHAEL, Winchester, Ind.

FOR SALE.—Golden Italian queens. Tested, $1.00; select tested, $1.25; untested, 60 cts.; dozen, $7.00.
D. T. GASTER, Rt. 2, Randleman, N. C.

Italian queens, Doolittle strain direct. Untested, 80 cts.; dozen, $7.00. Catalog.
F. M. BABCOCK, Fredonia, N. Y.

Golden Italian queens and nuclei. No disease. Write for prices. J. H. WAGNER,
Box 305, Beatrice, Neb.

Missouri-bred Italian queens; none better; prices right. Write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

Fine golden queens ready to mail right now at 75 cts. each; $7.50 per dozen.
J. B. CASE, Port Orange, Fla.

FOR SALE.—50 to 300 colonies, eight-frame, good condition. Sept. 15.
E. F. ATWATER CO., Meridian, Idaho.

Improved red-clover Italian queens bred from the best honey-gatherers obtainable. Untested, $1.00; 6 for $5.50; 12 for $10.00. J. H. GIBBS, Berlin, Md.

FOR SALE.—Fine Italian queens, hustlers; untested, one, 75 cts.; 6 for $4.00; tested, $1.25 each.
EDW. A. REDDOUT, Baldwinsville, N. Y.

Italian queens that will produce nicely marked gentle bees with good honey-gathering qualities. Price for Sept., 60c each; 6 for $3.35, or $6.50 per doz.
GEO. W. BARNES, Box 340, Norwalk, Ohio.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Bradley's Store, Va.

Italian queens, good as the best; untested, 75 cts.; tested, $1.00. Shipments begin April 1st for bees by the pound and nucleus. Write for prices.
C. B. BANKSTON, Buffalo, Leon Co., Texas.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction.
W. W. DAKIN, Hood River, Ore.

For sale at a bargain, 14 colonies of bees; empty hives, supers, frames, section-holders, extractor, etc. Write for price to
J. S. WRIGHT, 243 Pike Ave., Ames, Iowa.

Bees for sale, and place to rent—75 colonies; well-improved five-acre place, six-room house, adjoining Des Moines city limits—Bowsher Station on interurban. MILO SMITH, Berwick, Iowa.

Five-banded Italian bees, strong and healthy, in eight-frame dovetailed hives: $4.00 per colony.
E. L. MILLER, Springs, N. Y.

FOR SALE.—50 colonies of bees, good condition for winter: 75 Van Dusen hives; 100 extracting-hives; extractors, and entire equipment of the late A. W. Smith. MRS. A. W. SMITH, Ames, N. Y.

Golden queens — very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

QUEENS! QUEENS!—Fine three-banded red-clover Italian queens for sale; reared exclusively from Root's and Davis' stock. Strictly no brood disease. Untested, 60 cts.; $7.00 per dozen; tested, $1.00; select tested, $1.25. Goldens same price as three-banded. H. B. MURRAY, Liberty, N. C.

FOR SALE.—Italian queens from my best honey-gathering strain for the rest of the season. Untested, 60 cts.; select, 75 cts.; tested, $1.00; select tested, $1.25. For nuclei and queens in quantity lots, write for prices. Why not order some choice stock at these prices, and requeen?
ROBERT B. SPICER, Wharton, N. J.

FOR SALE.—Moore's strain and golden Italian queens, untested, $1.00; six, $5.00; twelve, $9.00. Carniolan, Banat, and Caucasian queens, select, $1.25; six, $6.00, twelve, $10.00. Tested, any kind, $1.50; six, $8.00. Choice breeders, $3.00. Circular free.
W. H. RAILS, Orange, Cal.

J. E. Hand's headquarters for the celebrated Highland Farm strain of three-banded red-clover Italians, line bred for honey-gathering qualities, 75 cts. each; six, $4.00. Valuable information free.
J. E. HAND, Birmingham, O.

Poultry

April-hatched Indian Runner ducks, fawn and white; $2.00 each; $3.50 a pair; $5.00 per trio. White-egg strain. KENT JENNINGS, Mt. Gilead, Ohio.

INDIAN RUNNER DUCKS.—Full-grown young stock for sale, either fawn and white or penciled, from best strains in America. Eggs for hatching. All sales guaranteed as represented.
C. O. YOST, Rt. 4, Winchester, Ind.

Buttercups for utility and beauty; selected pens; unlike others. H. V. MEEKER, Earl St., Toledo, O.

White-faced Black Spanish eggs for hatching; 15, $1.00; 50, $3.00; 100, $5.00. Also dealer in bee-keepers' supplies of all kinds. A. W. SWAN, Centralia, Kan.

S. C. White Leghorns, Wykoff strain, fine ones. Cockerels or pullets, $1.50 each.
GEO. G. HANDLEY, Fair Oaks, Indiana.

S. C. White Orpington cockerels, April hatched; heavy laying strain, $3.00 each.
P. TEN BROECK, Rt. 4, Saugerties, N. Y.

WHITE ORPINGTONS, the great layers and payers; fine blocky stock. Pullets and cockerels at reasonable prices. Satisfaction guaranteed.
W. F. ASHLEY, Medina, O.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St, Joseph, Mo,

Real Estate

WANTED.—Large apiary on shares; 7 years' experience. CHAS. ZWEILY, 6002 28th St., Cicero, Ill.

FOR SALE.—80 acres of farm land in fine bee location. Price $45.00 per acre. Write for particulars. LESLIE BYWATER, Monona, Allamakee Co., Ia.

FOR SALE.—Pressed-brick cottage, 22 by 32 ft., on four fruited lots, just outside city of Denver; $2500; also from 100 to 400 colonies of bees.
J. A. EVERETT, Edgewater, Colo.

FOR SALE.—Store and dwelling combined; good trade; fine locality; best of water; 40 stands of bees; 8 years' experience, and not one failure. Will sell at a sacrifice on account of health.
W. H. FANNING, Shunk, Pa.

FOR SALE.—A 22½-acre farm, one mile from railroad station, 1½ from boat-landing, 1½ from two growing towns of 3000 inhabitants each; good fruit and truck land; six-room house; barn; all kinds of fruit—apples, pears, peaches, cherries, quinces; ¾ acre of blackberries, and over ½ acre of grapes. Price $2500—$1000 cash. Also for sale 13 colonies of Italian bees; a lot of extra fixtures and hives; one two-frame extractor; all for $75.00.
JACOB PROBST, Florence, Burlington Co., N. J.

FOR SALE.—Large apiary with all appliances necessary for conducting the business of raising honey in an up-to-date manner; located in the far-famed Hudson River Valley—a region abounding in fruit-trees, raspberries, the clovers, buckwheat, and fall flowers. The owner has kept from 100 to 250 colonies in his present location for 32 years, and has never failed to get a paying crop of honey. The apiary has been run for extracted honey exclusively, and at present it consists of 250 colonies with an eight-frame power extractor, Hershiser wax-press, 5000 surplus combs, large honey-tank, and every convenience for conducting the business successfully. No other apiary of any size within many miles. JAMES MCNEILL, Hudson, N. Y.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, $1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school.
W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1911; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 60 cts.; select, 75 c.; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices see large advertisement.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

GRAY PRINTING CO., Fostoria, O.
Make ENGRAVINGS for GLEANINGS

Convention Notices.

The annual meeting of the Northern Illinois and Southern Wisconsin Bee-keepers' Association will be held in the court-house, Freeport, Ill., Oct. 17th. All interested in bees are invited to attend and bring any thing new that would be of interest to bee-keepers. The question-box will be a prominent feature. B. KENNEDY, Sec.
Cherry Valley, Ill.

The Missouri State Bee-keepers' Association will meet Sept. 26—28 during the Electric Park Company's Missouri Valley Fair, Kansas City, Mo. All members are requested to be present; and any one interested in bees and honey is cordially invited to attend. There will be several lectures given on the management of apiaries and the production of honey by our most successful bee-keepers. Live-bee demonstrations will be given daily to teach the public how bees can be handled. The Electric Park Company holds from Sept. 23 to Oct. 8. All bee and honey exhibits must remain during this entire fair. M. E. TRIBBLE, Sec.

FREE ADVERTISING ON THE EDITORIAL PAGES, ETC.

Mr. Root:—I have been a subscriber to your paper for some time, and value the same highly; but you seem to exert too much energy in boosting Chicago mail-order monopolies. I think it detracts much from your magazine to run paid advertising in editorial pages. I refer to July 1st issue, p. 411 to 413.
Park, Wash., July 11. J. D. CUSTER.

Many thanks, my good friend, for speaking out frankly. We get so many *kind* words that it would be out of the question to think of publishing them all; therefore it is a little refreshing to receive a criticism, even if the writer of it is mistaken. Permit me to say, as I have done before, that we do not, under any circumstances, receive a copper for what is said on the editorial pages. All the goods I have bought of the houses alluded to have been paid for at catalog prices. I have never received any favor in the way of rebates or discounts, and, in fact, I have told them I did not want any. Perhaps you may recall that there is no advertisement in our columns from either firm in the number containing my writeup. Since that came out, some of our Medina tradesmen have expressed a wish to furnish us goods just as low as the mail-order houses do. In such a case I would most assuredly trade at home. That article was mainly written, however, because I found difficulty, both here and in Florida, in getting exactly what I wanted, and in being able to exchange or return it if it did not prove to be satisfactory.—A. I. R.

WANTS GLEANINGS FOR FIVE YEARS, ETC.

I am enclosing three dollars for GLEANINGS another five years. We enjoy it very much indeed, and should want it, even if we never expected to own a bee in the world. GLEANINGS appeals to us especially because it bristles all over with good will, fellow-feeling, and square dealing. We think much of brother A. I. (we feel more like saying *grandpa Root*), and enjoy reading his articles very very much.

I would like to have 50 of those tracts, "The Crown of Diamonds and the Crown of Thorns." I want to place them in the hands of some of our good neighbors who have not quite enough courage or information to vote dry.
Scottsdale, Ariz., July 13. V. A. VANDERHOOF.

State Fair Premium Lists.

The following is the list of premiums offered by the Valley Fair Association, to be held at Puyallup, Wash., Oct. 3—7:

FANCY WHITE COMB HONEY.			
1-lb. section, best	$ .30	$ .25	$ .20
5-lb. section, best	.75	.50	.25
10-lb. section, best	1.00	.75	.50
24-lb. section, best	1.50	1.00	.50
LIGHT OR AMBER COMB HONEY.			
1-lb. section, best	.30	.25	.20
5-lb. section, best	.75	.50	.25
10-lb. section, best	1.00	.75	.50
24-lb. section, best	1.50	1.00	.75
Largest and most attractive display of all kinds of comb honey, not less than 40 lbs.	2.00	1.50	1.00
WHITE EXTRACTED HONEY.			
1 lb. in glass, best	.25	.20	.15
5 lb. in glass, best	.60	.50	.40
10 lb. in glass, best	1.00	.75	.50
24 lb. in glass, best	1.50	1.00	.75
LIGHT OR AMBER EXTRACTED HONEY.			
1 lb. in glass, best	.25	.20	.15
5 lb. in glass, best	.60	.50	.40
10 lb. in glass, best	1.00	.75	.50
24 lb. in glass, best	1.50	1.00	.75
1 lb. lump in glass, best	.30	.25	.20
1 lb. granulated, best	.30	.25	.20
Best, largest, and most attractive display of all kinds and grades of extracted honey, not less than 40 lbs.	2.00	1.50	1.00
EXTRACTORS.			
Honey-extractor in operation, best	1.50	1.00	.50
Wax-extractor, best	.75	.50	.20
Display of beeswax, best, two or more pounds	.50	.30	.20
Frame hive with super complete, all ready for a swarm, best	1.50	1.00	.50
Hive of comb honey for extracting, best	2.00	1.50	1.00
LIVE BEES, FULL HIVES.			
Demonstration, best; hive to be opened, find and exhibit queen, at 4 P. M., third, fourth, and fifth days of the fair, when called by the superintendent of the bee department	5.00	3.00	2.00
Exhibit of clipping queens' wings, best, queen to be taken from a full colony of bees; time and neatness to count	5.00	3.00	2.00
Display of plural queens, best; hive to be opened and queens shown; time and neatness to count	5.00	3.00	2.00
Observation hive, best; to contain a full colony of bees	3.00	2.00	1.00
One-frame hive Italian queen and her bees, best	2.00	1.50	1.00
Golden queen and her bees, best	2.50	2.00	1.00
Black queen and her bees, best	2.50	2.00	1.00
Any other strain of bees and queen	2.00	1.50	1.00
CAGED QUEENS.			
Italian queen and her bees, best	1.00	.75	.50
Golden queen and her bees, best	1.00	.75	.50
Black queen and her bees, best	1.00	.75	.50
Any other queen and her bees, best	1.00	.75	.50
Display of largest number of queens in a single cage, best	2.00	1.00	.50
Largest and best collection of caged queens, different grades and varieties, four or more to count	3.00	2.00	1.00
CAGES, ETC.			
Self-introducing queen-cage, best	.30	.25	.20
Cell-protecting cage, best	.30	.25	.20
Entrance-guard, best	.30	.25	.20
Queen-excluding honey-board, best	.30	.25	.20
Bee-escape honey-board, best	.30	.35	.20
Queen or drone trap, best	.40	.30	.20
Bee-smoker, shown lighted, best	.50	.40	.30
Foundation-fastener, best	.50	.40	.30
Bottom bee-feeder, best	.50	.40	.30
Inside feeder, best	.50	.40	.30

BEE DEPARTMENT.

Only ladies to compete in the two following classes. Two or more entries are required in the second class following (401), or second prize will take the place of the first.

Valley Fair Association, for best and largest display of products of honey and beeswax—first, $2.00; second, $1.00; third, 50 cents.

Best live-bee demonstration, queen to be shown on comb; time and neatness to count—first, one $5.00 hive of Italian bees; second, one $3.00 frame observation hive of bees and Italian queen; third, a $1.50 Italian queen in cage—bees given by J. W. Ware, Puyallup, to be taken from the fairgrounds at the close of the fair (401).

Morse Manufacturing Co., Puyallup, offer one 1½-story hive complete, for best and largest display of hives, tools, and fixtures used in bee-keeping.

Morse Manufacturing Co., Puyallup, one 1½-story hive complete, for best display of honey made outside of Puyallup.

Morse Manufacturing Co., Puyallup, offer one 1½-story hive complete, for best display of live bees from outside of Puyallup.

Morse Manufacturing Co., Puyallup, offer one 1½-story hive complete, for best exhibit of honey from outside of Pierce County.

Washington Shoe Manufacturing Co., Seattle, offer one pair of men's dress shoes for the best paper on the management of bees during a honey-flow, with the least possible swarming.

Valley Fair Association, $5.00, $3.00, and $2.00 cash to the parties passing the first, second, and third best "quiz" by Mr. Ware on the general subject of bee-keeping—open to all.

J. W. WARE, Superintendent.

TRI-STATE FAIR, MEMPHIS, TENN., SEPT. 26—OCT. 4.		
Best 10 lbs. of extracted honey, in glass	$3.00	$2.00
Best display of extracted honey, 50 lbs. or more	5.00	3.00
Best case of comb honey, 12 lbs. or more, quality and appearance to count	3.00	2.00
Best display comb honey, 50 lbs. or more	5.00	3.00
Best 5 lbs. of granulated honey	3.00	2.00
Display of labeled samples, showing honey from different kinds of flowers	3.00	2.00
Best display of beeswax, 25 lbs. or more	5.00	2.00
Nucleus of dark Italians	3.00	2.00
Nucleus of golden Italians	3.00	2.00
Nucleus of any other race	3.00	2.00

Largest and best display of bees, bee products, implements, etc.; exhibit to be made by individual bee-keeper...$25 $15 $10

Best 10 lbs. of extracted honey in glass, one Root Standard bee-smoker, value 85 cts.

Best specimen, 1 lb., beeswax, one copy "A B C of Bee Culture," value $1.50.

Best display of different races of bees in observation hives, 4 lbs. Root's comb foundation, value $2.50.

Best frame of honey for extracting, Gleanings in Bee Culture, one year, value $1.00.

Best exhibit by boy under 16, one Globe bee-veil, value $1.00.

Best exhibit by lady bee-keeper, one copy "How to Keep Bees," value $1.00.

FRED W. MUTH SPECIAL.

Offered by the Fred W. Muth Co., Cincinnati, Ohio.

Best display of bees and bee products, One 2-story, 10-frame Muth Special hive, value $3.50.

Best display of extracted honey, one Jumbo bee-smoker, value $1.50.

Best display of comb honey, six Porter bee-escapes, value $1.25.

Best display of beeswax, one copy of "Langstroth on the Honey-bee," value $1.00.

Best display of bees in observation hives, one Muth Ideal bee-veil, value 75 cts.

Best exhibit by lady bee-keeper, two pounds comb foundation, value $1.20.

Best nucleus of Italian bees, one Bingham honey-knife, value 90 cts.

COMB-FOUNDATION MACHINES ADVANCED.

The continued high price of pig tin, which forms a large part of the metal on the rolls of comb-foundation machines, compels us to advance the list price of these machines. The new list price will be as follows:

14x2½-inch mill,	$48.00	6x2½-inch mill,	$30.00
12x2½ " "	42.00	10x2 " "	30.00
10x2½ " "	36.00	6x2 " "	24.00

THE A. I. ROOT CO., Medina, O.

Special Notices

By Our Business Manager

SECOND-HAND 60-LB. CANS.

We still have a supply of good second-hand 60-lb. cans, two in a case, which we guarantee free from rust on the inside, but which will require a thorough cleaning before they are filled. If care is taken in this respect they are safe to use for good honey. For fall or off grades of honey we can recommend them without qualification. Price, $3.00 for 10 boxes; $25.00 per 100 boxes; 25 or over at 100 rate.

EARLY-ORDER CASH DISCOUNT.

We are again prepared to reward by a liberal early-order cash discount those who are forehanded in anticipating their next season's requirements. For orders received during this month, accompanied by payment, for goods for next season's use, we allow a discount of 7 per cent; during October, 6 per cent. As the season advances the discount is reduced one per cent each month. This discount applies to goods listed in our general catalog except as follows: Paint, Porter bee-escapes, Bingham smokers, bees, queens, printed matter, cartons, honey-packages, tin and glass; bushel boxes, hotbed sash, honey-labels, seeds, and such seasonable goods. Where a large general order includes some of the excepted articles, not exceeding ten to twenty per cent of the entire order, the discount may be applied to the whole order.

SWEET-CLOVER SEED.

We have secured a good supply of both hulled and unhulled white sweet-clover seed, a part of which is on the way to us, and should arrive before any orders can reach us in answer to this notice. We have also secured a thousand pounds of unhulled yellow biennial seed, *Melilotus officinalis*. This variety seems to be so uncommon that it is not easy to secure the seed, and we had to pay liberally for what we have secured. In order to make sure we were getting the genuine article we submitted a sample to the seed expert in the United States Department of Agriculture, Washington, and he pronounces it all right. We still have an abundant supply of last year's seed of yellow annual, which is good, and germinates freely. No old seed of any other variety remains on hand, as all stock has been sold and disposed of. We offer the seed of the various kinds mentioned at the following prices:

	In lots of— 1 lb.	10 lbs.	25 lbs.	100 lbs.
Hulled Yellow Annual (*Melilotus Indica*), per lb	15c	12c	11c	10c
Unhulled Yellow Biennial (*Melilotus officinalis*),	25c	22c	21c	20c
Hulled White	23c	20c	19c	18c
Unhulled White (*Melilotus alba*) per lb	16c	14c	13c	12c

In this connection we wish to give a word of caution. The past season we have offered and sold what we believed to be hulled yellow biennial sweet clover, *Melilotus officinalis*. We secured the seed from what we regarded as a reliable seedhouse in Louisville, Ky. Among other orders received was one from the Department of Agriculture at Washington, for 30 lbs. each of annual and biennial seed, which we forwarded. On receiving it the government expert pronounced both lots of seed annual. Several who had bought seed early in the season, and sowed it, confirmed this opinion by reporting blossoms within a few weeks after the seed was sown; whereas the biennial is not expected to bloom till the second year.

We have had the matter up with the seedhouse of whom we procured the seed; and, in spite of the evidence produced, they are inclined to discredit the idea of two kinds, and insist that they furnished us the genuine yellow biennial, claiming they had secured it from California (the same place where we obtained the yellow annual), and had sold over 30,000 pounds, and ours was the only complaint they had received. This is a wholesale seedhouse, and they have disposed of a very large quantity of this year's seed. If we, with our long experience with sweet clover, were misled the past season, it is more than likely that many innocent buyers of seed may be likewise misled into buying the annual when they want and expect to get the biennial variety. We give this experience to put our readers on their guard. We can furnish the dealer's name to any one interested.

Special Notices

By A. I. Root

"GARDEN PROFIT; OR, BIG MONEY IN SMALL PLOTS."

There are so many good books on gardening nowadays that it is a hard matter to notice them all. The one with the above title is just out this year of 1911. The first chapter is entitled "The Self-supporting Home." The next is "Money in the Back Yard." If this chapter shall result in transforming our unsightly back yards into things not only of beauty, but of real profit, and health to the owner thrown in, it will do a good work. There is one chapter entitled "Successful Gardening," telling what has been done, and another excellent one on frames and hotbeds. Every one who makes any pretensions to high-pressure gardening should have some glass sashes, and, to go with them, some cloth-covered sashes also. Even if you do not have a regular manure-heated hotbed, these sashes will be a great help. The book tells one how to start gardening *any* month of the year, and, I may almost say, no matter *where* you live. The price is $1.50 postpaid. It comes from Doubleday & Co.; but we have made arrangements to club it with Gleanings so you can get it for much less than the regular price.

The book "Garden Profits," containing 240 pages with many illustrations, and nicely bound in cloth, is offered with *The Garden Magazine*, a leading monthly horticultural publication, and Gleanings in Bee Culture (semi-monthly) and the "Townsend Bee-book;" two magazines, each one year, and two books—a $4.50 value for only $2.00. This offer is open to new and old subscribers of each magazine alike. Address Subscription department, Gleanings in Bee Culture.

HUNTER-TRADER-TRAPPER FOR AUGUST.

The above excellent magazine has two articles that interest me greatly. The first is the feather industry of the United States, which amounts now to over $12,000,000 per annum; and at present the largest part of our feathers for pillows comes from China, where they grow ducks by the million. From this article we learn there is a market in the United States for every thing in the way of feathers. Chicken feathers picked indiscriminately bring from 3 to 5 cts. per lb. If picked dry they are worth about 15 cts. White turkey feathers bring from 60 to 70 cts.; while down from the breast of a goose is worth from $1.00 to $1.50 per lb. The Partridge Wyandotte furnishes feathers that are used to decorate hats, and of course these, when properly saved, bring a lot of money. This article also tells all about renovating feathers by steam. And this reminds me that, a few days ago, when I took a Pullman sleeper on the Pennsylvania Railroad, before the porter put on his clean pillow-slips the pillow-cases were not only ragged and full of holes, but the feathers were so soiled they looked as if they might smell bad; and they did smell bad, so I had trouble in getting to sleep. I want to call the attention of the health department of the several States to the importance of notifying the Pullman Car Co., and all similar ones, that the feathers in their pillows should be renovated by steam. They certainly get money enough to pay for the expense of furnishing their patrons with hygienic, sanitary pillows.

The other article is about blueberries. I quote the following:

> Blueberries are about the only fruit I know of that can be eaten in large quantities without any injurious results. One can consume appalling quantities without suffering any derangement of the stomach. This can not be said of strawberries or raspberries.

After having had blueberries for my supper in place of my apples for some time I heartily agree with the above. During my recent visit in Connecticut I saw blueberries literally *covering* the hills and going to waste. You may recall that, in our issue for Dec. 15, page 807, I made mention of a government bulletin in regard to blueberry culture.

One Hundred and Thirty-one Thousand Copies of this Great Book have been Printed. . .

It is the most widely read work on apiculture in the world, and a never-failing encyclopedia of information for professional and amateur bee-keeper alike. . .

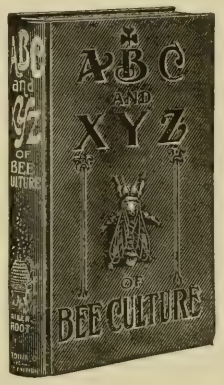
You Can Not Afford to Keep Bees without The A B C and X Y Z of BEE CULTURE

The latest edition of this work is the most complete of any bee-book that has ever been issued in the English language. While it is still a book for the beginner, it may be read with profit by the advanced bee-keeper. So enormous has been its sale that the publishers have spared neither time nor money to keep this book fully abreast with the times. In the latest edition some scientific and technical matter as well as the practical has been added to its pages. It has been most carefully edited and revised, and the present edition has been gone over page by page by several experts. Its authors and publishers feel that, more than ever, it is a safe and reliable guide to bee-keeping.

In the present edition there is a large number of half-tone reproductions from what might be called moving pictures, showing various steps in the processes for handling bees. While a detailed description goes with the separate views showing each step, yet one can almost learn how to handle bees by simply looking at the series of photographs. Under the head of "Frames, to Manipulate," for example, there are a large number of engravings that show not only the method of handling frames but handling hives and bees in such a way as to do the work with the greatest economy of labor, with few or no stings, and with but little fatigue.

The new methods of queen-rearing have been carefully reviewed, and the main points incorporated in the new edition, so that the practical bee-keeper who possesses a copy will have the best ideas of the subject constantly by his side for reference.

The new methods of wax-production are treated in an exhaustive fashion; and as this subject is now of more importance than formerly, more space has been devoted to it.



By A. I. and E. R. ROOT

Contains 576 pages, and printed on finest quality plate paper; profusely illustrated with beautiful half-tone engravings from actual photographs.

The new power-driven automatic extractors are amply illustrated and described. The subject of diseases has received entirely new treatment to keep pace with new discoveries of the last few years. The laws relating to bees have for the first time received full treatment. No other bee-book treats of this very important subject. The divisible-brood-chamber hive and the subject of swarm control have received special attention.

Honey, sugar, nectar, and glucose, written up by a United States government chemist, are carefully defined in accordance with the demands of our new pure-food laws.

The authors have traveled thousands of miles in the United States, with notebook and camera, and have endeavored to incorporate in the pages of this volume all the latest and best practices known to the professional and amateur bee-keepers. There is scarcely a practical method or device known to the bee-keepers of the country that is not here described. Besides the immense amount of valuable material gathered through extensive travel, the work has been enriched with the choicest material that has appeared in the columns of GLEANINGS IN BEE CULTURE, an illustrated semi-monthly by the same authors.

As the title indicates, the book is designed to cover the needs of the amateur and the professional bee-keeper, and all the matter is arranged alphabetically so that the reader may be able to find just the material he seeks without referring to the index, which, however, is very full.

Besides the matter relating to methods and devices, the book contains a complete dictionary of apicultural terms, and a picture-gallery comprising a list of the choicest illustrations.

We have Never Offered a More Popular Combination than This Book and Gleanings in Bee Culture

If you keep bees; if you want to know of the pleasures and profits of bee-keeping—of the scientific and the practical sides of bee-keeping—you will want to take this offer without fail:

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Beautiful cloth-bound copy, postpaid; regular price, $1.50.

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A semi-monthly magazine of 56 to 80 pages; authoritatively edited and printed in finest style; subscription price $1.00 per year.

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Send a sample of your new crop, and get our present prices. We pay as much as other buyers for first-quality goods, and you'll get quicker returns by shipping here.

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We maintain a complete plant for manufacturing Comb Foundation under the "Weed Process," and of A-1 quality. Each year our business in this product is growing—proof that we are delivering the goods made right, at right prices, and at the right time. Better get in touch with us on Comb Foundation requirements.

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Would you like to decorate your home during the winter months with Flowering Plants?

WELL, THEN, you will be interested in a plant that will bloom in the house, with little or no care, by simply planting the bulbs in dishes of water.

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are easily grown, and bloom freely, bearing a very sweet-scented flower of silvery white. It is a sure bloomer; and, as a decoration for a parlor or a dining-room table, it can not be surpassed. Thousands of these interesting and unique bulbs are planted every year, and the results are always very satisfactory; for all that is necessary is to plant the bulb in a dish of water. No care or trouble; and from the time the bulb begins to grow to the time it blooms the plant is interesting and very decorative.

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Your copy ready—the biggest, most valuable book on stoves. You can't afford to be without it—packed with money-saving, inside stove facts. We will ship stove the day the order comes—always within 24 hours. When you write ask for Catalogue No. 416, giving prices and *easy terms.*

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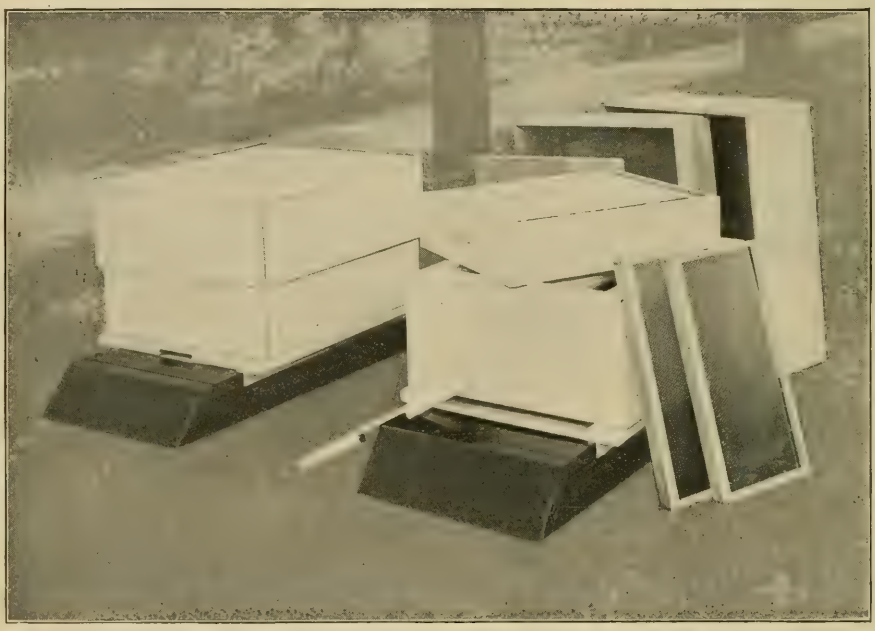
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Manufacturers
Kalamazoo - Mich.

. . New . .

Root Double-walled Hive

with Removable Bottom

For Wintering Outdoors in any Climate



THIS HIVE consists of a bottom-board separate and distinct from the hive itself; a double-walled hive-body; a thin board or super-cover, a tray with burlap bottom in which the packing material is placed and the telescoping cover. In the illustration above, two hives are shown—the one complete and set up ready for use; the other opened to show the several parts of which the hive consists. This is the newest thing out. It will fit any ten-frame hive furniture whether it be hive-stand, super-cover, supers, or cover. The bottom-board is made of single thickness with side flanges to cover the bottom of the double-walled hive-body.

THE hive-body is double-walled and packed with shavings, cut straw, chaff, saw-dust, or any good porous matter. This is not a so-called dead-air-spaced hive, cheaply made, without any thing to hold the packing-material, but is an out-and-out double-walled brood-chamber. The cover that goes with this hive is large enough and deep enough to telescope over the entire hive. A super-cover is provided and the chaff-tray with burlap bottom. Packing-material of any sort may be placed in the tray when the bees are ready for winter, providing the cluster is strong and providing, too, that there are sufficient stores.

The removable bottom-board of the 1911 and 1912 models is a special feature with the new hive. During hot weather the entrance may be increased or the hive may be raised up off the bottom to keep down swarming. In early spring or late winter, if the entrance is clogged, the hive may be lifted off the bottom-board and the latter scraped clean, when the hive may be put back in place.

One may use either the sealed-cover scheme of wintering or the upward-ventilation idea with absorbents. The hive is adapted for all localities; and, taking it all in all, is the best all-around hive that bee-keepers can buy, for it almost works for nothing and boards itself. Better let us send you a crate of five so you can try it out. If you haven't any dry cellar where you can maintain the proper winter temperature, you certainly need it. If your winters are changeable from cold to warm it is just the hive you need, for in such a climate you can not winter indoors. If you want a hive that you can leave out the year round without any attention from October 1st until May 1st, this is the hive to select. Don't waste your money on dead-air-spaced hives.

A DESCRIPTIVE STORY of this new hive and of the new opportunities it brings to bee-keepers, has been put in pamphlet form. Illustrations are included to show construction of each part, and point out its relation to the complete whole. This pamphlet, with a price list on the ROOT DOUBLE-WALLED HIVE in any quantity, set up and painted or in flat, will be sent immediately upon application to our home or branch offices or any dealer in our superior bee-supplies.

THE A. I. ROOT CO, MEDINA, OHIO

213-231 Institute Place, Chicago **603 Evening Post Bldg., New York**

Gleanings in Bee Culture

VOL. XXXIX OCTOBER 1, 1911 NO. 19

Clover-Patch Philosophy

An angry wasp and a busy bee
Met once on a clover-head.
The bee at his work hummed merrily,
While the wasp with anger said:
"Why is it that mortals, one and all,
Act kindlier far by you?
I use my sting if they're in my way,
But that is my rightful due.
You do the same, yet they use you well,
But askance at me they look."
Then the wasp waxed wroth and waved his wings,
Till the head of clover shook.
The bee worked on. When for flight prepared,
It hovered aloft on wing,
Then paused a moment, and archly said:
"I give more honey than sting."

—Jean S. Walker, in the *Canada Monthly*

THE A. I. ROOT COMPANY

St. Paul Branch

1024 Mississippi St., St. Paul, Minn.

Is the natural distributing-point for Root's Goods in the following territory, and has been established at this location for 20 years.

Minnesota	North Dakota
Western Wisconsin	South Dakota
Northern Iowa	Montana
Western Canada	Idaho

SUPPLIES

Practically every article mentioned in the Root catalog is kept in stock at St. Paul. Carload shipments from the factory are forwarded frequently to keep the stock complete. At the 1910 Minnesota State Fair we were awarded first prize for the best exhibit of apiarian tools and fixtures; also for best hive for comb honey and for best hive for extracted honey.

SERVICE

We are constantly seeking to improve our facilities for filling orders ACCURATELY and PROMPTLY. Many delays will be avoided if patrons will state whether eight-frame or ten-frame size is wanted when ordering any of the following articles:

Honey-boards,
Porter Bee-escapes with Board,
Super-covers,
Queen and Drone Traps,
Entrance-guards,
Wire for Entrance-guards,
Hives,
Supers,
Covers,
Bottoms.

PRICES

The prices in the Root catalog are factory prices, f. o. b. Medina; but at this branch they are f. o. b. St. Paul, thus saving much in time and freight to Northwestern bee-keepers ordering from St. Paul. SEND FOR FREE CATALOG.

QUEENS

Orders booked now for spring delivery of queens.

WAX

We are paying 28c cash, 30c in trade for clean wax

THE A. I. ROOT COMPANY

ST. PAUL, MINN.

PILCHER & PALMER, Northwestern Managers . . . 1024 Mississippi Street

"Falcon" Bee Supplies

"The Finest Made"

At 6% Discount in October

TO RELIEVE us of the rush of orders in the spring, and to make it an inducement to the business-man bee-keeper to order in the fall — our dull season — we offer each year early-order cash discounts. In the past, many have taken advantage of these, and we want a much larger number to benefit this season.

Take your pencil and figure the great saving and the high rate of interest made on your money for so short an investment. And bear in mind that you can put your supplies together in spare time in the winter cheaper and better than when the swarm is in the tree, or the supers full.

Six per cent to encourage you to get prepared! It's worth while; and don't forget that you are buying at this discount those "standard of perfection" goods—**"falcon"** goods.

We have spared no pains nor expense in the manufacture of the best hives, supers, sections, foundation, and other goods needed by the bee-keeper, and we want you to send a list of goods for quotation, less early-order discount immediately. Forward it to our nearest distributor, and it will receive immediate attention. If you don't know the name of nearest one, write us and ask for prices from our nearest point. We can serve you at lowest prices anywhere.

Pacific Coast Bee-keepers

If you failed to see the announcement of our San Francisco house, John C. Frohliger, Market Street, San Francisco, Cal., in our GLEANINGS advertisement September 1, look it up. It is worth while.

W. T. Falconer Mfg. Company

Factory
FALCONER, N. Y.

Warehouse
117 No. Jefferson St., Chicago, Ills.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

NO. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

NO. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

NO. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy and No. 1 white, 17 to 18; light amber, 16; amber, 15; fancy white extracted, 11 to 12; fancy light amber, 10; amber, 9. Beeswax, 30. BLAKE-LEE CO.

4 Chatham Row, Boston, Sept. 18.

DENVER.—We quote No. 1 white, per case of 24 sections, $3.35; No. 1 light amber, $3.15; No. 2, $2.95; white extracted, 8½ to 9; light amber, 7½ to 8¼. We pay 25 cts. cash and 27 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY PRODUCERS' ASS'N.

Denver, Col., Sept. 23.

SCHENECTADY.—Up to the present time, receipts of both comb and extracted honey have been very light, and the yield of clover in this section is poor, both in quantity and quality. We have made a few small sales of comb at 15, and extracted at 9. No buckwheat on hand yet.

Schenectady, Sept. 18. CHAS. MACCULLOCH.

KANSAS CITY.—The receipts of both comb and extracted honey are more liberal, with fair demand. We quote No. 1 white comb honey, 24-section cases, $3.50; No. 2 ditto, $3.00 to $3.25; No. 1 amber ditto, $3.25; No. 2 ditto, $2.75 to $3.00; extracted white, per lb., 8½ to 9; amber, 7½ to 8. Beeswax, 25 to 28.

C. C. CLEMONS PRODUCE CO.

Kansas City, Sept. 23.

CINCINNATI.—The comb-honey market is very firm. We quote No. 1 white to fancy at 16½. Off grades are not wanted. Extracted, fancy white sage, brings 10 cts. in 60-lb. cans, two cans in a case; amber in barrels, 7 to 7¼. Beeswax is in fair demand at $33.00 per 100 lbs. These are our selling prices, not what we are paying.

C. H. W. WEBER & CO.

Cincinnati, Ohio, Sept. 19.

CHICAGO.—Trade on comb honey is still neglected on our market on account of continued heavy arrivals of fruit of all kinds; but we think that, after this month, we can look forward to a change. Extracted seems to be moving more readily. We quote fancy and No. 1 white-clover comb honey, put up in 24-section flat cases, glass fronts, at 17 to 18; No. 2 white and light amber, put up in 24-section flat cases, glass fronts, 15 to 16; other darker and inferior grades at correspondingly less prices. Extracted white clover brings 8½ to 9½; white alfalfa, 8½ to 9; Southern California light amber, extracted, 8 to 8½. Bright pure beeswax is firm at 30 to 32.

Chicago, Sept. 22. S. T. FISH & CO.

Continued on page 5.

WANTED!

Comb and Extracted Honey

Let us hear from you with your best price on your Comb and Extracted Honey, freight paid to Cincinnati. We buy every time price justifies. No lot too large or too small. We remit day shipment arrives.

THE FRED W. MUTH CO.

51 Walnut Street "The Busy Bee Men" **Cincinnati, Ohio**

Trade a Part of Your Honey Crop

for Supplies for Next Season;

Send Your Order NOW

and Save 6 per cent

We are in the market for honey, both extracted and comb, in carload lots and less. We should like to have samples and lowest prices on your crop, and will advise you immediately what we can use, and treat you right.

May be you would like to send us a shipment of honey in payment of an early order for bee-supplies. No better time to do this than in October. Send a sample of your honey and get our prices—tell us what supplies you will want, and we will try to accommodate you. Your supply order may be made up from our regular catalog, and you may deduct our special early-order discount of 6 per cent for October.

Only a few articles listed in the big WEBER LINE of Bee-supplies are excepted from this discount. On paint, Porter bee-escapes, Bingham smokers, bees, queens, printed matter, cartons, honey-packages (tin and glass), bushel boxes, hotbed sash, honey-labels, seeds, and such seasonable goods, the discount is not allowed; but where a large general order includes some of the excepted articles, not exceeding ten to twenty per cent of the whole order, the discount may be applied to the whole order.

If you have mislaid our catalog sent you at the beginning of the season, let us mail another. It's worth your while to make up your order now and send it to us with a cash remittance. You can buy your supplies for next season cheaper than at any other time during next year.

Save freight by ordering from Cincinnati. This is an item worth looking after.

C. H. W. Weber & Co.

2146 Central Ave. Cincinnati, Ohio

Gleanings in Bee Culture

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Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, Mrs. H. G. Acklin.

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Extracted HONEY Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

ZANESVILLE.—The demand for honey is normal for the fruit season. Indeed, the demand exceeds the supply. Best grades of white comb bring 18½ to 19 wholesale, producers being paid about 2 cents less. Producers are being paid for best white extracted 8½ to 9½, the selling prices running 1½ to 2 cts. higher, according to quantity. Producers are offered for beeswax 31 cts. in exchange for bee-supplies.

Zanesville, O., Sept. 22. E. W. PEIRCE.

ST. LOUIS.—Since our last, Sept. 6, our honey market has remained unchanged. The weather is a little cooler, with a slightly better demand. We quote fancy white comb honey at 16 to 16½; No. 1, 15 to 15½; choice light amber, 14 to 15; dark, 11 to 13; extracted light amber, Southern, in barrels, 7; dark, 6 to 6½; same grade in five-gallon cans, ½ ct. per lb. higher; California light amber, in five-gallon cans, 8½; white, 9 to 9½. Beeswax is in good demand at 30 for prime; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Sept. 22.

LIVERPOOL.—Since we last reported, there has been rather more demand for beeswax, though at easier prices. Sales total about 40 bags of Chilian at $35.18 to $38.08 per cwt. Nominal values of other qualities are as follows: African, $32.67 to $34.42; American, $37.51; West Indian, $32.67 to $36.28. Our market for honey has been quiet, with sales of Chilian, principally in fine white and manufactured sorts. About 110 barrels sold, pile X at $7.20 to $7.92 per cwt.; pile 1 at $6.60; pile 2 at $6.12; No. 3 pile at $4.68 to $4.80. Amber Haitien sold at $6.24 to $6.72; dark and poorly extracted Haitien is offered at $6.00 without any results. Business in Californian is somewhat restricted, owing to want of stock, and the market is firm for shipment. Twenty-five cases of white New Zealand sold at $10.08 per cwt.; Jamaican, nominal value, $7.20 to $8.64; Californian, nominal value, $9.60 for water white.

Liverpool, Sept. 4. TAYLOR & CO.

HONEY-JARS

No. 25 jars, the best made, $5.00 per gross.
Light honey, 9¼c lb.; amber, 8¾c lb.
Catalog of every thing a bee-keeper uses, free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

CHAS. ISRAEL & BROS.

488-490 Canal Street, NEW YORK
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments solicited. Established 1875.

ALBANY. — Honey receipts are very light, and prices are favoring the seller more than for many years. We think bee-keepers would do well to send their honey forward promptly. We quote fancy white, 17 to 18; A1 good white, 15 to 16; mixed white, 14 to 15; buckwheat and mixed, 13 to 14. Extracted buckwheat, 7½ to 8; white, 8 to 9. Beeswax, 30 to 32.

Albany, N. Y., Sept. 20. H. R. WRIGHT.

BUFFALO.—Some new white comb honey arriving; and when of good quality it meets with quick sale. Receipts are very light for this time of the year. We think the make is small, and prices will be high for all the season for good quality. No call for new buckwheat; quite an inquiry for white extracted. New white comb honey, No. 1 to fancy, 16 to 18; No. 2, 12 to 14; buckwheat, 12 to 14; white extracted, 7½ to 8½; dark, 6½ to 7½. Beeswax, 30 to 32. W. C. TOWNSEND.

Buffalo, N. Y., Sept. 6.

NEW YORK.—For comb honey the demand is good. New crop of white comb is now arriving, and finds ready sale at from 16 to 17 for fancy white; No. 1, 14 to 15; No. 2, 13. We would advise shipping now, and not wait for higher prices later on. No arrivals yet of new crop of buckwheat, and not much demand. This will probably sell at about 10 to 11 cts. for fancy, and from 9 to 10 for No. 1. Extracted is in good demand, and former prices are maintained. Beeswax is quiet at 30.

New York, Sept. 18. HILDRETH & SEGELKEN.

CINCINNATI.—The demand for comb honey now is very good, and it is selling by the single case to the retailer at from 16 to 17½ cts., according to the quality. In a jobbing way, for Western comb honey we are getting $3.75 a case, or $4.00 by the single crate. Extracted honey is rather plentiful. The amber is selling at from 6 to 7½, according to quality. For strictly fancy water-white table honey we are getting 10 to 11 cts. We are paying 28 to 30 cts. for choice bright yellow beeswax delivered here.

Cincinnati, Sept. 21. THE FRED W. MUTH CO.

INDIANAPOLIS.—Demand for best grades of comb honey exceeds the supply, and arrivals are snapped up promptly on arrival. Jobbers are paying 18 cents, and in case lots sales are being made as high as 20 to 22. Extracted is more plentiful, and sells for 11 to 12 cents in five-gallon cans. The retail price of comb honey is now pretty well established at 25 cents, and the same for a pound jar of extracted. Beeswax is in good demand, and producers are being paid 30 cents per pound.

Indianapolis, Sept. 16. WALTER S. POUDER.

CHICAGO.—The supply of comb honey on this market is not equal to the demand at this time, and there is a strong feeling that fancy comb honey is not too high at 18 cts. per lb., with No. 1 grades ranging from 16 to 17 being also readily taken. The dark grades, however, quite often drag at prices ranging from 12 to 15 Extracted is accumulating. Basswood and clover grades bring 9 cts.; other kinds of white, 8 to 8½; amber grades, 7 to 8, according to color and quality. Beeswax sells on arrival at 31 to 32.

Chicago, Sept. 19. R. A. BURNETT CO.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873 CIRCULATION 35,000. 62 pages Semi-monthly

A. L. BOYDEN, Advertising Manager

ADVERTISING RATES.

Twenty-five cents per agate line, flat. Fourteen lines to inch.
SPACE RATES. To be used in one issue: One-fourth page, $12.50; one-half page, $25.00; one page, $50.00.
Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover, 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount if paid in 10 days, 2 per cent.
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No medical or objectionable advertising accepted.
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Forms close 10th and 25th.
Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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All Exhibition and Sample-room Hives, Extractors, and other Bee Fixtures are being offered at reduced prices in order to make room for new goods. Better write to-day and save from ten to fifteen per cent. **SIX PER CENT SPECIAL DISCOUNT** is allowed on all orders for new stock purchased from us this month for immediate or future shipment, so send list of your requirements if you want to purchase Bee Supplies, the best that are made, at absolutely rock-bottom prices.

Do not forget our Bee-Book, "**How to Make Money in Bees.**" which is a complete guide to profitable bee-keeping, tells you how to buy bees, what are the best bees to buy, how to locate the hives—in fact, tells you all that you will need to know to make bees highly profitable as a business or for pleasure.

With this book goes our large, illustrated catalog, sent free of charge.



BLANKE MFG. & SUPPLY CO.
Successors to
Blanke & Hauk Supply Co.
Blanke Building
St. Louis, Missouri

Queens of MOORE'S STRAIN of ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. My queens are all bred from my best long-tongued, three-banded, red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES—Untested, $1.00; six, $5.00; 12, $9.00; 24, $16.00; 50 or more, 60 cts. each. Safe arrival and satisfaction guaranteed. Descriptive circular free.

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. Moore, Queen-breeder, Rt. 1, Morgan, Ky.

Clark & Pike

LANDSCAPE ENGINEERS

. WILLOUGHBY, OHIO .

. . THE . .
IMPERIAL-ROYAL AGRICULTURAL ASSOCIATION

Ljubljana, Carniola (Krain), Austria

Exports only pure Carniolan Alpine bees. Write for booklet and price list.

Boston Is the Shipping Center of New England

Bee-keepers should bear this in mind when ordering their supplies. . A full line of supplies always in stock. . . . . Send for catalog.

H. H. JEPSON
182 Friend Street . BOSTON, MASS.

BEE HIVES

are our specialty. Winter your bees in PROTECTION HIVES. Liberal early-order discounts.

A. G. Woodman Co., Grand Rapids, Michigan

BEE-SUPPLIES

WE ARE WESTERN AGENTS FOR
"FALCONER"

Write for fall discounts—we can save you money.

C. C. Clemons Bee-Supply Co., Kansas City, Mo.
128 Grand Avenue

PATENTS

25 YEARS' PRACTICE

CHAS. J. WILLIAMSON, Rooms 304 to 307, Savings Bank Bldg., 7th and E. Sts., WASHINGTON, D. C.

Patent Practice in Patent Office and Courts.

Patent Counsel of The A. I. Root Co

2 Years for $1 or New Bee-book Free

No. 1.—We have some extra back copies of the American Bee Journal for each month of 1911; and so long as they last we will send all these copies and to the end of 1912 (to a *new* subscriber) for only $1.00. This makes two years for the dollar. Better send in your dollar *at once* and take advantage of this offer. It surely is a big bargain in bee-literature you should accept if not now a subscriber. Why not order *to-day?*

No. 2.—We have had Mr. C. P. Dadant revise Newman's "Bees and Honey" book of 160 pages, making it now nearly 200 pages, with over 150 illustrations. It is called "First Lessons in Bee-keeping." Just the book for Beginners. Bound in strong paper cover, with brood-comb illustration. Price 50 cts. postpaid, or we will send it (to a new subscriber) with American Bee Journal *from now to the end of 1912*—all for only $1.00.

Sample Copy of the American Bee Journal Free. Address

George W. York & Co., 117 No. Jefferson St., Chicago, Ills.

. . The . .

White-Honey Season

is nearing to a close, and
your next need will be

Shipping-cases

Your orders for cases will
have our prompt attention

The A. I. Root Company
Syracuse, N. Y.

BANKING BY MAIL

4%

Deposit your savings here, pending permanent investment.

The advantages offered are: Unquestioned safety and four per cent interest, compounded semi-annually.

This bank is under the supervision of the State, and its strict laws.

Its officers and directors are successful men.

Write to-day for booklet explaining our convenient banking-by-mail system.

Resources $1,000,000

Under ordinary circumstances all or any part of your deposits may be withdrawn at will.

The Savings Deposit Bank Company, . . Medina, Ohio

A. T. SPITZER, Pres. E. R. ROOT, Vice-pres.
E. B. SPITZER, Cashier

How to Keep Bees

By Anna B. Comstock

¶ This is a charmingly written manual. The outfit, first steps, and methods are given clearly and in detail; and the author's well-known literary ability has combined with her enthusiasm for the subject to produce a very unusual volume.

"Mrs. Comstock carries the same wise and witty style of narration past her opening chapter, telling of the initial steps in the art, and cataloguing the tools necessary, as well as directing the care of the bees and the extraction of the honey in a way so delightful that it will repay the attention even of city dwellers who have no expectation of putting her precepts into practice." — *Philadelphia Public Ledger.*

Many photographic illustrations.
Cloth. Postpaid, $1.10; net, $1.00.

Doubleday, Page & Company
Garden City New York

Growing Vegetables under Glass—

is a pleasant and profitable diversion. At a very small expense a hotbed, or miniature greenhouse, can be erected; and, with a little care and attention, will yield a rich harvest.

Lettuce from Your Own Garden for Christmas Dinner!

is a possibility, and other delicious vegetables, too, can be quickly matured under glass regardless of weather conditions.

The preparation of a winter garden is very simple, and the cost of the few necessities almost not worth figuring.

Buy hot-bed sash from us and we will gladly give you all the information you desire.

ROOT cold-frames, or hot-bed sash, are made of cypress—the wood that will not decay—and every possible care is taken to make our sash show high quality of workmanship. These sash are usually shipped knocked down, at a low rate of freight, and can be put together by anybody. The regular size is three feet and four inches by six feet, and each sash holds twenty-eight panes of glass.

PRICE of one sash in the flat for sample, without glass, 90 cts.; five in the flat, 85 cts. each; ten in the flat, 80 cts. each; put together, 10 cts. each extra. Glass, 8x10, just right for the above, $3.00 per box of 90 lights; five boxes, $2.80; ten boxes, $2.70 each.

The A. I. Root Co., Medina, Ohio

Bee-keepers who Have

THOROUGHBRED CHICKENS

and want to sell eggs and stock at good prices should use space under the POULTRY heading in the

Classified Pages

In proportion to the cost it is doubtful if any other medium offers as good an opportunity for profitable returns on such offerings as

Gleanings in Bee Culture

Read this from one of our satisfied advertisers:

> "I will say that what little advertising we did in GLEANINGS has brought us about all the business we can attend to this season,"

—and others say the same.

Read the POULTRY advertisements yourself. Read Mr. A. I. Root's talks on CHICKENS—advertise in GLEANINGS, and GET results.

EARLY ORDER DISCOUNTS

Sept. and Oct.,	7 per cent
November, .	6 "
December, . .	5 "
January, . .	4 "
February, . .	3 "
March, . .	2 "

These discounts apply to cash orders for goods for next season's use. They do not apply to glassware or tin cans.

Careful buyers get Root Goods early, and have them ready for business before spring.

Remember we have the Hilton Hive for Northern Michigan bee-keepers.

Beeswax wanted.

Honey wanted.

Take advantage of the discount.

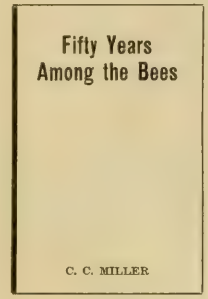
M. H. HUNT & SON

Lansing, Michigan

Opposite
Lake Shore Depot

This Book was Written by the . . . Nestor of American Bee-keeping

And it is a story which most vividly portrays the interest and enthusiasm which have marked the abundant success of one who has spent—



Fifty Years Among the Bees. . . . .

352 pages; illustrated throughout by the author; substantially bound in cloth; $1.00 per copy.

Read the Author's Preface:

In the year 1886 there was published a little book written by me entitled "A Year Among the Bees." In 1902 it was enlarged, and appeared under the title "Forty Years Among the Bees." In preparation for the present edition I undertook the revision with little thought of the number of changes to be made or the number of pages to be added in order to bring it up to date (about one-eighth being new matter), but it is hoped that the changes and additions may make it of more value to the reader. As I began bee-keeping in 1861, fifty years ago, the present name seems appropriate.

However much some personal friends may like the brief biographical sketch that occupies the first few pages, others may think that the space could have been better occupied. There remains, however, the privilege of skipping those few pages.

Most of the pictures are from photographs taken by myself or under my immediate supervision, at least so far as concerned "touching the button;" the Eastman Kodak Co. "did the rest." C. C. MILLER.

In his capacity as editor of "STRAY STRAWS," in GLEANINGS IN BEE CULTURE, Dr. C. C. Miller has become one of the most loved and widely read writers on subjects pertaining to bee-keeping. This new edition of his popular book is sure to be in considerable demand.

FIFTY YEARS AMONG THE BEES is a handsome example of the book-makers' art, and the quality of its contents, illustrations, paper, and binding all contribute to its worth.

This book at $1.00, postpaid, is a bargain such as bee-keepers are seldom privileged to enjoy

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The A. I. Root Co. . . Medina, Ohio

Do You Love SWEETS?

Ralph Waldo Emerson Did

He said you can attain to royalty by loving sweets.

"He who knows what SWEETS . . . are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man."

"HOW to come at these?"

Aye, there's the rub.

How many people miss them! and perhaps some of these many, strange to say, *keep bees.*

Want to know how?

Send $1.00 for a year's subscription to

The Guide to Nature
Arcadia: Sound Beach, Conn.

It is edited by Edward F. Bigelow, a sweets extractor—in other words, "a bee-man" and a naturalist.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine
J. B. MASON, Manager



Established 1885
WE CARRY AN UP-TO-DATE LINE OF
Bee-keepers' Supplies
Write for our 50-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle the best make of goods for the bee-keeper. Freight facilities good. Let us hear from you.
JOHN NEBEL & SON SUPPLY CO., High Hill, Mo.

SEND FOR FREE ADEL BEE

and Supply Catalog. You will save money if you buy direct from my factory. I make the finest polished sections on earth. I want to prove it to you. Send me your order for sections, or any thing in bee-supplies. 45,000 brood-frames at $1.50 per 100 as long as they last; size is 9 1-8 in. deep; top-bar is 19 1-16 in. long, V-shape or two-grove and wedge, or Simplicity, all loose-hanging frames. 65,000 section-holders at $1.00 per 100 as long as they last. They are nicely dovetailed and are for 4 1-4 by 4 1-4 by 1 1-2, and for 4 by 5 by 1 3-8 sections. Carload section orders a specialty.
Chas. Mondeng, 140 Newton Ave., N., Minneapolis, Minn

Water White Alfalfa Honey

Light Amber Alfalfa Honey

Light Amber Fall Honey

In any size quantities, in any size packages. If your honey crop is short, and you want to supply your regular trade, write to us for prices. We are sure that we can supply what you want at prices you can pay. Five cents for a liberal sample of any kind desired. . .

We want your BEESWAX to work into

DADANT'S FOUNDATION

or will pay cash for it in exchange for goods

DADANT & SONS, Hamilton, Ill.

6 6 6 6 6 6

Buy Bee-Supplies in October!

Pay Cash and Save 6 per cent

WE are again prepared to offer a liberal early-order cash discount to those who are forehanded in anticipating their next season's requirements. For orders received during October, accompanied by payment, for goods for next season's use, we allow a discount of 6 per cent; during November, 5 per cent. As the season advances, the discount is reduced one per cent each month.

You can buy now at a lower price than you will be required to pay during the next year. . . . . .

This discount applies to goods listed in our general catalog except as follows: Paint, Porter bee-escapes, Bingham smokers, bees, queens, printed matter, cartons, honey-packages, tin and glass, bushel boxes, hotbed sash, honey-labels, seeds, and such seasonable goods. Where a large general order includes some of the excepted articles, not exceeding ten to twenty per cent of the entire order, the discount may be applied to the whole order.

Remember, we are offering you goods of the Standard Root Quality.

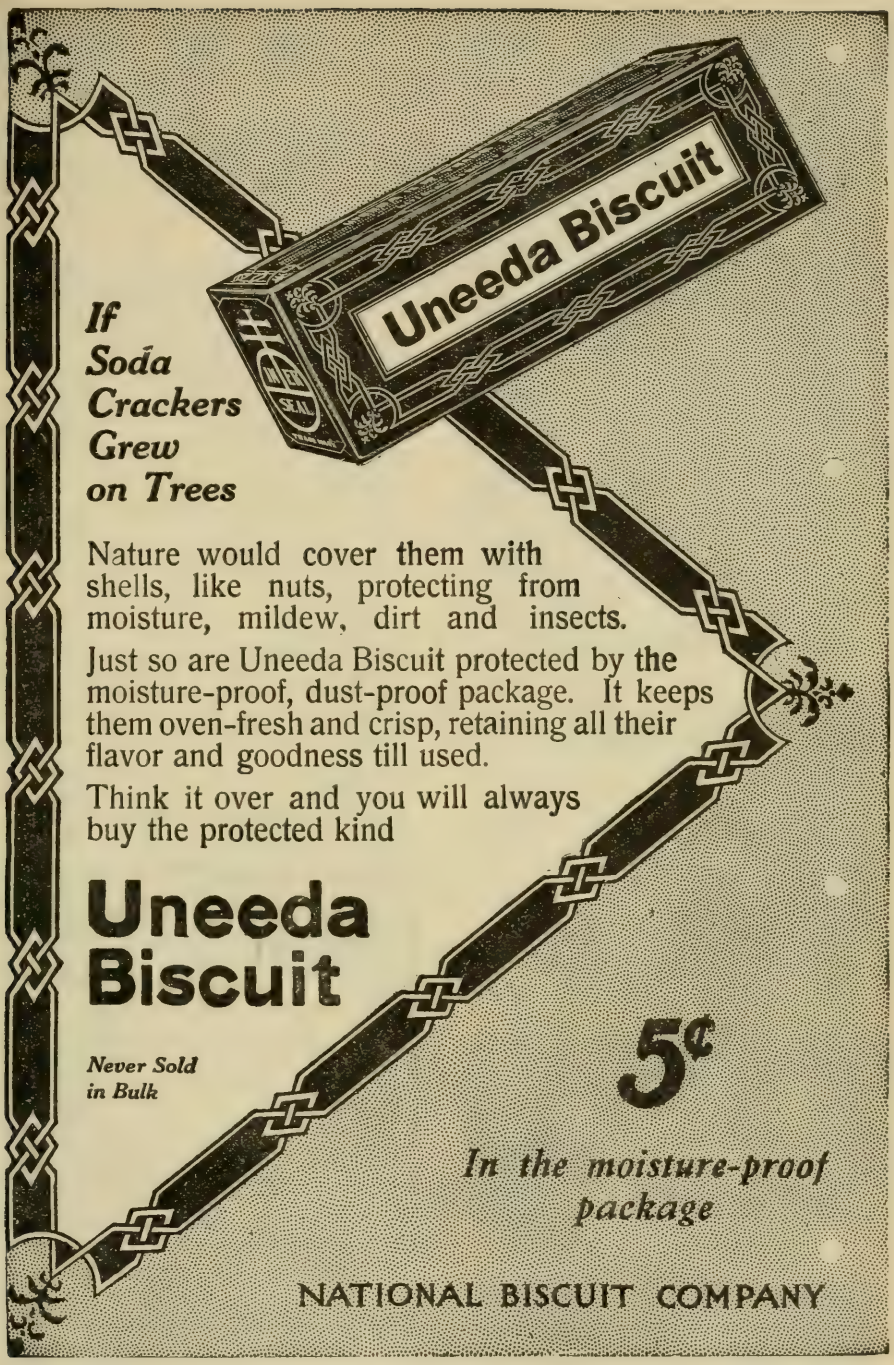
We are the largest manufacturers of bee-supplies in the world—manufacturing every thing from section-boxes and bottom-boards to honey-extractors, comb foundation and comb-foundation machines. More than 100 articles used by successful bee-keepers are listed in our annual catalog, which may be had free for the asking. Get acquainted with ROOT supplies—test our service.

The A. I. Root Co., Chicago, Illinois

213 Institute Place

R. W. Boyden, Manager **Jeffrey Building** **Telephone, 1484 North**

6 6 6 6 6 6



A KIND WORD IN GOOD EARNEST.

Mr. A. I. Root:—I did not intend to bother you with letters, as I presume you are getting enough to answer; but as this requires no answer I will send you a few lines anyway. I have had a good many *good* laughs in reading your Home papers; but the best was reading your tribulation about mailing your letters. I read it to my family, and I laughed until the tears actually ran down my cheeks. Keep up your good work. A typewriter will lessen the labor for you. Even if we can not agree on every thing, and see things the way you do, we can enjoy your writings.

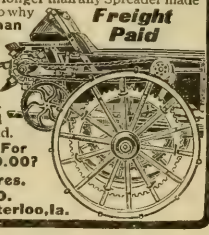
Fredericktown, Mo., Feb. 9. JAS. BAEKLER.

STUDY BEE CULTURE BY MAIL

There is money in Bees if you know how. Make a good living from Bees or keep down the high cost of living. Always a good demand for men who know Bee Culture. Just the opportunity you have been wanting—**learn at home.** You can make your spare time count and finish this course this winter by beginning now. This excellent course prepared by **E. R. Root,** the foremost exponent of Scientific Bee-keeping. Also splendid correspondence courses in General Farming, Dry Farming, Poultry, Truck Farming, Vegetables, Fruit, Flowers, Greenhouse, Live Stock, Soils, Crops, Dairying, Farm Engineering and Management, Farm Book-keeping, Teachers' Agr. Course, etc. Only school in the world devoted exclusively to teaching farming by mail. Write to-day for **FREE BOOKLET "HOW TO MAKE THE FARM PAY MORE,"** also temporary low rate, easy terms, full particulars. (Which course interests you?) **American Farmers School,** 81 Laird Bldg., Minneapolis, Minn.

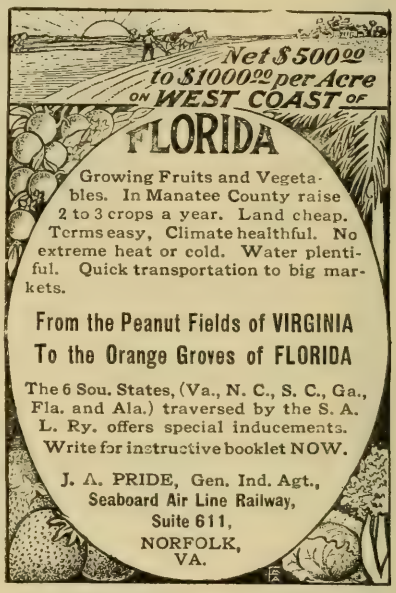
I'll Save You $50
On a Manure Spreader
If You'll Let Me

This is just a little ad—but a postal will bring my **Big Book**—and give you my $50.00 Saving Price and Special Proposition. You can save as much answering this little advertisement as if it covered a page. My Spreader positively will do better work and last longer than any Spreader made—no matter what the price—so why pay $50 more? **More than 50,000 farmers have stamped their O. K. on my spreader and money saving price.** My Special Proposition will interest you. Just a postal addressed to Galloway of Waterloo, Iowa, will bring you everything postpaid.



Will You Pay a Penny For The Postal and Save $50.00?

Address **Wm. Galloway, Pres.**
WM. GALLOWAY CO.
1689 Galloway Sta., Waterloo, Ia.



Growing Fruits and Vegetables. In Manatee County raise 2 to 3 crops a year. Land cheap. Terms easy, Climate healthful. No extreme heat or cold. Water plentiful. Quick transportation to big markets.

From the Peanut Fields of VIRGINIA To the Orange Groves of FLORIDA

The 6 Sou. States, (Va., N. C., S. C., Ga., Fla. and Ala.) traversed by the S. A. L. Ry. offers special inducements. Write for instructive booklet NOW.

J. A. PRIDE, Gen. Ind. Agt.,
Seaboard Air Line Railway,
Suite 611,
NORFOLK,
VA.

FREE THIS ALADDIN LAMP FREE
BURNS KEROSENE (Coal Oil)



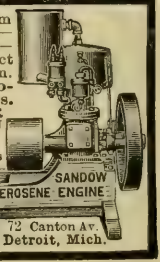
Outshines city gas or electricity. Simple, noiseless, odorless, clean, safe, money-saving. Guaranteed. Write nearest office for catalogue **M** and learn how to get an **Aladdin Mantle Lamp FREE.**

AGENTS T. H. BALL SOLD 850 on money back guarantee, not one returned. Stacey sold 12 in one hour. Newsom sold 12 in 10 calls. Gibson sold 48 in 5 days. Sells itself. Needed in every home. Our **Sunbeam Burner** fits other lamps. Complete line for homes, stores, etc. Ask for our liberal agency proposition.

MANTLE LAMP CO. OF AMERICA, Dept. 111 J,
Offices at—Chicago, Ill., Portland, Ore., Waterbury, Conn., Dallas, Tex., Winnipeg, Montreal, Canada

Sandow $37.50
2½ H.P. Stationary Engine—Complete

Gives ample power for all farm uses. Only three moving parts—no cams, no gears, no valves—can't get out of order. Perfect governor—ideal cooling system. Uses **kerosene (coal oil), gasoline, alcohol, distillate or gas.** **Sold on 15 days' trial. YOUR MONEY BACK IF YOU ARE NOT SATISFIED.**



5-year ironclad guarantee. Sizes 2½ to 20 H. P., at proportionate prices, in stock, ready to ship. Postal brings full particulars free. Write for proposition on first engine in your locality. (116)

Detroit Motor Car Supply Co., 72 Canton Av. Detroit, Mich.

MAKE HENS LAY

By feeding raw bone. Its egg-producing value is four times that of grain. Eggs more fertile, chicks more vigorous, broilers earlier, fowls heavier, profits larger.

MANN'S LATEST MODEL Bone Cutter



Cuts all bone with adhering meat and gristle. Never clogs. **10 Days' Free Trial.** No money in advance.

Send Today for Free Book.

F. W. Mann Co., Box 37, Milford, Mass.

KITSELMAN FENCE



Sold direct to you at factory prices on **30 days trial.** Save the dealers profit. Farm, Hog and Poultry Fence at from **11½ CENTS A ROD UP.** All wires are heavily galvanized 80 rod spool of Ideal galvanized **Barbed Wire $1.55.** Write today for large free Catalogue showing 75 different styles and heights of fencing.

Box **21** **KITSELMAN BROS. MUNCIE, IND.**

SAVE YOUR BACK

Save time, horses, work and money by using an

Electric Handy Wagon

Low wheels, broad tires. No living man can build a better. Book on "Wheel Sense" free.

ELECTRIC WHEEL CO. Box 23, Quincy, Ill.



This Washer Must Pay for Itself

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse. But, I didn't know any thing about horses much. And I didn't know the man very well either.



So I told him I wanted to try the horse for a month. He said "All right, but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse wasn't "all right," and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse although I wanted it badly. Now this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way.

So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or any other machine.

I know it will wash a tub full of very dirty clothes in Six minutes. I know no other machine ever invented can do that without wearing out the clothes.

Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges nor break buttons the way all other machines do.

It just drives soapy water clear through the fibres of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight too. Surely that is fair enough, isn't it?

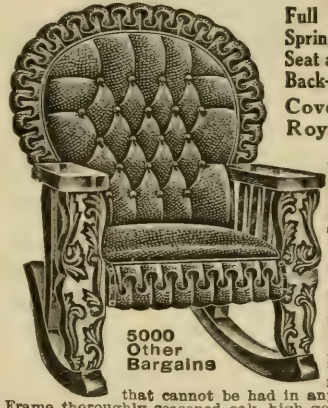
Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months, in wear and tear on the clothes alone. And then it will save 50 cents to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in 6 minutes.

Address me this way—H. L. Barker, 347 Court St., Binghampton, N. Y. If you live in Canada, address 1900 Washer Co., 357 Yonge St., Toronto, Ont.

Royal Leather Rocker



Full Spring Seat and Back— $3.85

Covered in Best Royal Leather

Look at the picture; doesn't this Rocker look inviting with its high, broad, shapely back and deep roomy spring seat! It's made to last forever, and its wide arms, supported by six neatly turned smooth spindles, and massive front carved posts, give it the exclusiveness and style that cannot be had in any other rocker. Frame thoroughly seasoned oak, high golden and gloss finish. Best quality Black Royal Leather; workmanship first-class. Price but $3.85 makes it the biggest bargain ever offered. We can afford such values because we own our own timber lands, saw mills, factories and salesrooms. Money back if it is not worth double. Send for our large FREE cash catalogue of Furniture, Rugs, Curtains, etc. Learn at once how much cheaper and better you can buy for cash direct from the manufacturers. We save you all extra profits. Write NOW; better still, enclose $3.85 for this comfortable rocker. Order by number 670. Address. (11-1)

BIG CATALOG FREE

Lincoln-Leonard & Co., 1272 W. 37th Street, Chicago

Kalamazoo

Stove Book FREE



Write for the stove book with the astounding inside facts about stove making and stove selling—how you can save $5.00 to $40.00 by buying stoves direct from the factory. Built by experts—prices $6.50 and up, east of the Mississippi. Stove Book **yours for the asking** with description of 400 sizes and styles of stoves—richly illustrated.

Stove or Range

Shipped Freight Prepaid
30 Days' Trial



You don't decide finally until you've used the stove or range 30 days and then it comes back to us—at our expense—if you're not satisfied. 170,000 people have tried Kalamazoos and **bought.** 360 Days' Approval Test. **Cash or credit terms,** shipment within 24 hours. Repairs at cost or less if ever needed. Your interest demands that you get our proposition **first.** Now send for the **Stove Book** and **Catalog No. 416** at once.

Kalamazoo Stove Company Mfrs.
Kalamazoo, Michigan

"A Kalamazoo Direct To You"
And Gas Stoves Too

Cartercar

A practical car for busy bee-keepers



Here's just the car you want for those quick business trips — and to get the most enjoyment out of the hour or so that you and your family may have after the work for the day is done.

The Cartercar is most reliable because of the extremely simple and strong construction. No matter whether rain or shine it is always ready for the word "Go."

When you are in a hurry the Cartercar can be depended on to get you to your destination in double quick time. If it's just pleasure you seek, the car rolls along easily and noiselessly.

The friction transmission of the Cartercar makes it the most reliable yet the most enjoyable of all automobiles. This transmission is so simple that it does not get out of order—and it eliminates all jerks and jars in starting.

There are any number of speeds at your command. All are easily and noiselessly controlled by one lever. The farther forward the lever is pushed the faster the speed. When the lever is pulled back the speed is reversed.

The chain-in-oil drive is noiseless. The case is dust and grit tight and permits the chain to operate in oil, thus eliminating almost all wear on the chain.

The bee-keeper who drives a Cartercar has more time — can do more work — make more money—and knows the real joy of living.

Let us send you valuable information concerning these excellent automobiles.

Cartercar Company

Pontiac, Michigan

Battle Creek Diet System

PROPER BODY BALANCE

To be sure that the building-up process going on in the body equals or exceeds the breaking-down process, requires scientific feeding.

Do You Know How

to plan a scientific diet for yourself —a diet that will keep your body in "fighting trim"? If not, let us assist you.

Write for our free book "*Healthful Living.*"

THE KELLOGG FOOD COMPANY
Dept. P–7, Battle Creek, Mich.

Would you like to decorate your home during the winter months with Flowering Plants?

WELL, THEN, you will be interested in a plant that will bloom in the house, with little or no care, by simply planting the bulbs in dishes of water.

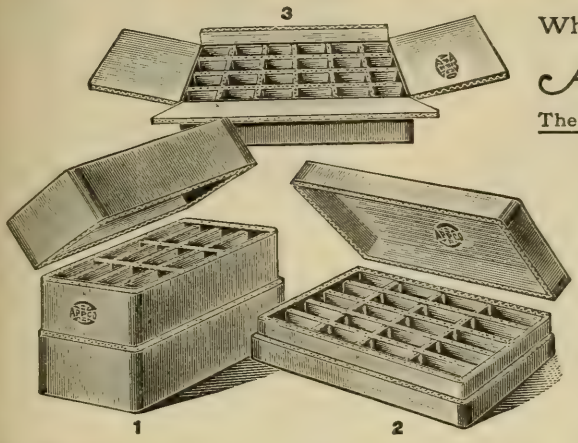
The Mammoth Narcissi

are easily grown, and bloom freely, bearing a very sweet-scented flower of silvery white. It is a sure bloomer; and, as a decoration for a parlor or a dining-room table, it can not be surpassed. Thousands of these interesting and unique bulbs are planted every year, and the results are always very satisfactory; for all that is necessary is to plant the bulb in a dish of water. No care or trouble; and from the time the bulb begins to grow to the time it blooms the plant is interesting and very decorative.

We import, each year, thousands of these interesting and unique bulbs, and they are the finest we can purchase.

Six of these Mammoth Narcissi will be mailed to you for only 25 cts.

C. H. GORDINIER, Troy, N Y.
Seedsman and Bulb Importer, Franklin Square



When you ship--ship safe--use an

APPCO Shipsafe

The APPCO Shipsafe for Shipping Honey.

The splendid appearance of your shipment on arrival has much to do with repeat orders.

APPCO Shipsafes do not split, tear nor smash. The hundreds of corrugated cushions take up all the jars and shocks of handling. When sealed are dirt and odor proof, are shower and thief proof, are collapsable, requiring but little storage room.

The stacking strength of APPCO Shipsafes excel wood up to three-eighths inch thickness. No Nails, no Staples, no Packing, no Trash, etc.

APPCO Shipsafes are guaranteed the safest package ever devised for honey or any other product of this nature.

Order confidently, if at all in doubt as to their utility, write the Editor of this paper.

The Illustration shows in No. 1 a two-story Shipsafe made to carry 24 pound boxes of comb honey, price per 100, $17.50.

No. 2 shows a Shipsafe for 20 boxes of honey, per 100, $15.00.

No. 3 shows a Shipsafe for 24 tinned jelly glasses, per 100, $13.50.

ALL PRICES F. O. B. ST. LOUIS.

With every shipment of No. 3 APPCO Shipsafes is enclosed sufficient gummed tape for sealing. Moisten and apply like a postage stamp. It will never break.

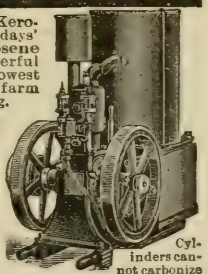
No. 1 and No. 2 after packed are tied with heavy twine, which we furnish at 10c. per pound, in 5-pound ball--1,250 lineal feet to a ball.

Write for our BULLETIN *of* POULTRY SUPPLIES.

The American Paper Products Company, 202 Bremen Ave., St. Louis, Mo.

Use KEROSENE Engine FREE!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing.



Gasoline Going Up!

Automobile owners are burning up so much gasoline that the world's supply is running short. Gasoline is 9c to 15c higher than coal oil. Still going up. Two pints of coal oil do work of three pints gasoline. No waste, no evaporation, no explosion from coal oil. Cylinders cannot carbonize

Amazing "DETROIT"

The "DETROIT" is the only engine that handles coal oil successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Basic patent—only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p., in stock ready to ship. Complete engine tested just before crating. Comes all ready to run Pumps, saws, threshes, churns, separates milk, grinds feed shells corn, runs home electric-lighting plant. Prices (stripped), $29.50 up.

Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate amazing, money-saving, power-saving "DETROIT." Thousands in use Costs only postal to find out. If you are first in your neighborhood to write, we will allow you Special Extra-Low Introductory price. Write!

Detroit Engine Works, 373 Bellevue Ave., Detroit, Mich.



The BEST Light

Cheapest and best light for homes, stores, factories, churches and public halls. Makes and burns its own gas. Brighter than electricity or acetylene. Cheaper than kerosene. Over 200 styles. Agents wanted. Write for catalogue.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

APPLE GROWING

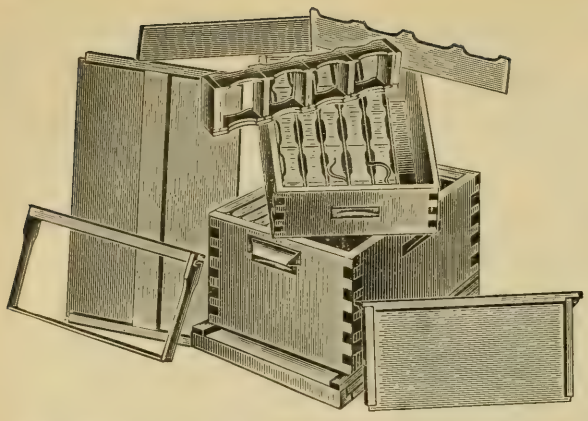
The healthier the tree, the better the fruit. The longer trees are sprayed with "SCALECIDE" the more beautiful, healthful and fruitful they become. "SCALECIDE" is the acknowledged leader of all soluble oils—the only one containing distinct fungicidal properties. "SCALECIDE" will positively kill all soft-bodied sucking insects without injury to the tree. Let us prove these statements. Send today for free booklet "SCALECIDE—the Tree Saver." Address B. G. PRATT CO., Mfg. Chemists, 50 Church St., N. Y. City.



IDEAL ALUMINUM LEG BAND

To Mark Chickens
CHEAPEST AND BEST

12 for 15c; 25—25c; 50—40c; 100—75c.
Sample Band Mailed for 2c Stamp.
Frank Myers, Mfr., Box 69, Freeport, Ill.



$9.75 Buys Complete Bee-keepers' Outfit

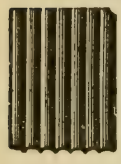
At the above price we furnish this complete outfit and every thing needed to start in this profitable business with five colonies of bees.

With this outfit we send you five complete 1½-story 8-frame Dovetailed hives, equipped with "Improved" covers, supers, section-holders, section-follower board, spring, hive-body, Hoffman self-spacing frames, and reversible bottoms, 1 Bingham smoker, 120 honey-sections, 1 swarm-catcher, 1 lb. foundation comb, 1 heavy bee-veil.

We are headquarters for Bee Supplies, and sell direct to the consumer at regular wholesale prices. No matter how small or great your requirements, we guarantee you a saving of 30 to 50 per cent.

Our Bee Supplies represent the very best quality of materials and the highest grade of workmanship. No matter whether you are an established bee-keeper or a beginner, you will be interested in our line and our great money-saving bargains. Complete outfit, as shown and described above, $9.75.

Steel Roofing, Siding, Ceiling



Economical and easy to put on, no previous experience necessary: absolutely guaranteed, brand new, clean stock — bright as a dollar. 1½-in. corrugated, unpainted steel sheets, light weight, 22 in. wide, 6 and 8 ft. long, 100 sq. ft. **$1.85**

Painted, same as above..**$1.95**

1½-inch corrugated, galvanized, rust-proof steel sheets, light wt., 22 to 24 in. wide, 2 to 7 ft. long, 100 sq. ft..... **$3.25**

We pay the freight at these prices to all points east of Colorado in the U. S. Samples mailed free. Write for prices to other points, and for our Roofing Catalog.

LUMBER and MILLWORK

We have millions of feet of *brand new* Lumber and thousands of items of millwork, doors, windows, interior finish, mantels, colonades, etc., at our Chicago plant, where you can see it before purchasing. We are prepared to furnish all material for any building from the ground up at a saving of 30 to 50 per cent.

Our FREE BOOK OF PLANS

This book shows many designs of houses, barns, bungalows, etc. These designs represent comfort, harmony, economy, and general utility. The material we furnish is all brand new, high grade, bright clean stock. Every article positively guaranteed, and prices the lowest. This Plan Book is sent you free for the asking.

Send Us Your Lumber Bill for Our Freight Paid Estimate

WIRE FENCING



This is a continuous woven Galvanized Wire Fence; 12-gauge galvanized wire is used throughout, the upper and lower cable consisting of two 12-gauge wires twisted together. Stays are spaced either 6 or 12 inches apart, and are continuous, being woven into the upper and lower cables from one stay to another. No loose ends, and the wires do not break. This is the most reliable construction possible. *Special price on Hog Fencing 25 inches high; 7 line wires; 12-inch Stays, 19½c per rod.* Other heights for Cattle, Horse, and Field Fencing at prices ranging from 19 to 36c. Send for our Special Wire and Fence List. We guarantee a saving of 30 to 50 per cent.

Our 1,000-Page Price Wrecking Catalog Free

Send for a copy at once. It is the greatest economizer the world has ever known. A thousand bargains in every line. It describes our mammoth purchases at SHERIFFS', RECEIVERS', MANUFACTURERS', AND OTHER FORCED SALES at extraordinarily low prices. Our customers get the benefit. The goods are shown true to life, and fully described.

Fill Out This Coupon (688)

CHICAGO HOUSE WRECKING CO.

35th and Iron Sts., Chicago

Saw your ad. in Gleanings in Bee Culture.

I am interested in .....

Name .....

Town..... County.....

State.....R.F.D.....Box.....

Our broad binding guarantee to satisfy you in every particular, or refund your money together with all transportation charges, is your absolute protection when you deal with us.

Just fill out the coupon shown here, send it to us, and we will immediately send you, free of charge, this magnificent Economy Guide, "The Great Price Wrecker."

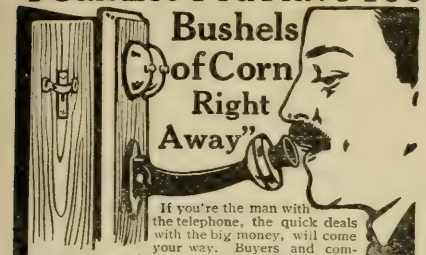
Any of These Valuable Books Sent you Free

Men's Clothing Book,	Ladies' Wearing Apparel,	Sporting Goods,
Floor Coverings,	Roofing,	Harness and Vehicles,
Gasoline Engines	Boots and Shoes,	Heating,
Grocery Price List,	Sewing Machines	Plumbing,
Book of Plans,	Jewelry,	Structural Steel.
Wall Paper Catalog,	Dry Goods,	

Chicago House Wrecking Co.

35th and Iron Sts., Chicago

"I Can Let You Have 100 Bushels of Corn Right Away"



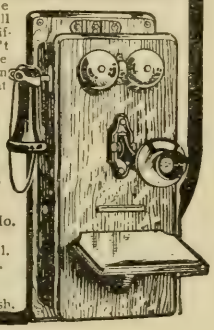
If you're the man with the telephone, the quick deals with the big money, will come your way. Buyers and commission men often haven't time to write or send a messenger. But if you're at the other end of an independent telephone you're in for some business you'd never hear about otherwise. A telephone gives you much more than cash returns. It's pretty pleasant to be able to chat with neighbors every evening after work and it's mighty comforting to know that help can be summoned instantly in any emergency.

Stromberg-Carlson Independent Telephone

may be a lifesaver in case of accident or sickness. It's a time saver and money-maker every day. You can have market and crop reports direct. Call up your neighbor and have him bring your mail from town, ahead of the R. F. D. man. Have repair parts rushed out when a binder breaks. A Stromberg-Carlson telephone makes every day hours longer.

Satisfaction Guaranteed or Money Refunded.

Valuable Book: "How the Telephone Helps the Farmer" sent FREE telling how ten men can easily have an independent telephone company of their own. All about farm telephones, different styles, etc. Don't wait. Get all the telephone facts now. Ask for Edition No. 21 and address us at nearest office.



Stromberg-Carlson Telephone Mfg. Co.

Rochester, New York,

Chicago, Ill.
Kansas City, Mo.
Toronto, Can.
Los Angeles, Cal.
San Francisco, Cal.
Seattle, Wash.

QUEENS

and bees — an improved superior strain of Italians is what QUIRIN RAISES. All yards winter on summer stands with practically no loss. Our stock is hardy, and will ward off brood diseases.

In the spring of 1899 we sent fifty nuclei to J. D. Nixon, Lafarge, Wis., and on July 20th (same year) he wrote us, saying they did just splendid, as at that writing they had already filled their supers, and that he would have to extract them. We have files of testimonials similar to the above.

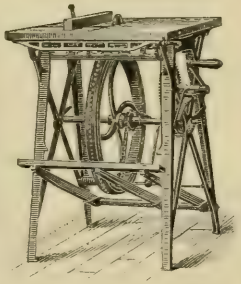
Prices after July 1	1	6	12
Select queens	$ 75	$ 4 00	$ 7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	
Golden five-band breeders	5 00		
Two-comb nuclei, no queen	2 25	12 00	22 00
Three-comb nuc., no queen	3 25	18 00	32 00
Full colonies on 8 frames	5 00	25 00	

Hurry in your orders, as this is the last time this advertisement will appear for this season, 1911. No order too large and none too small. We will keep from 500 to 1000 queens on hand ready to mail. Safe delivery and pure mating guaranteed. Over twenty years a breeder. Testimonials and circular free.

QUIRIN-THE-QUEEN-BREEDER, BELLEVUE, O.

BARNES' Hand and Foot Power MACHINERY

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.



Machines on Trial

Send for illustrated catalog and prices. Address

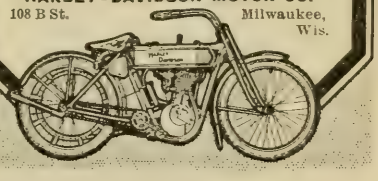
W. F. & JNO. BARNES CO.,
545 Ruby St.,
ROCKFORD, . ILLINOIS.

HARLEY-DAVIDSON

MOTORCYCLES

are the greatest pleasure givers and time and money savers the farm ever knew. They travel 10 miles for a cent and cost nothing when idle. The Harley-Davidson stock machine has won more competitive contests than any other stock machine made. Send for illustrated booklet. The "Harley-Davidson on the farm."

HARLEY-DAVIDSON MOTOR CO.
108 B St. Milwaukee, Wis.



THE ABC OF

BEE CULTURE

The only cyclopedia on bees, 536 pages, fully illustrated. Every phase of the subject fully treated by experts. Price $1.50 postpaid; money refunded if unsatisfactory. Catalog of supplies and sample copy of our semi-monthly magazine, *Gleanings in Bee Culture*, free if you mention this paper.

Gleanings in Bee Culture, Medina, Ohio.



Italian Queens

Fine young prolific three and five banded Italian queens by return mail. Untested, 75 cts.; extra-fine queen, $1.00; tested, 95 cts. Full colonies in eight-frame new hive with queen, $4.75. Three-frame nuclei with queen, $2.75.

C. J. FAJEN, Stover, Mo.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

Extracted clover and basswood at 8½ cents.
M. ISBELL, Norwich, N. Y.

FOR SALE.—Clover honey in new 60-lb. tin cans.
C. J. BALDRIDGE, Homestead Farm,
Kendaia, N. Y.

Write us for prices on car lots of comb and extracted honey. OGDEN BEE AND HONEY CO.,
Ogden, Utah.

FOR SALE.—Water white and light-amber alfalfa and light-amber fall honey, put up in any size packages. First class. DADANT & SONS, Hamilton, Ill.

No. 2 white and amber comb honey, $3.00 per case of 24 sections in six-case lots.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—Genuine Spanish-needle honey. This honey stands in a class by itself for its beautiful, clear, light golden color and distinctive spicy flavor, which must be tasted to be appreciated. Buyers respond. Also some choice light comb honey of equal flavor. F. B. CAVANAGH, Hebron, Ind.

FOR SALE.—Until further notice, fine extracted honey, a blend of the clovers, $10.80 per case; in five-case lots, $10.20 per case. Sample, 10 cts. Comb, similar in quality, nearly full pound to the section, packed ready for safe carriage, in six and eight case lots, $3.84 per case. Extra white Wisconsin white clover, $4.20 per case. B. WALKER, Clyde, Ill.

FOR SALE.—Finest quality of white-clover and basswood blend of extracted honey in new 60-lb. square cans; $6.25 for single 60-lb. can, and 10 c. per lb. by the case of 120 lbs. or more, f. o. b. Flint, cash with order. This is not ordinary honey, but the finest to be had. LEONARD S. GRIGGS,
711 Avon St., Flint, Mich.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—A quantity of buckwheat honey. Quote price. F. B. CAVANAGH, Hebron, Ind.

WANTED.—To buy amber and dark extracted honey; to sell, second-hand 60-lb. cans.
A. G. WOODMAN CO., Grand Rapids, Mich.

WANTED.—Comb and extracted honey. Send a sample, with price f. o. b. at your station.
ARTHUR J. SCHULTZ, Ripon, Wis.

WANTED.—White honey, both comb and extracted. Write us before disposing of your crop.
HILDRETH & SEGELKEN,
265 Greenwich St., New York.

Position Wanted

WANTED.—A position with a good bee-keeper in California by Feb. 15 or March 1, 1912. Sober and industrious. JACOB PROBST, Florence, N. J.

WANTED.—Situation on a large bee-farm by an intelligent Swede, 37 years old, who has been studying the business 20 years in Stockholm, Sweden; has experience in all details of bee-keeping and manufacture of supplies; was also editor of the leading bee-paper in Stockholm. Address
ALEXANDER LUNDGREN, 202 Park St., Hartford, Ct.

For Sale

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

FOR SALE.—Choice winter apples in barrels or boxes. F. E. SCHRIVER, Rt. 3, Grafton, O.

My two-horse steam-engine for ten-frame hives.
C. TINBERGEN, 131 Sherman Pl., Jersey City, N. J.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case.
C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—7000 fence separators and section-holders for 4¼ x 4¼ x 1½ sections, nearly new, delivered at your station at half price.
D. C. ROBERTS, Ordway, Colo.

FOR SALE.—New crop of alfalfa seed; 4 pounds by mail, prepaid, $1.10; 50 to 100 lbs., 14½ cts. per lb. Sacks, 25 cts. extra.
R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successor to J. M. Jenkins.) Penn, Miss.

Wants and Exchanges

WANTED.—To exchange Root bee-supplies either for money or honey. October cash discount, 6 per cent. Catalog free. E. W. PEIRCE, Zanesville, O.

Miscellaneous

Subscriptions taken for magazines at club rates. Bargain list free. G. OXLEY, New Vienna, O.

Post cards, 10 for 10 cts.; 30 for 25 cts. Handsomely colored embossed Birthday, Hallowe'en, Thanksgiving, Christmas, New Year's, Landscapes, Flowers, Fruits, Views.
HAHN, 254 West 15th St., New York.

THE BEE-KEEPERS' REVIEW.—Have you read it? Just the journal for both beginner and expert. Tells the former in plain simple language just what the latter is doing; helps the matter by giving all latest methods. Send 15 cts. in stamps for a three-months' trial subscription. Agents wanted in all localities. Subscription price $1.00 per year.
E. R. TYRRELL, Editor and Publisher,
230 Wooland Ave., Detroit, Mich.

WANTED.—GOOD HOUSEKEEPING MAGAZINE requires the services of a representative in every State to look after subscription renewals and to extend circulation by special methods which have proved unusually successful. Salary and commission. Previous experience desirable but not essential. Whole time or spare time. Address, with references, J. F. FAIRBANKS, Good Housekeeping Magazine, 381 Fourth Ave., New York City.

Bees and Queens

Queens (hybrid) from New Hampshire, 50 cents.
W. B. BURLINGAME, Exeter, N. H.

Bees and queens of quality. Supplies. Catalog.
Stringham, 10 Park Place, New York City.

FOR SALE.—100 stands of bees, all fixtures.
G. H. BARNES, S. A. R. No. 1, East Highland, Cal.

Fine warranted queens ready to mail at 75 cts.; 6 for $4.00. J. B. CASE, Port Orange, Fla.

WANTED.—Cheap bees in box or frame hives for cash; also empty hives.
F. B. CAVANAGH, Hebron, Ind.

Eight mismated Italian queens at 25 cents each.
C. G. FENN, Washington, Ct.

FOR SALE.—68 colonies of bees with supers.
CHAS. C. SCHNEIDER, Rt. 2, North Detroit, Mich.

WANTED.—50 to 300 hives of bees for cash. Give particulars and price.
GEORGE LARINAN, Pasadena, Cal.

FOR SALE.—80 colonies of pure Italian bees, 8 and 10 frame hives, all in good shape. Price $300.
W. P. TURNER, Peoria Heights, Ill.

Missouri-bred Italian queens; none better; prices right. Write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

FOR SALE.—Golden Italian queens. Tested, $1.00; select tested, $1.25; untested, 60 cts.; dozen, $7.00.
D. T. GASTER, Rt. 2, Randleman, N. C.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction.
W. W. DAKIN, Hood River, Ore.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Bradley's Store, Va.

FOR SALE.—175 colonies of bees, Root hives; fine location on San Antonio River; honey-house, tent, horse-wagon, camp-outfit, and complete fixtures for bulk comb honey. No disease. For particulars address G. M. FARWELL, Berclair, Goliad Co., Tex.

Golden queens — very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

FOR SALE.—Italian queens from my best honey-gathering strain for the rest of the season. Untested, 60 cts.; select, 75 cts.; tested, $1.00; select tested, $1.25. For nuclei and queens in quantity lots, write for prices. Why not order some choice stock at these prices, and requeen?
ROBERT B. SPICER, Wharton, N. J.

FOR SALE.—Moore's strain and golden Italian queens, untested, $1.00; six, $5.00; twelve, $9.00. Carniolan, Banat, and Caucasian queens, select, $1.25; six, $6.00, twelve, $10.00. Tested, any kind, $1.50; six, $8.00. Choice breeders, $3.00. Circular free.
W. H. RAILS. Orange, Cal.

I will sell 35 or 40 colonies of bees in ten-frame L. hives for $3.00 per colony if taken this fall. The hives have each 9 combs and a dummy, and well filled with stores. A super for section honey filled with section-holders will go with each colony. I make this offer because of failing health and inability to care for all the bees I have.
EDWIN BEVINS, Leon, Iowa.

FOR SALE.—500 colonies of bees. Must be sold to settle estate. Party who owned them, in the business 24 years. They are located in four apiaries; have been in present location from 12 to 18 years; can be kept at or near the present location. A splendid chance for a person who wishes to settle in the Salt River Valley under the Roosevelt dam.
Address HARVEY M. HARPER,
504 South Seventh Ave., Phœnix, Arizona.

Real Estate

FOR SALE.—A quarter-section 7 miles from county-seat, on running stream; 70 acres cultivated, 90 in pasture; new house and barn; hay-fork; 8 acres hog-tight; fruit; $53 per acre, or $55 with stock and crops. Possession now.
CARSON G. PEARCE, Eldorado, Kan.

FOR SALE.—A 22½-acre farm, one mile from railroad station, 1½ from boat-landing, 1½ from two growing towns of 3000 inhabitants each; good fruit and truck land; six-room house; barn; all kinds of fruit—apples, pears, peaches, cherries, quinces; ¾ acre of blackberries, and over ½ acre of grapes. Price $2500—$1000 cash. Also for sale 13 colonies of Italian bees; a lot of extra fixtures and hives; one two-frame extractor; all for $75.00.
JACOB PROBST, Florence, Burlington Co., N. J.

Poultry

April-hatched Indian Runner ducks, fawn and white; $2.00 each; $3.50 a pair; $5.00 per trio. White-egg strain. KENT JENNINGS, Mt. Gilead, Ohio.

INDIAN RUNNER DUCKS.—Full-grown young stock for sale, either fawn and white or penciled, from best strains in America. Eggs for hatching. All sales guaranteed as represented.
C. O. YOST, Rt. 4, Winchester, Ind.

FOR SALE.—S. C. W. Leghorn hens one year old, 75 cts. each. C. H. ZURBURG, Rt. 1, Topeka, Ill.

S. C. White Leghorns, Wykoff strain, fine ones. Cockerels or pullets, $1.50 each.
GEO. G. HANDLEY, Fair Oaks, Indiana.

FOR SALE.—April-hatched White Leghorn cockerels; good stock; $1.00 each.
MABEL WYATT, Rt. 10, Washington C. H., Ohio.

If interested in fine S. C. Reds, send for my special autumn sale list, mailed free upon request.
DEFOREST H. DEAN, Rt. 7, Medina, O.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St. Joseph, Mo.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, $1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school. W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1911; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 60 cts.; select, 75 c.; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices see large advertisement.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Convention Notices.

There will be a meeting of the Panhandle Bee-keepers' Association at K. G. E. Hall, corner of Jacob and 38th Sts., Wheeling, W. Va., Oct. 17th, at 10 A.M. W. L. KINSEY, Sec., Bridgeport, O.

The annual meeting of the Northern Illinois and Southern Wisconsin Bee-keepers' Association will be held in the court-house, Freeport, Ill., Oct. 17th. All interested in bees are invited to attend and bring any thing new that would be of interest to bee-keepers. The question-box will be a prominent feature. B. KENNEDY, Sec.
Cherry Valley, Ill.

Kind Words From Our Customers.

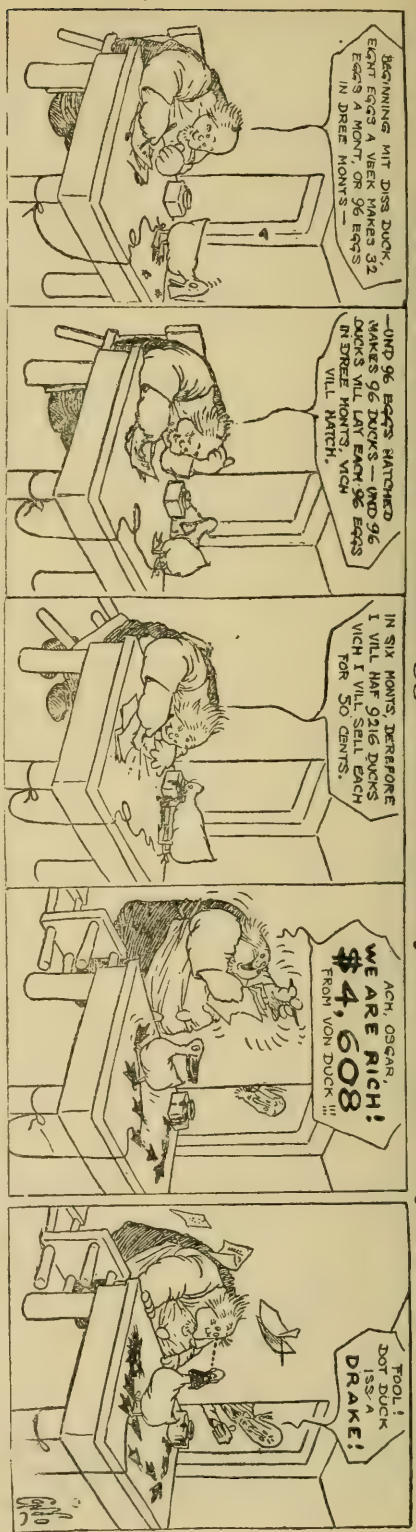
"THE CROWN OF THORNS AND THE CROWN OF DIAMONDS."

Please send me 100 copies. It's hard to get the "personal liberty" idea out of the people, and all the good the saloons do in the way of taxes, etc. Last fall I came nearly having black eyes in an argument over personal liberty. Last fall, before the elections, a lot of saloon men got so sore at me they made open threats to chase me out of the county, and would, perhaps, have done so had it not been for the fact that an aged invalid mother was needing me. H. STOCK.
Augusta, Mo., July 5.

"CHANGED HIS MIND."

For years I have taken GLEANINGS; but on the first of January, this year, I decided I could do without it. I've changed my mind again since missing its semi-monthly visits, and herewith enclose $2.00 for three years. As I said before, I can scarcely do without GLEANINGS after taking it so long. If those old fathers in (bee) Israel were to die out, such as Root, Miller, Doolittle, etc., I'd want to know it. Then I like your religious and temperance teachings. I am so glad that Jesus died for *me*—took my place under the law—"bore my sins in his own body on the tree," and now out of love for him for becoming my *substitute* and *savior*, I am against whisky and all thing else that would destroy the communion and joys of the salvation. R. V. GOSS.
Imboden, Ark., Aug. 25.

Adolf Counts His Duck Eggs Before They Are Laid--By Condo



AN UNWRITTEN CHAPTER IN A. L. ROOT'S INDIAN-RUNNER DUCK STORY.—*Courtesy the Cleveland Press.*

Special Notices

By Our Business Manager

QUEENS.

As we go to press we are again caught up on orders for untested queens, and for the next two weeks we hope to be able to fill a reasonable number of orders from one to a dozen queens within a few hours after receipt. This is a good time to get some really fine stock at a very low rate. September prices quoted below will hold until October 10, provided our stock is not completely exhausted before that time. Six for $5.00; 12 for $9.00.

COMB-FOUNDATION MACHINES ADVANCED IN PRICE.

Because of the continued high price of pig tin, which forms a large ingredient in the rolls of comb-foundation machines, we have been compelled to advance the list price of the machines to the following:

14-inch mill with 2½-inch rolls	$48.00
12-inch mill with 2½-inch rolls	42.00
10-inch mill with 2½-inch rolls	36.00
6-inch mill with 2½-inch rolls	30.00
10-inch mill with 2-inch rolls	30.00
6-inch mill with 2-inch rolls	24.00

EARLY-ORDER CASH DISCOUNT.

We are again prepared to reward by a liberal early-order cash discount those who are forehanded in anticipating their next season's requirements. For orders received during this month, accompanied by payment, for goods for next season's use, we allow a discount of 6 per cent; during November, 5 per cent. As the season advances the discount is reduced one per cent each month. This discount applies to goods listed in our general catalog except as follows: Paint, Porter bee-escapes, Bingham smokers, bees, queens, printed matter, cartons, honey-packages, tin and glass; bushel boxes, hotbed sash, honey-labels, seeds, and such seasonable goods. Where a large general order includes some of the excepted articles, not exceeding ten to twenty per cent of the entire order, the discount may be applied to the whole order.

SECOND-HAND FOUNDATION-MILLS.

We have to offer the following list of foundation-machines which have been used, but are in fair condition. In many cases they will answer as well as a new machine where you have only a moderate output. Send for samples of any mill in the list which may interest you.

No. 0117, 2x10 round-cell medium-brood mill in good condition. Price $14.00.

No. 0121, 2¼x10-inch heavy hex. brood mill. An old-style Dunham machine without cam adjustment; in rather poor condition. Price $8.00.

No. 0129, 2x10 round cell medium-brood mill, old-style frame, in good condition. Price $14.00.

No. 0135, 2x10 round-cell medium-brood mill in old-style frame, fair condition. Price $12.00.

No. 0139, 2½x6 hexagonal thin-super mill, in very good condition. Price $14.00.

No. 0140, 2½x6 hexagonal thin-super mill, in very good condition. Price $14.00.

No. 0142, 2½x6 hexagonal thin-super mill, in fair condition. Price $12.00.

No. 0151, 2½x6 hexagonal cell, extra thin-super mill, one bad cell, otherwise in good condition. Price $12.00.

No. 0152, 2½x6 hexagonal thin-super mill, extra good for regular-width super foundation. Price $12.00.

No. 0153, 2½x6 hexagonal thin-super mill. No. 0154, ditto. Both in very good condition. Price $14.00 each.

No. 0155, 2x10 round cell, medium-brood mill in old-style frame; fair condition. Price $12.00.

No. 0156, 2½x6 extra thin-super mill, fair. Price $10.00.

No. 0157, 2½x6 thin-super mill, in good condition. Price $12.00.

No. 0159, 2 x 10 round-cell medium-brood mill in good condition. Price $15.00.

No. 0160, 2½ x 6 hexagonal thin-super mill in good condition. Price $12.00.

No. 0161, 2½ x 10 hexagonal light-brood mill in very good condition. Price $18.00.

No. 0164, 2½ x 6 hexagonal thin-super mill in fair condition. Price $10.00.

No. 0165, 2½ x 6 hexagonal extra-thin-super mill in fair condition. Price $11.00.

No. 0166, 2½ x 6 hexagonal thin-super mill in extra good condition. Price $14.00.

No. 0167, 2½ x 6 hexagonal extra-thin-super mill in fair condition. Price $11.00.

No. 0168, 2½ x 6 hexagonal thin-super mill in good condition. Price $12.00.

No. 0169, 2½ x 6 hexagonal extra-thin-super mill in extra good condition. Price $15.00.

No. 0171, 2½ x 14 hexagonal medium-brood mill in very good condition, nearly new. Price $20.00.

SWEET-CLOVER SEED.

We have secured a good supply of both hulled and unhulled white sweet-clover seed, a part of which is on the way to us, and should arrive before any orders can reach us in answer to this notice. We have also secured a thousand pounds of unhulled yellow biennial seed, *Melilotus officinalis*. This variety seems to be so uncommon that it is not easy to secure the seed, and we had to pay liberally for what we have secured. In order to make sure we were getting the genuine article we submitted a sample to the seed expert in the United States Department of Agriculture, Washington, and he pronounces it all right. We still have an abundant supply of last year's seed of yellow annual, which is good, and germinates freely. No old seed of any other variety remains on hand, as all stock has been sold and disposed of. We offer the seed of the various kinds mentioned at the following prices:

In lots of—	1 lb.	10 lbs.	25 lbs.	100 lbs.
Hulled Yellow Annual (*Melilotus Indica*), per lb	15c	12c	11c	10c
Unhulled Yellow Biennial (*Melilotus officinalis*),	25c	22c	21c	20c
Hulled White	23c	20c	19c	18c
Unhulled White (*Melilotus alba*) per lb	16c	14c	13c	12c

Special Notices

By A. I. Root

WATER FOR BREEDING DUCKS IF YOU WANT FERTILE EGGS.

Dear Mr. Root:—In the current number of Gleanings I note that you quote me in what I said about my Indian Runner duck eggs not hatching, and venture the guess that they did not have water to swim in. You guessed rightly, for my ducks only had drinking water in their pens. Another thing that makes me think you may be right is that a neighbor had some ducks from the same flock from which I got mine. He let his ducks run in the irrigating-ditches all summer, and swim as much as they would. The eggs hatched almost to the last one, but he did not get as many eggs as I did for each duck. My ducks are not non-sitters, as I have only one that has not become broody. One was allowed to sit, and proved a fine sitter; but I took the ducks away from her when they were hatched. She sat on eleven eggs and hatched three ducklings, the other eggs having been infertile.

I have just resigned my position as editor of *Poultry*. I have become so thoroughly identified with the Northwest that I concluded to locate my work here, and have taken editorial charge of *Poultry Life*, published in Spokane, although I shall still remain here in "Sunny Southern Idaho." To-day the thermometer stands at 80, and we are having most beautiful weather.

I am going to send you *Poultry Life*, and will have it follow you to Florida, if you wish.

Wendell, Ida., Aug. 21. Miller Purvis.

[We are very glad to get the above additional proof that "ducks" *need* "water" to play in and to swim in; but we are sorry to learn that Miller Purvis is permanently located away out west; but perhaps what is bad for one region may be good for the people of another one. By all means, friend P., let us have all the good poultry-journals down in our Florida home. We expect to be located there about Nov. 1.]

Early-Order
Cash Discounts

Apply Here just as They do at the Factory. . . . .

As Southwestern distributors of ROOT'S Satisfactory Bee-supplies, we are very glad to make this first announcement of a special discount for early orders, accompanied by cash, to our bee-keeping friends throughout this territory.

We give exactly the same discount that is granted by the manufacturers of these famous supplies, and the prices in our special catalog are the same as in their own. There is an extra saving for you in ordering from us—FREIGHT. Better give this your careful consideration before sending elsewhere.

The Cash Discount on Early Orders Placed in October is Six per cent

This applies to every thing in the way of bee-supplies except a few special articles. On a large general order we will allow the discount on some of the excepted articles, not exceeding ten to twenty per cent of the entire order.

Remember We Manufacture the Famous Weed Process Comb Foundation

We have a big demand for this product, and are turning out comb foundation of the finest quality. Include what you will need for the opening of next season in your early order. Shipment may be held subject to your convenience if desired; but get your order in now and save 6 per cent.

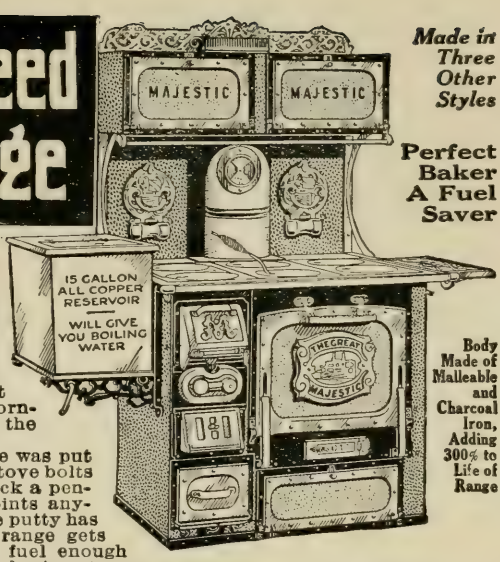
Power Honey-extracting Outfit for Sale

We offer at a bargain price a new one-horse-power Gilson gasoline-engine and one eight-frame honey-extractor. Both of these have been used for demonstration only, and are as good as though they had just come from the factory. Seventy-five dollars takes the outfit. Full particulars upon request.

TOEPPERWEIN & MAYFIELD COMPANY

Cor. Nolan and Cherry Sts., San Antonio, Texas

Why You Need a New Range



Made in Three Other Styles

Perfect Baker A Fuel Saver

Body Made of Malleable and Charcoal Iron, Adding 300% to Life of Range

Some housewives who display a remarkable amount of broad, sound, common sense along other lines, persist in the delusion—and it is a delusion—that they are really practicing economy by trying to get along—to get results—out of an old, worn-out range merely to save the price of a new one.

Your old range or stove was put together with putty and stove bolts and probably you can stick a penknife in the seams and joints anywhere on it where the stove putty has crumbled away. When a range gets in that condition, it takes fuel enough to warm all outdoors in order to get your oven hot enough for baking—and then you run the risk of burning whatever is in the oven. You can soon burn up the price of the best range ever made in a useless waste of fuel in an old, worn-out stove or range—and that's neither practical economy nor good management.

If you would practice real economy in your household management, it will pay you, the next time you are in town, to call on the dealer who handles it and examine closely into the perfect baking and remarkable fuel saving qualities of the

Great Majestic Malleable and Charcoal Iron Range

Outwears Three Ordinary Ranges

It is the only range made entirely of malleable iron and charcoal iron. Charcoal iron won't rust like steel—malleable iron can't break, and while the first cost of a Great Majestic may be more than some other ranges, ***it outwears 3 ordinary ranges.***

Half The Fuel

The *Majestic* is put together with rivets (not bolts and stove putty) making it absolutely air tight, like an engine boiler. The joints and seams will remain air tight forever as neither expansion nor contraction can affect or open them.

Pure Asbestos Lining

In addition, it is lined with pure asbestos board, covered with an open iron grate—you can see it. No heat escapes—no cold air gets into the oven—saves half the fuel and assures perfect baking.

Movable Copper Reservoir

The reservoir is ***all copper,*** heated like a tea kettle through copper pocket (stamped from one piece of copper) setting against left hand lining of fire box. It boils 15 gallons of water in a jiffy and, by turning lever, the frame—and reservoir—moves away from fire. This feature is patented and can be used only on the ***Majestic.***

Ask your Dealer to show you the greatest improvement ever put into a range—makes Majestic 300% stronger where other ranges are weakest.

Other Exclusive Features

It's the best range at any price, and should be in *your* kitchen. It is for sale by the best dealers in nearly every county in 40 states. If you don't know who sells them in your vicinity, write us and we will tell you, and send you our booklet, ***"Range Comparison".*** Every farmer's wife should read this booklet.

Majestic Mfg. Company, Dept. 4 St. Louis, Mo.

The Range with a Reputation

We Saved Him $800 On This Bungalow!

Write for Gordon-Van Tine Co.'s Great FREE Home-Builders' Catalog and the Plan Book

The money we saved Dr. Whitehurst on his beautiful bungalow is an example of what we are doing for home builders throughout the entire country. Over half a million people are buying their materials at BARGAIN PRICES, direct from our great Millwork and Lumber Plant. We carry a tremendous stock of building material—everything needed to build complete and beautiful homes of the most modern types, even to mantels and hardware. We guarantee quick shipment, no matter how large the order. Quality, safe delivery and satisfaction guaranteed or money refunded.

Here's His Letter

Peniel, Texas, May 7, 1910.

Gordon-Van Tine Co., Davenport, Iowa.

Gents: Enclosed are photos of our new house, in which we used your millwork, including White Pine Siding, Maple Flooring and Bishopric Mastic Wall Board. It is almost a Gordon-Van Tine house.

I have the swellest bungalow I think I ever saw now and saved about $800.00 in the building of it

I received your check for $25.70 some time back, covering an overcharge in freight.

Please accept my thanks for your honest treatment.

These hardwood veneered doors, thick maple floors and Queen Anne windows are the talk of the town.

Respectfully,

D. T. Whitehurst Mfg



Front View of Dr. Whitehurst's Bungalow

Isn't This Good Evidence of Dr. Whitehurst's Satisfaction?



Interior View of Living Room

We Protect Our Customers' Interests in Every Possible Way



Interior View of Dining Room

Further Evidence of Intense Satisfaction

Have You Written for Our Latest HOME-BUILDER'S CATALOG?

Solely through this wonderful Catalog of 5,000 Bargains in highest grade Millwork and Lumber we have built up a patronage extending from ocean to ocean. Everything offered at DEALERS' PRICES. Every item we sell is guaranteed up to official grades of the Sash and Door Manufacturers' Associations.

Some of Our 5,000 Bargains

Doors, 96c up; Windows, 74c up; Corner Blocks, 2c; Base Blocks, 4c; 100 feet Quarter Round, 25c; 100 feet of lattice, 26c; Oak Thresholds, 4c; Base Corners, 2c; Adjustable Gable ornaments, 75c; Hot-Bed Sash, $1.98; Window Frames, $1.15; Door Frames, $1.79; Transoms, 33c; 100 lineal feet Oak Flooring, 3-8x1 1-2 inches, 52c, Plate Rail, per foot, 4c; Embossed Moulding, per 100 lineal feet, 78c; Staved Colonial Lock-Joint Porch Columns, $1.85; Stair Newels, $2.57; Stair Balusters, 3c.

At Last--A Plan Book that Keeps Cost within Estimates

The Gordon-Van Tine Plan Book shows over 50 designs of Houses, Cottages, Bungalows, etc., costing from $600 to $6,000 THAT HAVE ACTUALLY BEEN BUILT AT THE EXACT COST SPECIFIED. Doubtless you have sent for many of the Plan Books advertised for sale. HAVE YOU EVER TRIED TO PUT UP A HOUSE AT THE PRICES STATED IN THESE BOOKS? The Gordon-Van Tine Plan Book wins out BECAUSE IT SAFEGUARDS THE BUILDER! For a limited time we will send this splendid volume FREE on receipt of 10c to cover handling and postage.



Get Our FREE BOOKS and Save Big Money!

Our Grand Free Millwork and Lumber Catalogs will save an average of 50 per cent on material, and our Plan Book will enable you to build with the positive assurance that the cost will not exceed the original estimate.

We offer to the Home-Builder a service that no other concern in America can duplicate. In justice to yourself, investigate the big advantages which we place at your disposal.

ESTIMATES FREE! Send on your list of materials. We will be glad to furnish complete estimates. You incur no obligation by availing yourself of this service.

All correspondence receives prompt, courteous and careful attention. Write us. (84)

Gordon-Van Tine Co.

2690 Federal Street **Davenport, Iowa**

Gleanings in Bee Culture

VOL. XXXIX OCTOBER 15, 1911 NO. 20

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Stray Straws
Siftings
Bee-keeping in California
Bee-keeping in the Southwest
Conversations with Doolittle
European Foul Brood at Dr. Miller's . *Dr. C. C. Miller*
Wholesale Requeening . . . . . *J. L. Byer*
Swarm Prevention vs. Swarm Control . . *J. E. Hand*
Migratory Bee-keeping . . . *Frank F. France*
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The Origin of Propolis . . . . *Arthur C. Miller*
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In Memoriam of E. C. Porter . . . . *A Friend*
Anti-robbing Device . . . . . *Dr. C. C. Miller*
Winter Stores in Danzenbaker Hives . . *E. D. Townsend*
Ripening Honey Artificially . . . . *I. Hopkins*
Bee-keeping in Jamaica . . . . . *Septimus Nash*
Heads of Grain
Our Homes

FREE!! The Two BEST Books on POULTRY and BEE CULTURE!!

HERE is the most liberal clubbing offer ever made—an opportunity for every reader of this publication to secure, absolutely free of cost, two of the most practical, most authoritative, most indispensible books ever written on the big subjects of ***profitable*** poultry and bee raising.

The names of Hicks and Townsend are known in every poultry and bee community in America. Their writings are always in ***demand*** because they ***know*** the subjects which they undertake to discuss. Many thousands of copies of these two great books have been sold---

Tricks of the Poultry Trade

By Reese V. Hicks, Editor of Poultry Culture and President of the American Poultry Association.

The Townsend Bee Book

By E. D. Townsend, one of the most extensive and successful bee keepers in America.

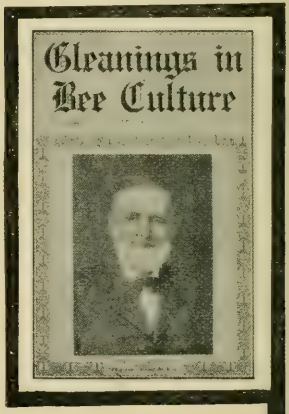
We Send You These Two Great Books As An Outright Gift on This Great Clubbing Offer

"POULTRY CULTURE" 1 Year . . . . . Sub. Price 50 Cents a Year,
"GLEANINGS IN BEE CULTURE" 1 Year Sub. Price $1.00 a Year,
"TRICKS OF THE POULTRY TRADE" . .
"THE TOWNSEND BEE BOOK" . . . . .

All For Only $1.50

This Great Offer is made for a Limited Time Only, so get your subscription order in the mails at once if you want the two free books. Money back if you are not satisfied.





"Tricks of the Poultry Trade." This book is different from any other book, and it gives you not only the good side of many "tricks," "methods," and "systems" of poultry raising, but also points out the weakness of each so-called "system," etc. It leaves you to select a method that will suit you after showing you the weakness of each. It is the result of years of practice, investigations and observations on big poultry farms. It is not a one-idea or one-man book, but the experiences and discoveries of many. You need it if you are in the poultry business. No matter if you are an old breeder or a new one, you can get pointers from this book that are worth money to you every day.



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Where the Good Bee-Supplies Come from

Factory: FALCONER, N. Y. **117 No. Jefferson St., Chicago, Ills.**

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

COLUMBUS.—We quote fancy white comb, 19; No. 1, 18; No. 2, 15.

Columbus, Oct. 4. THE EVANS & TURNER CO.

BOSTON.—We quote fancy and No. 1 white comb, 17 to 18; light colors, 16; amber, 15; fancy white extracted, 11 to 12; light, 10; amber, 9. Beeswax, 30.

BLAKE-LEE CO.

4 Chatham Row, Boston, Sept. 23.

ZANESVILLE.—Honey is now in pretty fair demand. Stocks are not heavy, and the demand will doubtless fully keep pace with the supply. Best grades of comb are selling in single-case lots at 20 cts., and extracted in 60-lb. cans at 11 to 12. Producers are offered for beeswax 28 cts. in cash, 31 in exchange for bee-supplies.

Zanesville, O., Oct. 5. E. W. PEIRCE.

INDIANAPOLIS.—Demand is good for best grades of honey, but prices are irregular. White comb sells for 18 cts. in ten-case lots, finding prompt and ready sales. Amber grades find slow demand with much lower prices. Extracted seems to be plentiful, and is selling at 11 to 12 cts. in five-gallon cans. Beeswax is in good demand, and producers are being paid 30 cts. per lb.

Indianapolis, Oct. 12. WALTER S. POUDER.

CHICAGO.—Receipts of honey are now quite liberal; but so far the demand has taken arrivals at 17 to 18 cts. for choice to fancy grades of white comb, with under grades one to two cents less. Amber grades are plentiful, and somewhat difficult to place, with prices ranging from 10 to 13; extracted, white, 8 to 9; light amber, 7 to 8. Beeswax, if clean and of good color, brings 32 cents.

Chicago, Oct. 5. R. A. BURNETT CO.

ST. LOUIS.—There is a good demand for the better grades of comb honey, and the receipts of white honey are rather small. There is considerable dark honey on the market, with almost no demand for it. We quote fancy white comb honey at 17; No. 1, 16; choice light amber, 15; dark, 9 to 11. The latter grade, however, is not wanted. Broken and leaking honey is almost unsalable — nominal, 7 to 8. Extracted honey is also in better demand, with small stocks on the market, and quotable, white, at 9 to 9½; light amber, California, 9; nearby light amber, 8½ to 9; Southern, in barrels and half-barrels, 7; in cans, ½ to 1 cent more. Beeswax, prime, 30; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Oct. 6.

Continued on page 5.

WANTED!

Comb and Extracted Honey

Let us hear from you with your best price on your Comb and Extracted Honey, freight paid to Cincinnati. We buy every time price justifies. No lot too large or too small. We remit day shipment arrives.

THE FRED W. MUTH CO.

51 Walnut Street "The Busy Bee Men" **Cincinnati, Ohio**

Trade a Part of Your Honey Crop for Supplies for Next Season; Send Your Order NOW and Save 6 per cent

We are in the market for honey, both extracted and comb, in carload lots and less. We should like to have samples and lowest prices on your crop, and will advise you immediately what we can use, and treat you right.

May be you would like to send us a shipment of honey in payment of an early order for bee-supplies. No better time to do this than in October. Send a sample of your honey and get our prices—tell us what supplies you will want, and we will try to accommodate you. Your supply order may be made up from our regular catalog, and you may deduct our special early-order discount of 6 per cent for October.

Only a few articles listed in the big WEBER LINE of Bee-supplies are excepted from this discount. On paint, Porter bee-escapes, Bingham smokers, bees, queens, printed matter, cartons, honey-packages (tin and glass), bushel boxes, hotbed sash, honey-labels, seeds, and such seasonable goods, the discount is not allowed; but where a large general order includes some of the excepted articles, not exceeding ten to twenty per cent of the whole order, the discount may be applied to the whole order.

If you have mislaid our catalog sent you at the beginning of the season, let us mail another. It's worth your while to make up your order now and send it to us with a cash remittance. You can buy your supplies for next season cheaper than at any other time during next year.

Save freight by ordering from Cincinnati. This is an item worth looking after.

C. H. W. Weber & Co.

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Gleanings in Bee Culture

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Extracted HONEY Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

KANSAS CITY.—The receipts of both comb and extracted honey are more liberal, with fair demand. We quote No. 1 white comb honey, 24-section cases, $3.50; No. 2 ditto, $3.00 to $3.25; No. 1 amber ditto, $3.25; No. 2 ditto, $2.75 to $3.00; extracted white, per lb., 8½ to 9; amber, 7½ to 8. Beeswax, 25 to 28.

C. C. CLEMONS PRODUCE CO.

Kansas City, Sept. 23.

BUFFALO.—Some new white comb honey arriving; and when of good quality it meets with quick sale. Receipts are very light for this time of the year. We think the make is small, and prices will be high for all the season for good quality. No call for new buckwheat: quite an inquiry for white extracted. New white comb honey, No. 1 to fancy, 16 to 18; No. 2, 12 to 14; buckwheat, 12 to 14; white extracted, 7½ to 8½; dark, 6½ to 7½. Beeswax, 30 to 32.

Buffalo, N. Y., Sept. 6. W. C. TOWNSEND.

ALBANY.—The honey market is firm under light receipts, with almost no white or fancy grades coming. We quote such, 17 to 18 (prospective); No. 1 white, 15 to 16; mixed, 14 to 15; buckwheat, fancy, 14; mixed, 13 to 14. The scarcity of white has some stimulating effect on prices of dark and buckwheat. But too much dependence should not be placed on that for the trade that wants the highest grade. Do not use the dark or mixed grades to any extent, either in comb or extracted. The trade that takes the buckwheat and mixed grades has to have something near a popular price or it can not sell. In other words, the white grades are a luxury, and the dark grades more of a staple. We quote extracted white (eastern production), 9 to 10; mixed, 8 to 8½; buckwheat and amber, 7½ to 8. Beeswax, 30 to 32. We would again urge that bee-keepers market their honey as early as possible, as the present are high-water prices.

Albany, N. Y., Oct. 5. H. R. WRIGHT.

THE NATIONAL BEE-KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey.

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One dollar a year.

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No. 25 jars, the best made, $5.00 per gross.
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488-490 Canal Street, NEW YORK
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments solicited. Established 1875.

NEW YORK.—For comb honey the demand is good. New crop of white comb is now arriving, and finds ready sale at from 16 to 17 for fancy white: No. 1, 14 to 15; No. 2, 13. We would advise shipping now, and not wait for higher prices later on. No arrivals yet of new crop of buckwheat, and not much demand. This will probably sell at about 10 to 11 cts. for fancy, and from 9 to 10 for No. 1. Extracted is in good demand, and former prices are maintained. Beeswax is quiet at 30.

New York, Sept. 18. HILDRETH & SEGELKEN.

CINCINNATI.—The demand for comb honey now is very good, and it is selling by the single case to the retailer at from 16 to 17½ cts., according to the quality. In a jobbing way, for Western comb honey we are getting $3.75 a case, or $4.00 by the single crate. Extracted honey is rather plentiful. The amber is selling at from 6 to 7½, according to quality. For strictly fancy water-white table honey we are getting 10 to 11 cts. We are paying 28 to 30 cts. for choice bright yellow beeswax delivered here.

Cincinnati, Sept. 21. THE FRED W. MUTH CO.

LIVERPOOL.—Since we last reported, there has been rather more demand for beeswax, though at easier prices. Sales total about 40 bags of Chilian at $35.18 to $38.08 per cwt. Nominal values of other qualities are as follows: African, $32.67 to $34.42; American, $37.51; West Indian, $32.67 to $36.28. Our market for honey has been quiet, with sales of Chilian, principally in fine white and manufactured sorts. About 110 barrels sold, pile X at $7.20 to $7.92 per cwt.; pile 1 at $6.60; pile 2 at $6.12; No. 3 pile at $4.68 to $4.80. Amber Haitien sold at $6.24 to $6.72; dark and poorly extracted Haitien is offered at $6.00 without any results. Business in Californian is somewhat restricted, owing to want of stock, and the market is firm for shipment. Twenty-five cases of white New Zealand sold at $10.08 per cwt.; Jamaican, nominal value, $7.20 to $8.64; Californian, nominal value, $9.60 for water white.

Liverpool, Sept. 4. TAYLOR & CO.

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Do not forget our Bee-Book, '**How to Make Money in Bees**," which is a complete guide to profitable bee-keeping, tells you how to buy bees, what are the best bees to buy, how to locate the hives—in fact, tells you all that you will need to know to make bees highly profitable as a business or for pleasure.

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PRICES—Untested, $1.00; six, $5.00; 12, $9.00; 24, $16.00; 50 or more, 60 cts. each. Safe arrival and satisfaction guaranteed. Descriptive circular free.

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Clark & Pike

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Ljubljana, Carniola (Krain), Austria

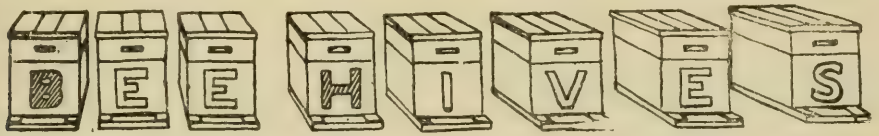
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No. 1.—We have some extra back copies of the American Bee Journal for each month of 1911; and so long as they last we will send all these copies and to the end of 1912 (to a *new* subscriber) for only $1.00. This makes two years for the dollar. Better send in your dollar *at once* and take advantage of this offer. It surely is a big bargain in bee-literature you should accept if not now a subscriber. Why not order *to-day?*

No. 2.—We have had Mr. C. P. Dadant revise Newman's "Bees and Honey" book of 160 pages, making it now nearly 200 pages, with over 150 illustrations. It is called "First Lessons in Bee-keeping." Just the book for Beginners. Bound in strong paper cover, with brood-comb illustration. Price 50 cts. postpaid, or we will send it (to a new subscriber) with American Bee Journal *from now to the end of 1912*—all for only $1.00-

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. . The . .

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is nearing to a close, and
your next need will be

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have our prompt attention

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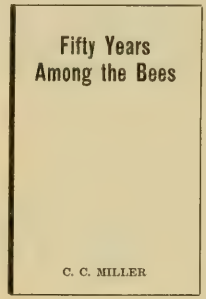
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However much some personal friends may like the brief biographical sketch that occupies the first few pages, others may think that the space could have been better occupied. There remains, however, the privilege of skipping those few pages.

Most of the pictures are from photographs taken by myself or under my immediate supervision, at least so far as concerned "touching the button;" the Eastman Kodak Co. "did the rest." C. C. MILLER.

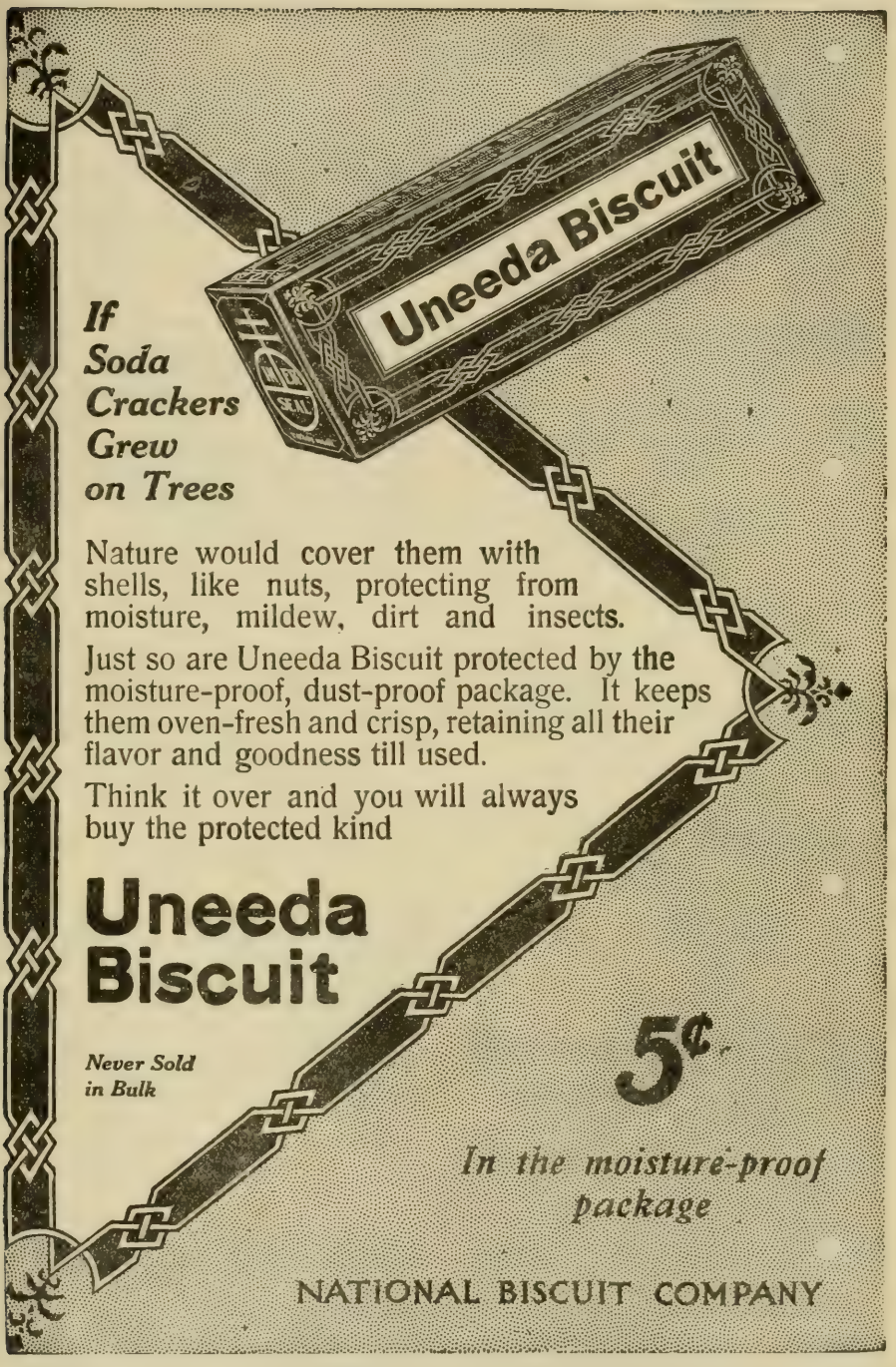
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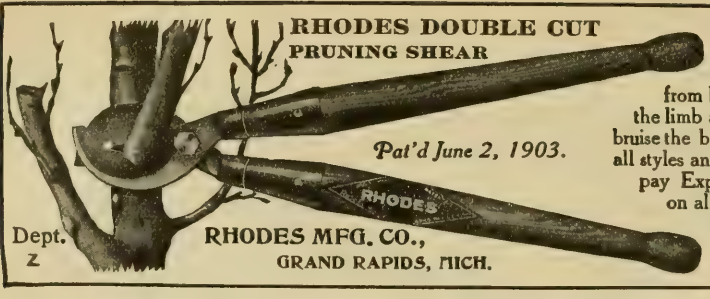
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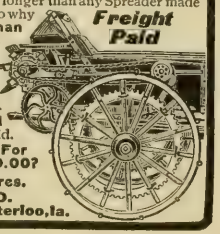
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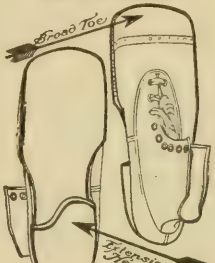
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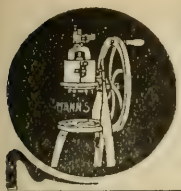


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5 | A B C of Carp Culture, by Geo. Finley..... 25

5 | A B C of Potato Culture, Terry** New edition, revised & enlarged; paper, 45c; cloth, 68c, mail 75c.
This is T. B. Terry's first and most masterly work. It has really made a revolution in potato-growing, and has been reprinted in several foreign languages. By getting the ground in proper condition to grow great crops of clover, and turning this under, Terry succeeded, not only in getting *more* potatoes, but even *better* ones, and in producing them at less expense also, than by any plan or system before the time he began his experiments in 1885. The book has already passed through three editions of many thousands. It not only includes potato-growing in the United States, but in Bermuda, the Island of Jersey, and other warmer parts of the world where "new potatoes" are raised for the express purpose of getting the high prices in the cities during January, February, and March. The book also gives special attention to the different and best methods for preserving and keeping *seed* potatoes in the very best condition to plant in all these different localities.

5 | A B C of Strawberry Culture ** by T. B. Terry.. New edition, revised and enlarged; paper, 45c; cloth, 68c; by mail, 75c.
After Terry's potato-book had obtained such a kind reception from farmers, market-gardeners, and others, he was induced to give his plan of growing strawberries, as he did potatoes, by plowing under great crops of clover, and, like the potato-book, his writings gave a new impetus to strawberry-growing; in fact, some of his pupils declare that, aside from the picking, they can grow strawberries almost as cheaply per bushel as potatoes. By following Terry's teachings, thousands of people have not only been able to give their families but the whole wide world better strawberries, and more of them, than they ever saw before.

6 | Asparagus Culture..... 40
6 | Alfalfa Culture..... 40
8 | Barn Plans and Out-buildings*..... 90
2 | Celery for Profit, by T. Greiner**..... 25
The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.

10 | Fruit Harvesting, Storing, Marketing, etc..... 75
It has been well said that it is an easier matter to grow stuff than to sell it at a proper price after it is grown; and many men fail, not because they are inexpert in getting a crop, but because they do not know how to sell their crops to the best advantage. This is the first book of the kind we have had as an aid in selling. It not only tells all about picking, sorting, and packing, but gives all the best methods for storing for one or two days or a longer time. It also tells about evaporating and canning when there is a glut in the market. It discusses fruit packages and commission dealers, and even takes in cold storage. It is a new book of 250 pages, full of illustrations. Publisher's price, $1.00.

| Farming with Green Manures, postpaid**..... 90
This book was written several years ago; but since competent labor has got to be so expensive, and hard to get, many farmers are beginning to find they can turn under various green crops cheaper than to buy stable manure, and haul and spread it—cheaper, in fact, than they can buy fertilizers. This book mentions almost all plants used for plowing under, and gives the value compared with stable manure. Some of the claims seem extravagant, but we are at present getting good crops, and keeping up the fertility, by a similar treatment, on our ten-acre farm.

7 | Farm, Gardening, and Seed-growing**..... 90
10 | Fuller's Grape Culturist**.....1 15
5 | Garden and Farm Topics, Henderson**..... 60
12 | Gardening for Pleasure, Henderson*.....1 10
While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part, and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds, without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 246 pages and 134 illustrations. (Retail price $2.00.)

12 | Gardening for Profit**.....1 10
This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gar lening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts (Retail price $2.00.)

8 | Gardening for Young and Old, Harris**..... 90
This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter

Postage.] [Price without postage.

Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3 | Grasses and Clovers, with Notes on Forage Plants 20

This is by Henry A. Dreer, author of the book "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10 | Greenhouse Construction, by Prof. Taft** .. 1 15

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

12 | Greenhouse Management, by Prof. Taft**.....1 15

This book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruits and flowers. The publisher's price is $1.50; but as we bought quite a lot of them we can make a special price as above.

5 | Gregory on Cabbages, paper* 20
5 | Gregory on Squashes, paper*..... 20
5 | Gregory on Onions, paper*..... 20

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

| Handbook for Lumbermen..... 05

5 | Home Pork-making; 125 pages, illustrated..... 40

I think it will pay well for everybody who keeps a pig to have this book. It tells all about the care of the pig, with lots of pictures describing cheap pens, appliances, all about butchering, the latest and most approved short cuts; all about making the pickle, barreling the meat, fixing a smoke-house (from the cheapest barrel up to the most approved arrangement); all about pig-troughs; how to keep them clean with little labor; recipes for cooking pork in every imaginable way, etc. Publisher's price is 50 cents, ours as above.

15 | How to Make the Garden Pay**.....1 35

By T. Greiner. Those who are interested in hotbeds, cold-frames, cold green-houses, hothouses, or glass structures of any kind for the growth of plants, can not afford to be without the book. Publisher's price $2.00.

10 | How to Keep Well and Live Long..... 90

The above book by T. B. Terry is, in my opinion, destined to relieve more pain, sickness, and death than any other book in the whole world that has ever come to my knowledge. This is pretty strong language, I admit; but since Mr. Terry commenced, years ago, to urge the importance of pure air, pure water, and a simple diet of good simple food in moderate quantities, the whole wide world, doctors included, seems to be gradually falling in with him. Of course, other good and wise men commenced a similar crusade for better health long before Terry did; but he seems to have a happy faculty of getting hold of people and keeping their attention. After you once start in with the book you will be pretty sure to read it to the end, and you will ever after be a better and a happier man or woman for having read it. We have a special low price for clubbing with GLEANINGS—that is, both for $1.50. If you have already paid for GLEANINGS a year or more in advance you can have the book for 75 cents postpaid. Since it first came out, only a few months ago, we have sold over 600 copies.

3 | Maple Sugar and the Sugar-bush**..... 25
5 | Manures; How to Make and How to Use Them; in paper covers..... 30
6 | The same in cloth covers..... 65
| Nut Culturist, postpaid.....1 25
3 | Onions for Profit**..... 40

Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

Postage.] [Price without postage.

8 | Practical Floriculture, Henderson.*.....1 10
10 | Small-Fruit Culturist, Fuller 75
2 | Experiments in Farming. By Waldo F. Brown. 08

This little book ought to be worth its cost for what is said on each of the four different subjects; and the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or any thing else. In fact, if you follow the exceedingly plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.

10 | Our Farming, by T. B. Terry**..... 75
| Same, paper cover, postpaid..... 50

In which he tells "how we have made a run-down farm bring both profit and pleasure."

If ordered by express or freight with other goods, 10c less.

10 | Talks on Manures* 1 35

By Joseph Harris. Written conversational style, which makes it very interesting reading. It covers the subject very completely; contains numerous analyses of manures and comparative tables. The use of technical language is avoided, which makes the book of greatest value to the practical farmer. A book of 366 pages, nicely bound in cloth.

10 | The Dollar Hen..... 90

The above book will be clubbed with GLEANINGS for one year at $1.50; or if you have already subscribed a year or more in advance you can have the book postpaid for 75 cents.

My opinion is, that "The Dollar Hen" is not only one of the best books on poultry that we have at the present time, but it is worth nearly as much as a dozen other books. Perhaps this is extreme, but we have very few books that are strictly up-to-date, and still fewer that pitch right into the superstitions and humbugs now scattered all through our poultry books and journals.

5 | The New Rhubarb Culture**..... 40

Whenever apples are worth a dollar a bushel or more, winter-grown rhubarb should pay big. It does not require an expensive house nor costly appliances. Any sort of cellar where it will not freeze is all right for it; and the small amount of heat necessary to force the rhubarb costs very little. The book is nicely bound in cloth, full of illustrations, mostly photos from real work, 130 pages. Every market-gardener should have this book, for the lessons taught indirectly, in regard to forcing other crops besides rhubarb. Publisher's price 50c.

5 | Tile Drainage, by W. I. Chamberlain..... 35

Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge.

5 | Tomato Culture 35

In three parts. Part first.—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second.—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third.—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general.

3 | Winter Care of Horses and Cattle..... 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

8 | What to Do, and How to be Happy while Doing It..... 65

The above book, by A. I. Root, is a compilation of papers published in *Gleanings in Bee Culture*, in 1886, '7, and '8. It is intended to solve the problem of finding occupation for those scattered over our land out of employment. The suggestions are principally about finding employment about your own homes. The book is mainly upon market-gardening, fruit-culture, poultry-raising, etc. Illustrated, 188 pages, cloth.

8 | Same, paper covers..... 40

THE A. I. ROOT CO., Medina, Ohio.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

FOR SALE.—White comb honey, choice article. Write for prices. THOS. ATKINSON, Cozad, Neb.

FOR SALE.—Clover honey in new 60-lb. tin cans. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

Write us for prices on car lots of comb and extracted honey. OGDEN BEE AND HONEY CO., Ogden, Utah.

FOR SALE.—Water white and light-amber alfalfa and light-amber fall honey, put up in any size packages. First class. DADANT & SONS, Hamilton, Ill.

FOR SALE.—10,000 lbs. of basswood and amber honey in 60-lb. cans. THOS. KERNAN, Harper's Ferry, Ia.

FOR SALE.—Absolutely pure California honey in five-gallon tins, two tins to the case. Write us for price. RATHER BROTHERS, Agents for Hemet Valley Bee-keepers' Asso'n, Hemet, Cal.

FOR SALE.—Fall honey of fine flavor; light, dark amber, 10 cts., 8 cts., in 60-lb. cans, 1 or 2 in case. Small sample free. EDW. REDDOUT, Baldwinsville, N. Y.

FOR SALE.—Genuine Spanish-needle honey. This honey stands in a class by itself for its beautiful, clear, light golden color and distinctive spicy flavor, which must be tasted to be appreciated. Buyers respond. Also some choice light comb honey of equal flavor. F. B. CAVANAGH, Hebron, Ind.

RASPBERRY HONEY.—We have a few cans to sell yet of this fine honey. It was left on the hives until it was all sealed and thoroughly ripened. It is thick, rich, and delicious. A good large sample for 10 cents, which may be deducted from any order sent for honey. It is put up in new 60-lb. tin cans. Price, per can, $6.00. ELMER HUTCHINSON, Pioneer, Mich.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—Extracted honey, both white-clover and basswood, in cans. State price. EDW. WILKINSON, Wilton, Wis.

WANTED.—To buy amber and dark extracted honey; to sell, second-hand 60-lb. cans. A. G. WOODMAN Co., Grand Rapids, Mich.

WANTED.—White honey, both comb and extracted. Write us before disposing of your crop. HILDRETH & SEGELKEN, 265 Greenwich St., New York.

Wants and Exchanges

WANTED.—Cheap, bees in box or frames, for cash. WILEY A. LATSHAW, Carlisle, Ind.

WANTED.—To rent an apiary of 100 or 200 colonies of bees anywhere in the United States—California preferred. BOX A, GLEANINGS IN BEE CULTURE, Medina, O.

For Sale

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

FOR SALE.—Choice winter apples in barrels or boxes. F. E. SCHRIVER, Rt. 3, Grafton, O.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case. C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—New crop of alfalfa seed; 4 pounds by mail, prepaid, $1.10; 50 to 100 lbs., 14½ cts. per lb. Sacks, 25 cts. extra. R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN Co., (Successor to J. M. Jenkins.) Penn, Miss.

Real Estate

FARMS FOR SALE—In the great trucking section of Virginia. Write for booklet. W. T. BAILEY, Suffolk, Va.

FOR SALE.—50 colonies of bees, dwelling-house, barn, and about 4 acres of land, ½ mile from city. Write for price. E. W. SUTCLIFFE, Weatherford, Texas.

A Wisconsin bee-yard of about 125 colonies, fixtures, etc., located in Chippewa Co., for cash or any thing I can use—about half price of a year ago. D. E. LHOMMEDIEU, Colo, Story Co., Iowa.

FOR SALE.—20 acres of highly improved bee, alfalfa, fruit, chicken, and hog farm in Walla Walla Co., Wash., on the Columbia River; 10 acres in fruit just coming into bearng. An ideal home at a bargain. Write me at once. H. A. GLAZE, Burbank, Wash.

FOR SALE.—Fine location for a large apiary; five acres—two acres planted for spring hay; fruit; garden; truck-patch; good barn and chicken-houses; corncrib; root-cellar; spring-house with unfailing spring; seven-room stone dwellinghouse, screened throughout; enameled bath; hot and cold water; extractor, and a few colonies of bees; $2000. Good reason for selling. A. I. SIDDALL, Route 2, Doylestown, Pa.

FOR SALE.—Large apiary with all appliances necessary for conducting the business of raising honey in an up-to-date manner; located in the far-famed Hudson River Valley—a region abounding in fruit-trees, raspberries, the clovers, buckwheat, and fall flowers. The owner has kept from 100 to 250 colonies in his present location for 32 years, and has never failed to get a paying crop of honey. The apiary has been run for extracted honey exclusively, and at present it consists of 250 colonies with an eight-frame power extractor, Hershiser wax-press, 5000 surplus combs, large honey-tank, and every convenience for conducting the business successfully. No other apiary of any size within many miles. JAMES MCNEILL, Hudson, N. Y.

Bees and Queens

Queens (hybrid) from New Hampshire, 50 cents.
W. B. BURLINGAME, Exeter, N. H.

Bees and queens of quality. Supplies. Catalog.
Stringham, 10 Park Place, New York City.

FOR SALE.—25 colonies of bees in 8-frame hives.
HENRY HETTEL, Marine, Ill.

FOR SALE.—70 colonies of bees in good condition; eight-frame hives. Cheap for cash.
M. KNUDSEN, Sunnyvale, Cal.

FORSALE.—55 colonies of full-blooded Italian bees; 100 hives and 200 supers. Write for prices.
AL CLEM, Harper's Ferry, Iowa.

Fine warranted queens ready to mail at 75 cts.; 6 for $4.00. J. B. CASE, Port Orange, Fla.

WANTED.—Cheap bees in box or frame hives for cash; also empty hives.
F. B. CAVANAGH, Hebron, Ind.

Missouri-bred Italian queens; none better; prices right. Write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction.
W. W. DAKIN, Hood River, Ore.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Bradley's Store, Va.

FOR SALE.—175 colonies of bees, Root hives; fine location on San Antonio River; honey-house, tent, horse-wagon, camp-outfit, and complete fixtures for bulk comb honey. No disease. For particulars address G. M. FARWELL, Berclafr, Goliad Co., Tex.

Golden queens — very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

FOR SALE.—175 colonies of bees in 8-frame hives, run for comb honey, with 500 comb-honey supers, and about 35 full-depth hive-bodies filled with honey for next season's feeding. I am close to the Nevada State-line. No foul brood in this valley.
H. CHRISTENSEN, Coleville, Mono Co., Cal.

FOR SALE.—Moore's strain and golden Italian queens, untested, $1.00; six, $5.00; twelve, $9.00. Carniolan, Banat, and Caucasian queens, select, $1.25; six, $6.00, twelve, $10.00. Tested, any kind, $1.50; six, $8.00. Choice breeders, $3.00. Circular free.
W. H. RAILS, Orange, Cal.

WANTED.—To hear from parties in Texas or adjoining States who have a large number of bees for sale, either in modern hives or old gums. If a carload can be secured in your neighborhood, near a railroad, write me at once, giving lowest price.
J. E. CHAMBERS, La Pryor, Texas.

FOR SALE.—About 50 colonies of Italian bees—a cross between J. P. Moore's and The A. I. Root Co's best imported, in eight-frame chaff hives, and about 20 colonies of hybrids in deep-frame Quinby chaff hives, all in good condition for winter. No disease. Price $3.50 per colony for the lot; or in lots of 5 to 10, at $4.00; one colony, $5.00.
WILMER CLARKE, Earlville, Madison Co., N. Y.

Miscellaneous

THE BEE-KEEPERS' REVIEW.—Have you read it? Just the journal for both beginner and expert. Tells the former in plain simple language just what the latter is doing; helps the matter by giving all latest methods. Send 15 cts. in stamps for a three-months' trial subscription. Agents wanted in all localities. Subscription price $1.00 per year.
E. R. TYRRELL, Editor and Publisher.
230 Wooland Ave., Detroit, Mich.

Poultry

April-hatched Indian Runner ducks, fawn and white; $2.00 each; $3.50 a pair; $5.00 per trio. White-egg strain. KENT JENNINGS, Mt. Gilead, Ohio.

INDIAN RUNNER DUCKS.—Full-grown young stock for sale, either fawn and white or penciled, from best strains in America. Eggs for hatching. All sales guaranteed as represented.
C. O. YOST, Rt. 4, Winchester, Ind.

FOR SALE.—A few R. C. Rhode Island Red cockerels—dandies, $1.50 each.
E. F. SMITH, Chadwick, Ill.

Black Wyandottes, the great layers and payers; fine blocky stock. Pullets and cockerels at reasonable prices. L. E. BROWN, Princeton, W. Va.

S. C. W. Leghorn cockerels. Wyckoff strain. Must sacrifice surplus. $1 and $2 each. Satisfaction guaranteed. SEC. POULTRY ASSOCIATION, Medina, O.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St. Joseph, Mo.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, $1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school.
W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 79 Cortlandt St., New York.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1911: beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 60 cts.; select, 75 c.; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices see large advertisement.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

GRAY PRINTING CO., Fostoria, O.
Make ENGRAVINGS for GLEANINGS

Special Notices

By OUR BUSINESS MANAGER

SECOND-HAND CANS.

Some may have secured a surplus of fall honey, and need cans to put it in. You can not do better than secure some of our choice second-hand cans at $3.00 for ten boxes of two cans each; 25 boxes or more at 25 cts. each; 200 boxes or over at 20 cts. each. We are emptying a large number of cans, and save only the best—those which are entirely suitable for refilling with honey after they are scalded out.

SPECIAL REMOVAL SALE.

We are moving our New York office and warehouse to a new location. We have a number of items which we will close out at a special low price rather than move them. We have not the list nor the space to give them here, but will mail to any one interested who calls for it. As we have to be moved by Nov. 1st, you will need to act promptly to avail yourself of this chance for a special bargain. Apply to this office or direct to our New York office at 603 Evening Post Building. Soon after Nov. 1st our New York address will be 139-141 Franklin St. Send for special offer as it will be worth your while.

PERFORATED ZINC ADVANCED.

The increased cost of sheet zinc makes it necessary to mark up the price on perforated zinc sheets and zinc honey-boards. The new prices are as follows:

Zinc sheets 32x96, $1.75 each.
No. 1 zinc honey-board, 14⅜x19⅛, $1.80 for 10.
No. 2 " " " 16x20, $2.00 for 10.
No. 11 " " " 12x19⅛, $1.60 for 10.
No. 12 zinc, wood-bound, 16x20, $2.40 for 10.
No. 13 " " " 13⅞x20, $2.20 for 10.
No. 9, slatted wood-zinc, 13⅞x20, $2.30 for 10.
No. 10 " " " 16x20, $2.50 for 10.
Zinc strips, two-row holes, $1.40 per 100.

We make no change in price of wood-wire honey-boards, which are very much better than perforated zinc for the purpose, because the bee-passages are smooth and can not tear the bees' wings in passing through, as is likely to happen with perforated metal with holes having sharp raw edges.

COMB AND EXTRACTED HONEY.

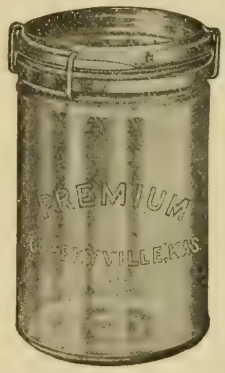
To those who did not secure sufficient honey for their trade, we want to say that we have just received several carloads of the finest sweet clover and alfalfa clover, and we have also a rather limited stock of extra-fine orange and sage extracted honey. Any of the foregoing grades we can furnish in quarts, half-gallon, one-gallon, and five-gallon cans; or if you do not want it in packages of these sizes, we can furnish it in almost any size or style of package that you require.

While we handle but little light-amber or dark-amber extracted, we have some very fine; and if you can use amber grades we can ship you as fine a lot of honey as you have ever handled. Our stock of choice white comb honey in fancy, No. 1, or No. 2 grades, is complete. We have also some very desirable shipments of comb honey in amber and buckwheat flavors.

Many bee-keepers are of the opinion that, if their crop is short, they can not get honey elsewhere, or that the trade would not be satisfied with a slight change of flavor. This is not so. We have found out by past experience that consumers of honey are willing to take other kinds when their flavor is not obtainable.

If you are interested in the above, write us, telling exactly what kind of honey your trade demands, and we shall be glad to send you a sample of the extracted as nearly as we can duplicate it, free of charge; also give you a full description, with prices, of our comb and extracted honey by return mail.

SPECIAL BARGAIN IN PREMIUM JARS.



It would be hard to find another fruit-jar with as many desirable features as the Premium jar, which we have listed in our general catalog for the past two seasons. It has an extra-large mouth, 3¼-inch. The cover as well as the jar is of clear glass with a rubber ring between. The wire sealing-clamp is very simple and effective. The cover is sunk so that jars may be tiered up on shelves, one resting securely on the one below. Nothing could be nicer for putting up "chunk" comb honey in glass.

The factory making them got into financial difficulty, and we have secured considerable stock at a low price, which enables us to make a special sale price as follows, good only while the stock lasts. The jars are packed in corrugated-paper cartons of one dozen each, which usually carry safely. On long-distance shipments we will put six cartons in a crate for further safety, if desired, at 30 cents per gross extra.

One-pint jars, 70 cts. per doz.; $7.20 per gross.
One-quart jars, 75 cts. per doz.; $7.80 per gross.
Two-quart jars, $1.00 per doz.; $10.80 per gross.

These prices apply only on shipments from Medina, ordered from this notice, for a limited time. If more convenient the order may be placed with your dealer, to be forwarded, and shipment made from Medina direct.

SWEET-CLOVER SEED.

We have secured a good supply of both hulled and unhulled white sweet-clover seed, a part of which is on the way to us, and should arrive before any orders can reach us in answer to this notice. We have also secured a thousand pounds of unhulled yellow biennial seed, *Melilotus officinalis*. This variety seems to be so uncommon that it is not easy to secure the seed, and we had to pay liberally for what we have secured. In order to make sure we were getting the genuine article we submitted a sample to the seed expert in the United States Department of Agriculture, Washington, and he pronounces it all right. We still have an abundant supply of last year's seed of yellow annual, which is good, and germinates freely. No old seed of any other variety remains on hand, as all stock has been sold and disposed of. We offer the seed of the various kinds mentioned at the following prices:

In lots of—	1 lb.	10 lbs.	25 lbs.	100 lbs.
Hulled Yellow Annual (*Melilotus Indica*), per lb	15c	12c	11c	10c
Unhulled Yellow Biennial (*Melilotus officinalis*),	25c	22c	21c	20c
Hulled White	23c	20c	19c	18c
Unhulled White (*Melilotus alba*) per lb	16c	14c	13c	12c

Special Notices

By A. I. Root

GREEN'S FRUIT GROWER.

This periodical has been known almost as long as ours, and it has always been a first-class, wide-awake, reliable journal. Fruit-growers who wish to be up to the times, especially in regard to all that is new and reliable, should by all means have Green's publication. In all the years that his establishment has been sending out vines and small fruits, as well as fruit-trees, we can remember scarcely a complaint. The September number has a beautiful front page, and is a gem. We make an especially low price on it clubbed with GLEANINGS, as our friends will notice.

HOW TO MANAGE A SITTING HEN.

On page 577, Sept. 15, I mentioned our old friend H. H. Stoddard and his valuable article in the *American Poultry Journal*. Well, in that same journal for October Mr. Stoddard has given us one of the best and most valuable contributions I ever read anywhere. It is not only worth the price of the journal for a whole year, but it is worth to *me* a $10.00 bill. I have been studying sitting hens for years. In fact, while down on the Island I told you I was "sitting at the feet" of a sitting hen, and gathering wisdom day by day; for it is an unmistakable truth that the ordinary sitting hen has more knowledge of God's mysteries along in *her* line than all the wise men on the face of the earth. You can get the October number, of the American Poultry Journal Publishing Co., 542 South Dearborn St., Chicago, for only 5 cts.; but as Mr. Stoddard is going to write a series of articles for that journal you can well afford to send 50 cts. and get the journal a year. We have 35 or 40 poultry-journals on our exchange list, and I hastily glance over every one every month. It seems to me sad that so much labor should be almost wasted in thrashing things over and over. I have been so much wearied with this continued repetition that Stoddard's articles seem like an oasis in the desert. He rarely writes or expresses a thought that we have ever seen somewhere else. He has studied chickens all his long life, and what he writes is from his ripened knowledge and long experience. There is a good picture of him in this October number. May God grant him health and strength to continue his valuable and sensible contributions for the younger "chicken" enthusiasts.

WINTERING IN FLORIDA AND RETURNING IN THE SPRING.

The Seaboard Air Line Railway, the only road through Manatee Co., Florida, furnishes the following in regard to the round trip from Cincinnati to Bradentown and points in that vicinity. Permit me to explain that Bradentown is about 60 miles south of Tampa, close to the Gulf of Mexico, and right on the Manatee River.

Mr. A. I. Root:—Referring to your letter of Sept. 18, I would say that the round-trip winter-tourist fare from Cincinnati to Bradentown, which becomes effective on the 15th of October, and has a return limit of May 31, 1912, will be $46.65. It is possible, however, to do better than this by the use of two interchangeable mileage-books. These mileage-books are sold at the rate of $20.00 per 1000 miles. The distance in each direction is 1068 miles, making the round-trip distance 2136 miles. In view of this a passenger may purchase two 1000-mile books, amounting to $40.00, and have a shortage of 136 miles, which, on the return journey, he can pay for at the rate of two and a half cents a mile, or $3.40, making his round trip cost $43.40. Mileage-books, as you know, are valid for passage at any time within a year from date of purchase. J. A. PRIDE.

General Industrial Agent of Seaboard Air Line Railway.
Norfolk, Va., Sept. 26, 1911.

Let me explain further that there will be several advantages in getting mileage-books instead of a round-trip ticket. First, it will be a little cheaper; second, you will not have to invest so much money to lie idle until you return home; third, your mileage-book can be used so as to stop off anywhere you choose, or take a side trip on other Florida lines that accept these mileage-books.

I have written the above because so many are making inquiries in regard to the expense of a trip to Manatee Co. There is also a much lower rate, usually, for 25-day tickets—that is, a ticket to go and return inside of 25 days. A year ago these 25-day round-trip tickets were offered at the low rate of $25.00 from Cincinnati to Manatee Co. and return.

ANOTHER WONDERFUL DISCOVERY IN THE CHICKEN BUSINESS.

I did not make it, my good friends; but in our next issue I expect to introduce to you the man who *did* make it; and if I am correct about it, even he himself does not know exactly how much of a discovery it is as yet; and this is to give notice that I want you who love chickens to turn in and help develop this new method of "forecasting" what a pullet will do, without even a trap-nest. Of course a trap-nest would be a help, but it is not absolutely necessary. Astronomers predict the return of eclipses, and they even forecast the visits of comets; and now we are on the eve of a great discovery whereby we can *forecast* the 200-egg hen while she is yet a pullet. Some of you, no doubt, think you have hens that lay an egg every day; but, if I am right, there are very few hens that lay an egg exactly every day. It takes most hens a little longer than 24 hours to get up an egg. We will say it takes a certain hen 27 hours (three hours more than a day). Now suppose she lays an egg at 8 o'clock Monday morning. Tuesday she will drop her egg about 11 o'clock instead of 8; Wednesday, about 2 o'clock; Thursday, about 5 in the evening; and as hens seldom lay after 5 o'clock she will probably hold the next egg over night; and therefore on Friday there will be a skip, or a day when there will be no egg; but there would be an egg early on Saturday morning at perhaps 8 o'clock. Then if she is a non-sitting Leghorn this might go on for a month or more. I believe, however, the average laying hen stops after she has laid some 20 or 30 eggs. Should she happen to take a notion to sit, of course this will make a break.

Now, there are two points we want settled in this business. First, does this laying hen outlined above keep up her period of making an egg once in 27 hours as long as she lives—that is, when she lays doesshe always get up an egg, when properly fed and cared for, in *about* 27 hours? The inventor thinks she does. Secondly, do all laying hens have a fashion of laying an egg in about so many hours—some 27, some 30, some 36, etc.? The hen that lays every *other* day would, of course, require about 48 hours to get up a finished egg; and I think I have had hens that laid only about once in three days.* Perhaps you catch a glimpse from the above of what we are driving at. If hens really do generally follow the fashion outlined in the above, I am to give the inventor $100 for the privilege of publishing it in GLEANINGS; and I want all you who are interested to send me a postal-card report in regard to the matter as soon as you can. Mail your cards here to Medina if you can get them off before November 1. After that date, mail them to Bradentown, Fla.

Later.—Since the above was dictated I happened to remember that one of my employees, Mr. Merwin Spafford, kept tab on a hen of his two or three years ago, that laid 197 eggs in 11 months. I hunted him up, and the conversation was about as follows:

"Merwin, do you remember the hen you had that gave you almost 200 eggs inside of a year? Can you tell now whether she laid an egg every day or for a considerable period, and stopped, or about how it went?"

"Oh! yes, Mr. Root. I remember very distinctly that she laid two eggs and then skipped a day; two more and another skip, and so on the greater part of the time. When she wanted to sit, or when it came moulting time, this, of course, threw her out of her regular record. But the second year it was just the same—two eggs and a skip, two eggs and a skip; but she had longer resting-spells, and, of course, did not lay as many eggs the second year."

There you have it, friends. If a hen here in Medina kept up that kind of regularity, and one or more down in St. Augustine, Fla., followed the same law, is it not extremely probable that the hens all over the world have been doing it, perhaps, ever since the time of Adam, and we have been so stupid that none of us have noticed it till just before the year 1912?

* Our Ohio Experiment Station had an exhibit at our recent county fair. In that exhibit were life-sized pictures of two Barred Rock hens. These were of the same age, looked exactly alike, and had exactly the same care; yet one hen laid 198 eggs in a year, and the other one only 31. A placard read something like this: "How many 31-egg hens are you farmers keeping year after year, and do not know it?" You see this 31-egg hen laid only about once a week, and then she probably took a good long rest while moulting, after which she started out again, taking about a *week* to get up an average-sized egg.

Early-Order
Cash Discounts

Apply Here just as They do at the Factory. . . . .

As Southwestern distributors of ROOT'S Satisfactory Bee-supplies, we are very glad to make this first announcement of a special discount for early orders, accompanied by cash, to our bee-keeping friends throughout this territory.

We give exactly the same discount that is granted by the manufacturers of these famous supplies, and the prices in our special catalog are the same as in their own. There is an extra saving for you in ordering from us—FREIGHT. Better give this your careful consideration before sending elsewhere.

The Cash Discount on Early Orders Placed in October is Six per cent

This applies to every thing in the way of bee-supplies except a few special articles. On a large general order we will allow the discount on some of the excepted articles, not exceeding ten to twenty per cent of the entire order.

Remember We Manufacture the Famous Weed Process Comb Foundation

We have a big demand for this product, and are turning out comb foundation of the finest quality. Include what you will need for the opening of next season in your early order. Shipment may be held subject to your convenience if desired; but get your order in now and save 6 per cent.

Power Honey-extracting Outfit for Sale

We offer at a bargain price a new one-horse-power Gilson gasoline-engine and one eight-frame honey-extractor. Both of these have been used for demonstration only, and are as good as though they had just come from the factory. Seventy-five dollars takes the outfit. Full particulars upon request.

TOEPPERWEIN & MAYFIELD COMPANY

Cor. Nolan and Cherry Sts., San Antonio, Texas

6 6 6 6 6 6

Buy Bee-Supplies in October!

Pay Cash and Save 6 per cent

WE are again prepared to offer a liberal early-order cash discount to those who are forehanded in anticipating their next season's requirements. For orders received during October, accompanied by payment, for goods for next season's use, we allow a discount of 6 per cent; during November, 5 per cent. As the season advances, the discount is reduced one per cent each month.

You can buy now at a lower price than you will be required to pay during the next year. . . . . .

This discount applies to goods listed in our general catalog except as follows: Paint, Porter bee-escapes, Bingham smokers, bees, queens, printed matter, cartons, honey-packages, tin and glass, bushel boxes, hotbed sash, honey-labels, seeds, and such seasonable goods. Where a large general order includes some of the excepted articles, not exceeding ten to twenty per cent of the entire order, the discount may be applied to the whole order.

Remember, we are offering you goods of the Standard Root Quality.

We are the largest manufacturers of bee-supplies in the world—manufacturing every thing from section-boxes and bottom-boards to honey-extractors, comb foundation and comb-foundation machines. More than 100 articles used by successful bee-keepers are listed in our annual catalog, which may be had free for the asking. Get acquainted with ROOT supplies—test our service.

The A. I. Root Co., Chicago, Illinois

213 Institute Place

R. W. Boyden, Manager **Jeffrey Building** **Telephone, 1484 North**

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200 Pages; Nearly 500 Subjects

A NEW Edition of This Popular Book

ADVANCED BEE CULTURE

By W. Z. HUTCHINSON

E. R. ROOT, editor of *Gleanings in Bee Culture*, who revised Mr. Hutchinson's book which has just been published, has to say in *Gleanings:*

As a writer on bees Mr. Hutchinson has few equals. For clearness of style and accuracy of judgment he is second to none. His enthusiasm shines forth on every page. His selection of the new and the useful from an extended discussion is intuitive. The last edition of "Advanced Bee Culture," as well as the new edition before, is made up of the best ideas of our best experts, properly classified and condensed by a master of the art of boiling down discussions.

I do not hesitate to say that this is one of the most valuable books on bees that was ever put out; and while its title would indicate that it is designed only for the advanced bee-keeper, yet I am sure that a large number of beginners in the business will find it exceedingly helpful and interesting, especially if they will take it in connection with some other work like the "A B C and X Y Z of Bee Culture," or any textbook designed especially for the beginner class.

Nearly 500 Subjects Pertinent to MODERN Bee-keeping are Authoritatively Discussed

ADVANCED BEE CULTURE is a beautifully printed book. Best plate paper has been used throughout its 200 pages, with the result that the many fine illustrations are unusually clear in every detail. The book has been bound in attractive and substantial cloth with clover design in natural colors on cover. All together it is a volume whose appearance and unquestionable worth justly entitle it to a place in the library of every bee-keeper. No more important work on this fascinating subject has recently appeared.

The A. I. Root Co., Medina, Ohio. GBC 10-15 1

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ADVANCED BEE CUTLTURE costs $1.00 per copy. GLEANINGS IN BEE CULTURE (semi-monthly) — known and read by bee-keepers throughout the world— price $1.00 for an annual subscription. It is our pleasure, however, to offer this interesting and most useful combination — the book here described and GLEANINGS one year, both for $1.50. It is a value you will very seldom find—really it is a good $2.00 worth for $1.50.

USE THE COUPON

The A. I. Root Co., Medina, O.

Gleanings in Bee Culture



VOL. XXXIX NOVEMBER 1, 1911 NO. 21

5 5 5 5 5 5

Buy Bee-Supplies in November!

Pay Cash and Save 5 per cent

WE are again prepared to offer a liberal early-order cash discount to those who are forehanded in anticipating their next season's requirements. For orders received during November, accompanied by payment, for goods for next season's use, we allow a discount of 5 per cent; during December, 4 per cent. As the season advances, the discount is reduced one per cent each month.

You can buy now at a lower price than you will be required to pay during the next year. . . . . .

This discount applies to goods listed in our general catalog except as follows: Paint, Porter bee-escapes, Bingham smokers, bees, queens, printed matter, cartons, honey-packages, tin and glass, bushel boxes, hotbed sash, honey-labels, seeds, and such seasonable goods. Where a large general order includes some of the excepted articles, not exceeding ten to twenty per cent of the entire order, the discount may be applied to the whole order.

Remember, we are offering you goods of the Standard Root Quality.

We are the largest manufacturers of bee-supplies in the world—manufacturing every thing from section-boxes and bottom-boards to honey-extractors, comb foundation and comb-foundation machines. More than 100 articles used by successful bee-keepers are listed in our annual catalog, which may be had free for the asking. Get acquainted with ROOT supplies—test our service.

The A. I. Root Co., Chicago, Illinois

213 Institute Place

R. W. Boyden, Manager **Jeffrey Building** **Telephone, 1484 North**

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"Falcon"

The Bee-keepers' Bee-Supplies

HIVES.—Perfect workmanship, clear lumber; every part fitting accurately—every hive guaranteed.

SECTIONS.—Of clear well-grained basswood, sanded on our automatic disc sander with polishing buffers. The only machine of its kind used to make sections.

FOUNDATION.—The season of 1911 the sales of **"falcon"** foundation doubled any previous record Our new machinery gives us the best equipment in the country. The **"falcon"** process, perfected by many years of wax-working, fits us to make foundation which delights the bees.

Extractors, Smokers, Shipping-cases, Cans, Queens, Books, every thing for the bee-keeper made in our own modern plant.

In all of our goods we have been known to use much better lumber, much freer from knots, lumber which works cleaner with no ragged edges, than any other factory. "How do you do it?" is a question often asked us. It's a little secret, but if you visit our plant will show you. Yes, we will tell you if you write us.

Georgia and Florida Bee-keepers

No hives will stand the rainy season or the heat of the summer in the South better than **"Falcon"** hives. If you have not tried **"Falcon"** hives and supplies make it a point to do so this year. A full stock is kept by J. J. Wilder, Cordele, Ga. Take advantage of early-order discounts, and get prepared in the winter months.

Kentucky--Tennessee Bee-keepers

The name of our goods sold by the Fred W. Muth Company, 51 Walnut Street, Cincinnati, Ohio, has reached the ears of every bee-keeper. If you do not have his catalog send for a copy to-day, together with a list of 1912 needs for quotation less early-order discount.

Pacific Coast Bee-keepers

A carload of bee-supplies made up of individual orders goes forward about December 1, to be reshipped from the car direct at San Francisco. How would you, Mr. Large Bee-keeper, like to have nice fresh clean hives, sections, foundation, and other supplies, including the smallest items, packed complete and loaded at the factory where every thing is new, and best equipment for doing the work, and lowest carload prices less early-order discounts? Send Mr. John C. Frohliger, 257 Market Street, San Francisco, Calif., a list of the goods you want to come in this car, and he will take pleasure in quoting you. Write to-day; don't miss this rare opportunity.

Dealers in every State, in every country on the globe. Write for nearest one to you.

Early-order discounts at all **"Falcon"** dealers: November, 5 per cent; December, 4 per cent, etc.

W. T. Falconer Mfg. Company

Where the Good Bee-Hives Come from

Factory: FALCONER, N. Y. . . or . . 117 No. Jefferson St., Chicago, Ills.

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

COLUMBUS.—We quote fancy white comb, 19; No. 1, 18; No. 2, 15. Receipts light and demand good.
Columbus, Oct. 22. THE EVANS & TURNER CO.

CHICAGO.—The market is quite strong on fancy white comb honey; other grades of comb honey are neglected. The best grades of white are bringing from 17 to 18, with the amber ranging from two to five cents less, according to color and quality. Extracted white brings from 8 to 9, and the ambers from 7 to 8, with a good demand for all grades. Beeswax steady at from 30 to 32, according to color and cleanliness.
Chicago, Oct. 17. R. A. BURNETT CO.

ALBANY.—There has been no change in the honey market since our last, except some increase in receipts of mixed and off grades of clover and buckwheat. White honey is very scarce at any price. We quote it 17 to 18; off grades, 13 to 15; buckwheat straight, 14; off grades, 12 to 13. The same condition applies to the extracted market—no white, and a superabundance of mixed and amber grades. We quote State and Eastern white clover, 9½ to 10; mixed, 8 to 9; amber and buckwheat, 7½ to 8. Beeswax, 30 to 32.
Albany, N. Y., Oct. 21. H. R. WRIGHT.

NEW YORK.—The demand for comb honey is good, especially for all grades of white. Receipts, however, on account of the short crop, are rather light. We quote fancy white at from 16 to 17; No. 1 at from 14 to 15; No. 2 at 13; mixed and buckwheat, from 10 to 11. Extracted also is in good demand, especially the lighter grades. We quote California water-white at 10; white, 9 to 8½; light amber, 8 to 8½; white clover and basswood, 9 to 9½; buckwheat, 7½. Beeswax is quiet at 30.
New York, Oct. 18. HILDRETH & SEGELKEN.

DENVER.—Warm weather and an abundance of fruit has had a depressing influence on the local honey market, and, for that matter, also on the carload business. We are quoting our local market in a jobbing way as follows: No. 1 white comb, per case of 24 sections, $3.15; No. 1 light amber, $2.92, and No. 2, $2.70. White extracted, 9 to 10; light amber, 8 to 9; amber strained, 7½. We are paying 25 cts. cash and 27 in trade for clean yellow beeswax delivered here.
THE COLORADO HONEY PRODUCERS' ASS'N.
Denver, Col., Oct. 18.

Continued on page 5.

WANTED!

Comb and Extracted Honey

Let us hear from you with your best price on your Comb and Extracted Honey, freight paid to Cincinnati. We buy every time price justifies. No lot too large or too small. We remit day shipment arrives.

THE FRED W. MUTH CO.

51 Walnut Street "The Busy Bee Men" **Cincinnati, Ohio**

Trade a Part of Your Honey Crop for Supplies for Next Season; Send Your Order NOW and Save 5 per cent

We are in the market for honey, both extracted and comb, in carload lots and less. We should like to have samples and lowest prices on your crop, and will advise you immediately what we can use, and treat you right.

May be you would like to send us a shipment of honey in payment of an early order for bee-supplies. No better time to do this than in November. Send sample of your honey and get our prices—tell us what supplies you will want, and we will try to accommodate you. Your supply order may be made up from our regular catalog, and you may deduct our special early-order discount of 5 per cent for November.

Only a few articles listed in the big WEBER LINE of Bee-supplies are excepted from this discount. On paint, Porter bee-escapes, Bingham smokers, bees, queens, printed matter, cartons, honey-packages (tin and glass), bushel boxes, hotbed sash, honey-labels, seeds, and such seasonable goods, the discount is not allowed; but where a large general order includes some of the excepted articles, not exceeding ten to twenty per cent of the whole order, the discount may be applied to the whole order.

If you have mislaid our catalog sent you at the beginning of the season, let us mail another. It's worth your while to make up your order now and send it to us with a cash remittance. You can buy your supplies for next season cheaper than at any other time during next year.

Save freight by ordering from Cincinnati. This is an item worth looking after.

C. H. W. Weber & Co.

2146 Central Ave. Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT, Editor — A. I. ROOT, Editor Home Dept. — H. H. ROOT, Ass't Editor — J. T. CALVERT, Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, Mrs. H. G. Acklin.

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CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES. We give notice just before expiration, and further notice if the first is not heeded, before discontinuing. Subscribers are urged to renew promptly in order to avoid interruption in receipt of GLEANINGS; or, if unable to make payment at once, to advise us when they can do so, which will be considered as an order to continue. Any one wishing his subscription discontinued should so advise us upon receipt of expiration notice, and he will not be annoyed by further notices.

HOW TO REMIT. Remittances should be made by draft on New York, express-order or money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by registered letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

FOREIGN SUBSCRIPTION AGENTS.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

PARIS, FRANCE. E. Bondonneau, 120 Ave. Emile Zola, Paris. *Per year, postpaid, 8 fr.*

GOODNA, QUEENSLAND. H. L. Jones. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6/7 p.*

DUNEDIN, NEW ZEALAND. Alliance Box Co., 24 Castle St. *Per year, postpaid, 6/7 p.*

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Extracted HONEY Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department

Washington Blvd. and Morgan St.

Chicago, Ills.

CINCINNATI.—The market on comb honey is fair to good, and retails, single cases, $4.00; jobbing, $3.60 to $3.75, according to quantity—that is, for No. 1 white comb honey; no demand for off grades or No. 2. Extracted dark, in half-barrels, 6½; light amber, in 60-lb. cans, 8½; white table honey, 10 to 11. Beeswax, fair demand, $33.00 per 100 lbs. These are our selling prices, and not what we are paying.

C. H. W. WEBER & Co.

Cincinnati, Ohio, Oct. 21.

CINCINNATI.—There is considerable honey coming in. Strictly fancy comb honey is selling from 16½ to 18; amber comb honey is a detriment to the honey business, and we discourage its sale for the reason that buyers buy it just because of price, and are unconscious of the great harm they are doing to the trade in general. Extracted honey is plentiful. While the price holds up pretty well, there is a world of it to be bought. We are selling amber extracted honey from 6 to 7½, according to the quality and quantity purchased; and for strictly fancy water-white table honey, 10 to 11. We are paying 28 to 30 cts. for choice bright yellow beeswax delivered here.

Cincinnati, Oct. 21. THE FRED W. MUTH CO.

SCHENECTADY.—Since our last report, receipts of comb honey have been more liberal, most of it inferior clover and buckwheat. No. 1 white is very scarce; white extracted is also scarce. Buckwheat appears to have been a good yield, but as yet there is not much demand—no change of note in price of either comb or extracted. We much prefer consignments of honey packed in suitable shipping-cases. We have had two shipments badly broken recently, causing us much trouble, and depreciating the value of the honey much more than the cost of carriers would have been. One railroad refused to receive a consignment for us, which necessitated transferring to another line, because it was not crated.

Schenectady, Oct. 17. CHAS. MACCULLOCH.

THE NATIONAL BEE-KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey.

MEMBERSHIP DUES

One dollar a year.

OFFICERS AND EXECUTIVE COMMITTEE

PRESIDENT.—George W. York, Chicago, Ill.
VICE-PRESIDENT.—W. D. Wright, Altamont, N. Y.
SECRETARY.—E. B. Tyrrell, Detroit, Mich.
TREASURER AND GENERAL MANAGER.—Newell E. France, Platteville, Wis.

Are you a member? If not, why not send the annual dues ($1.00) at once to Treasurer France? Every progressive bee-keeper should be a member of this, the greatest bee-keepers' organization in North America.

HONEY-JARS

No. 25 jars, the best made, $5.00 per gross.
Light honey, 9¼c lb.; amber, 8¾c lb.
Catalog of every thing a bee-keeper uses, free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

CHAS. ISRAEL & BROS.

488-490 Canal Street, NEW YORK

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments solicited. Established 1875.

KANSAS CITY.—The receipts of both comb and extracted honey are more liberal, with fair demand. We quote No. 1 white comb honey, 24-section cases, $3.50; No. 2 ditto, $3.00 to $3.25; No. 1 amber ditto, $3.25; No. 2 ditto, $2.75 to $3.00; extracted white, per lb., 8½ to 9; amber, 7½ to 8. Beeswax, 25 to 28.

C. C. CLEMONS PRODUCE CO.

Kansas City, Sept. 23.

LIVERPOOL.—Stocks are getting very low, and there were about 63 barrels of Chilian sold last week from $6.24 to $7.92 per cwt. from store. There is a quantity of Haitien on hand, but buyers do not fancy the quality, which is of the low type. Other kinds are nominally worth as follows: Californian, $8.40 to $10.08; Jamaican, $6.00 to $6.72. Peruvian, $3.84 to $4.80; Haitien, $6.00 to $7.56. Now that the winter is coming on, we anticipate a better demand all round. The beeswax market is steady, with a fair demand. Sales of Chilian have been made at $34.48 to $38.72 per cwt. from store. Other kinds are quoted, African, $32.64 to $34.48; American, $37.48; West Indian, $27.80 to $36.28.

Liverpool, Sept. 26. TAYLOR & CO.

ST. LOUIS.—The honey trade is good on choice comb honey as well as on choice extracted. The lower grades of both, however, are neglected. Choice comb honey advanced about 1 ct. all round. We quote fancy white comb honey, 18; No. 1, 16 to 17; light amber, 15 to 16; dark, 9 to 11. Broken and leaking honey is almost unsalable; nominal, 7 to 8. Extracted honey is in good demand, quotable, white, at 9½; light amber, 8½ to 9 for California and choice nearby. Southern honey in barrels, 7 to 7½; in five-gallon cans at 8½ for light amber. Dark Southern honey is not wanted; nominal at 6 to 6½. Beeswax, prime, 30; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Oct. 21.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873 CIRCULATION 35,000. 62 pages Semi-monthly

A. L. BOYDEN, Advertising Manager

ADVERTISING RATES.

Twenty-five cents per agate line, flat. Fourteen lines to inch.
SPACE RATES. To be used in one issue: One-fourth page, $12.50; one-half page, $25.00; one page, $50.00.
Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover, 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.
Column width, 2⅝i nches.
Column length, 8 inches.
Columns to page, 2 (regular magazine page).
Forms close 10th and 25th.
Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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All Exhibition and Sample-room Hives, Extractors, and other Bee Fixtures are being offered at reduced prices in order to make room for new goods. Better write to-day and save from ten to fifteen per cent. **FIVE PER CENT SPECIAL DISCOUNT** is allowed on all orders for new stock purchased from us this month for immediate or future shipment, so send list of your requirements if you want to purchase Bee Supplies, the best that are made, at absolutely rock-bottom prices.

Do not forget our Bee-Book, "**How to Make Money in Bees.**" which is a complete guide to profitable bee-keeping, tells you how to buy bees, what are the best bees to buy, how to locate the hives—in fact, tells you all that you will need to know to make bees highly profitable as a business or for pleasure.

With this book goes our large, illustrated catalog, sent free of charge.



BLANKE MFG. & SUPPLY CO.
Successors to
Blanke & Hauk Supply Co.
Blanke Building
St. Louis, Missouri

A $10 Golden Breeder at $5!

to all who will order one before Nov. 20, 1911. These queens will produce the brightest Italian bees known. Very gentle, and as good honey-gatherers as can be found anywhere. I'll challenge the world on color.

J. B. BROCKWELL, . . . BARNETTS, VA.

Queens of MOORE'S STRAIN of ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. My queens are all bred from my best long-tongued, three-banded, red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES—Untested, $1.00; six, $5.00; 12, $9.00; 24, $16.00; 50 or more, 60 cts. each. Safe arrival and satisfaction guaranteed. Descriptive circular free.

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. Moore, Queen-breeder, Rt. 1, Morgan, Ky.

Clark & Pike

LANDSCAPE ENGINEERS

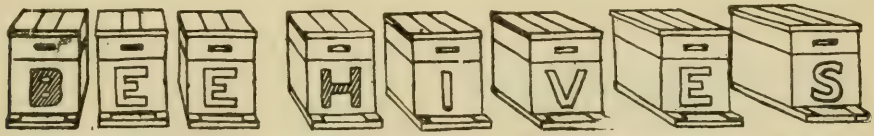
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Bee-keepers should bear this in mind when ordering their supplies. . A full line of supplies always in stock. . . . . Send for catalog.

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are our specialty. Winter your bees in PROTECTION HIVES. Liberal early-order discounts.

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Write for fall discounts—we can save you money.

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128 Grand Avenue

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Patent Practice in Patent Office and Courts.

Patent Counsel of The A. I. Root Co

2 Years for $1 or New Bee-book Free

No. 1.—We have some extra back copies of the American Bee Journal for each month of 1911; and so long as they last we will send all these copies and to the end of 1912 (to a *new* subscriber) for only $1.00. This makes two years for the dollar. Better send in your dollar *at once* and take advantage of this offer. It surely is a big bargain in bee-literature you should accept if not now a subscriber. Why not order *to-day?*

No. 2.—We have had Mr. C. P. Dadant revise Newman's "Bees and Honey" book of 160 pages, making it now nearly 200 pages, with over 150 illustrations. It is called "First Lessons in Bee-keeping." Just the book for Beginners. Bound in strong paper cover, with brood-comb illustration. Price 50 cts. postpaid, or we will send it (to a new subscriber) with American Bee Journal *from now to the end of 1912*—all for only $1.00.

Sample Copy of the American Bee Journal Free. Address

George W. York & Co., 117 No. Jefferson St., Chicago, Ills.

. . The . .

White-Honey Season

is nearing to a close, and
your next need will be

Shipping-cases

Your orders for cases will
have our prompt attention

The A. I. Root Company

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4%

Deposit your savings here, pending permanent investment.

The advantages offered are: Unquestioned safety and four per cent interest, compounded semi-annually.

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Under ordinary circumstances all or any part of your deposits may be withdrawn at will.

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A. T. SPITZER, Pres. E. R. ROOT, Vice-pres.
E. B. SPITZER, Cashier



Established 1885
WE CARRY AN UP-TO-DATE LINE OF
Bee-keepers' Supplies
Write for our 50-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle the best make of goods for the bee-keeper. Freight facilities good. Let us hear from you.

JOHN NEBEL & SON SUPPLY CO., High Hill, Mo.

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remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

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J. B. MASON, Manager

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and Supply Catalog. You will save money if you buy direct from my factory. I make the finest polished sections on earth. I want to prove it to you. Send me your order for sections, or any thing in bee-supplies. 45,000 brood-frames at $1.50 per 100 as long as they last; size is 9 1-8 in. deep; top-bar is 19 1-16 in. long, V-shape or two-grove and wedge, or Simplicity, all loose-hanging frames. 65,000 section-holders at $1.00 per 100 as long as they last. They are nicely dovetailed and are for 4 1-4 by 4 1-4 by 1 1-2, and for 4 by 5 by 1 3-8 sections. Carload section orders a specialty.

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Save from 25c to 50c on the $

By getting a copy of our Free Book

It will save you money on every magazine or paper you read.

This book contains 64 pages; gives the descriptions, prices, club rates, etc., of hundreds of periodicals and poultry books, and costs you nothing.

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Who Seek a Market for

SURPLUS ... STOCK OR **EGGS FOR HATCHING**

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The close alliance of these two industries makes this a profitable medium for poultry advertisers.

The single-insertion rate is 25 cents per line of about seven words, but there are liberal discounts for regular advertisers, as explained in a new booklet—"WHY Gleanings in Bee Culture Pays People who Advertise Poultry, and WHAT it Costs to Reach its Readers." Ask for this booklet—it is free.

EARLY ORDER DISCOUNTS

Sept. and Oct., 7 per cent
November, . 6 "
December, . . 5 "
January, . . 4 "
February, . . 3 "
March, . . 2 "

These discounts apply to cash orders for goods for next season's use. They do not apply to glassware or tin cans.

Careful buyers get Root Goods early, and have them ready for business before spring.

Remember we have the Hilton Hive for Northern Michigan bee-keepers.

Beeswax wanted.

Honey wanted.

Take advantage of the discount.

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Lansing, Michigan

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By Reese V. Hicks, Editor of Poultry Culture and President of the American Poultry Association.

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All For Only $1.50

This Great Offer is made for a Limited Time Only, so get your subscription order in the mails at once if you want the two free books. Money back if you are not satisfied.





"Tricks of the Poultry Trade." This book is different from any other book, and it gives you not only the good side of many "tricks," "methods," and "systems" of poultry raising, but also points out the weakness of each so-called "system," etc. It leaves you to select a method that will suit you after showing you the weakness of each. It is the result of years of practice, investigations and observations on big poultry farms. It is not a one-idea or one-man book, but the experiences and discoveries of many. You need it if you are in the poultry business. No matter if you are an old breeder or a new one, you can get pointers from this book that are worth money to you every day.



"The Townsend Bee Book," By E. D. Townsend. Written by one of the most progressive, successful, and extensive bee-keepers in the United States. This new book has been in great demand from the day of its announcement. Tells how to make a start with bees, benefits beginners and experienced bee-keepers. 90 pgs; paper bd

"Poultry Culture." A Journal of Practical Hen-sense." Large 4-column pages, each column thirteen inches long—the same size pages as the Ladies Home Journal and the Saturday Evening Post. Edited with a view to practical as well as fancy poultry raising. Every page has illustrations and reading matter of the highest class. Published at Topeka, Kansas.

"Gleanings In Bee Culture," The live, progressive bee authority of the country. No one with even a few bees can afford to be without it. The entire field of bee culture is covered thoroughly. Magnificently illustrated. Published at Medina, Ohio.

Mail this Coupon Today.

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MEDINA, OHIO.

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My Name.....

My Address.....

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MEDINA, OHIO

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Do You Love SWEETS?

Ralph Waldo Emerson Did

He said you can attain to royalty by loving sweets.

> "He who knows what SWEETS . . . are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man."

"HOW to come at these?"

Aye, there's the rub.

How many people miss them! and perhaps some of these many, strange to say, *keep bees.*

Want to know how?

Send $1.00 for a year's subscription to

The Guide to Nature
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It is edited by Edward F. Bigelow, a sweets extractor—in other words, "a bee-man" and a naturalist.

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Locate in this Land of Fortune. Make a good living — and a good profit — at raising bees and honey along with apples and other fruits. The clover and alfalfa fields of the Northwest make bee-raising specially attractive. . Ready markets and high prices for all you can produce. Delightful climate, fertile valleys, irrigated land, choice Government land open to Homesteaders along the

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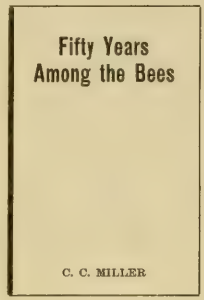
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or will pay cash for it in exchange for goods

DADANT & SONS, Hamilton, Ill.

This Book was Written by the . . . Nestor of American Bee-keeping

And it is a story which most vividly portrays the interest and enthusiasm which have marked the abundant success of one who has spent—



Fifty Years Among the Bees. . . . .

352 pages; illustrated throughout by the author; substantially bound in cloth; $1.00 per copy.

Read the Author's Preface:

In the year 1886 there was published a little book written by me entitled "A Year Among the Bees." In 1902 it was enlarged, and appeared under the title "Forty Years Among the Bees." In preparation for the present edition I undertook the revision with little thought of the number of changes to be made or the number of pages to be added in order to bring it up to date (about one-eighth being new matter), but it is hoped that the changes and additions may make it of more value to the reader. As I began bee-keeping in 1861, fifty years ago, the present name seems appropriate.

However much some personal friends may like the brief biographical sketch that occupies the first few pages, others may think that the space could have been better occupied. There remains, however, the privilege of skipping those few pages.

Most of the pictures are from photographs taken by myself or under my immediate supervision, at least so far as concerned "touching the button;" the Eastman Kodak Co. "did the rest." C. C. MILLER.

In his capacity as editor of "STRAY STRAWS," in GLEANINGS IN BEE CULTURE, Dr. Miller has become one of the most loved and widely read bee-keepers on the subjects pertainining to bee-keeping. This new edition of his popular book is sure to be in considerable demand.

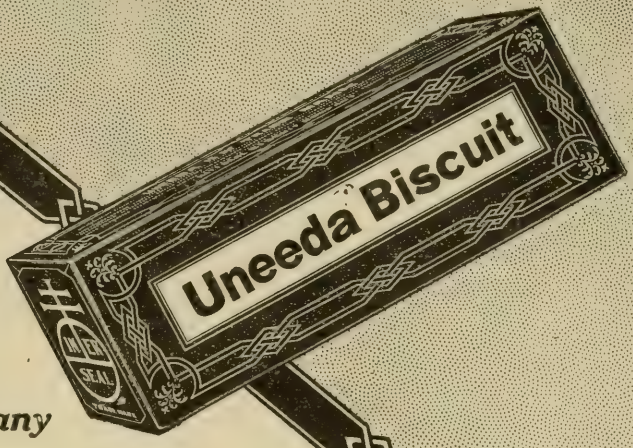
At the regular price of $1.00 per copy this book ought to find a place in the ready-reference library of every bee-keeper; but when offered in combination with GLEANINGS IN BEE CULTURE—one year, 24 issues of the biggest bee-paper in the world—the bargain is too good to miss. Send your order to-day!

Fifty Years Among the Bees, . $1.00
Gleanings in Bee Culture, 1 year, 1.00
The Two for Only . . . 1.50

To New or Renewal Subscribers Alike

Foreign postage, 60 cents extra; Canadian postage, 30 cents extra.

The A. I. Root Co. . . Medina, Ohio



In Select Company

It's the very nature of a soda cracker to absorb moisture and foreign odors.

That's why the ordinary soda cracker remained so long in obscurity.

The advent of Uneeda Biscuit and the moisture-proof and odor-repelling package changed all this—for Uneeda Biscuit, the perfect soda cracker, keeps select company —its own.

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A Postal Brings The Big Stove Book

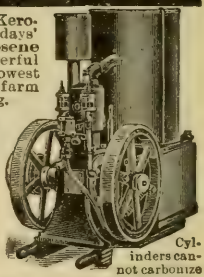
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Manufacturers
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Use KEROSENE Engine FREE!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves **kerosene** cheapest, safest, most powerful fuel. If **satisfied**, pay lowest price ever given on reliable farm engine; if **not**, pay nothing.



Cylinders cannot carbonize

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Amazing "DETROIT"

The "DETROIT" is the **only** engine that handles **coal oil** successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Basic patent—only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h.p., in stock ready to ship. Complete engine tested just before crating. Comes all ready to run Pumps, saws, threshes, churns, separates milk, grinds feed shells corn, runs home electric-lighting plant. **Prices (stripped), $29.50 up.**

Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate amazing, money-saving, power-saving "DETROIT." Thousands in use Costs only postal to find out. If you are first in your neighborhood to write, we will allow you **Special Extra-Low Introductory** price. Write!

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makes and burns its own gas. Costs 2c. a week to operate. No dirt, grease nor odor. A pure white light, more brilliant than electricity or acetylene. None other so cheap or effective. Agents wanted. Write for catalogue and prices.

THE BEST LIGHT CO.
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PEARL GRIT

Not an Expense, a Money Maker

Repays its cost over and over in bigger, healthier, better laying fowls. Grit that is more than grit. Aids digestion, gives appetite, supplies egg shell, bone and feather material. Send for booklet.

OHIO MARBLE COMPANY
759 S. Cleveland Street, Piqua, Ohio

This Poultry Guide Free



Tells you how to get twice as many eggs at ½ the cost for feed—what to do month by month—how to feed from chick to maturity, how to prepare home remedies. If you have 10 laying hens, you should get this great book. Write for it today.

HUMPHREY, Mine St. Factory, Joliet, Ill.

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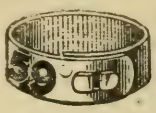


Sold direct to you at factory prices on **30 days trial.** Save the dealers profit. Farm, Hog and Poultry Fence at from

11½ CENTS A ROD UP.

All wires are heavily galvanized 80 rod spool of Ideal galvanized **Barbed Wire $1.40.** Write to-day for large free Catalog showing 100 different styles and heights of fencing

Box 21 **KITSELMAN BROS. MUNCIE, IND.**



IDEAL ALUMINUM LEG BAND

To Mark Chickens
CHEAPEST AND BEST

12 for 15c; 25—25c; 50—40c; 100—75c.
Sample Band Mailed for 2c Stamp.
Frank Myers, Mfr., Box 69, Freeport, Ill.



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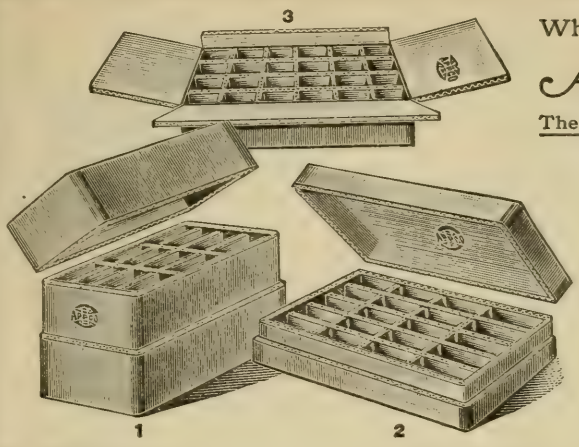
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You can double your egg yield by feeding fresh-cut, raw bone. It contains over four times as much egg-making material as grain, and takes the place of bugs and worms in fowls' diet. That's why it gives more eggs—greater fertility, stronger chicks, larger fowls.

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The APPCO Shipsafe for Shipping Honey.

The splendid appearance of your shipment on arrival has much to do with repeat orders.

APPCO Shipsafes do not split, tear nor smash. The hundreds of corrugated cushions take up all the jars and shocks of handling. When sealed are dirt and odor proof, are shower and thief proof, are collapsable, requiring but little storage room.

The stacking strength of APPCO Shipsafes excel wood up to three-eights inch thickness. No Nails, no Staples, no Packing, no Trash, etc.

APPCO Shipsafes are guaranteed the safest package ever devised for honey or any other product of this nature.

Order confidently, if at all in doubt as to their utility, write the Editor of this paper.

The Illustration shows in No. 1 a two-story Shipsafe made to carry 24 pound boxes of comb honey, price per 100, $17.50.

No. 2 shows a Shipsafe for 20 boxes of honey, per 100, $15.00.

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ALL PRICES F. O. B. ST. LOUIS.

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KITCHEN CABINETS

ASK your furniture-dealer for the BOONE Cabinet. It is cheaper, and excels all other makes for practical arrangement, substantial construction, and beauty of finish. Don't feel satisfied until you know about them. You'll be dissatisfied with all other styles when you see ours. If your dealer don't handle them write us, stating your nearest trading place.

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A practical car for busy bee-keepers



Here's just the car you want for those quick business trips — and to get the most enjoyment out of the hour or so that you and your family may have after the work for the day is done.

The Cartercar is most reliable because of the extremely simple and strong construction. No matter whether rain or shine it is always ready for the word "Go."

When you are in a hurry the Cartercar can be depended on to get you to your destination in double quick time. If it's just pleasure you seek, the car rolls along easily and noiselessly.

The friction transmission of the Cartercar makes it the most reliable yet the most enjoyable of all automobiles. This transmission is so simple that it does not get out of order—and it eliminates all jerks and jars in starting.

There are any number of speeds at your command. All are easily and noiselessly controlled by one lever. The farther forward the lever is pushed the faster the speed. When the lever is pulled back the speed is reversed.

The chain-in-oil drive is noiseless. The case is dust and grit tight and permits the chain to operate in oil, thus eliminating almost all wear on the chain.

The bee-keeper who drives a Cartercar has more time — can do more work — make more money—and knows the real joy of living.

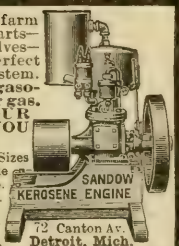
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Cartercar Company

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Sandow $37.50
2½ H.P. Stationary Engine—Complete

Gives ample power for all farm uses. Only three moving parts—no cams, no gears, no valves—can't get out of order. Perfect governor—ideal cooling system. Uses **kerosene (coal oil), gasoline, alcohol, distillate or gas.** Sold on 15 days' trial. **YOUR MONEY BACK IF YOU ARE NOT SATISFIED.**



5-year ironclad guarantee. Sizes 2½ to 20 H. P., at proportionate prices, in stock, ready to ship. Postal brings full particulars free. Write for proposition on first engine in your locality. (116)

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The advantages to be gained from a careful study of the advertisements in this issue are manifold. The publishers, well appreciating the requirements of our numerous readers, strive very hard to induce reputable concerns in every line to make their offerings direct to you through these columns. These advertisers are placing before you their products after most careful consideration of your interests. Their announcements are interesting and valuable, and you can well afford to read them over several times. If any of the products appeal to you, write to the advertiser and give him the opportunity to tell you more about what he has to offer; or you may address the Buyer's Bureau, and any article in which you may be interested will be investigated, whether advertised in this issue or not. Be sure to read the advertising pages.

Thankful expressions come from many of our readers who have discovered just what service this department is prepared to give. There are quite a few letters nowadays which begin, "I notice that you are offering to help readers of GLEANINGS who want to buy from your advertisers. This service will be very helpful to me. Won't you kindly tell what you think of ——, etc.?"

Letters similar to this show that our readers are interested in almost every class of goods. Some of our friends want to know about farm machinery, others about furniture or automobiles, and still others about poultry, incubators, and other articles. As the call for our service grows, our opportunity to help prospective buyers is broadened. We keep careful record of the information we obtain for each inquirer, and our Buyer's Bureau is accumulating a mass of detail which makes possible quick and satisfactory service.

One of the most interesting booklets we have ever published is a subscription catalog for the benefit of our friends who read GLEANINGS, and for bee-keepers everywhere who are not reaping the benefits to be gained through reading this journal regularly. This catalog is entitled "Money-saving Combinations on Books, Magazines, and Useful Articles with GLEANINGS IN BEE CULTURE." It is a booklet of 16 pages, and its greatest usefulness consists in the fact that it will help you to save money. There are several entirely new combination or clubbing offers in this booklet. You will certainly want to acquaint yourself with this offering before renewing your subscription to GLEANINGS or to any other magazine. A copy of our premium catalog will be mailed to you and to each of your friends, if so desired, upon request.

Just here it would be well to remind our readers that the publishers of GLEANINGS are prepared to handle subscription orders for any newspaper, trade journal, or magazine published in the world. Very often we can save you money on orders sent through us.

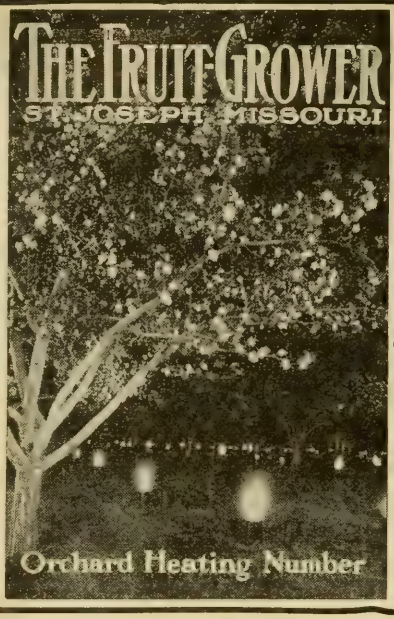
It is pleasing ineeed to note how carefully some of our readers plan for their own betterment. We are particularly reminded that a majority of our friends are progressive, and alert to their own best interests, through the receipt of the following letter just a few days ago:

> I am enclosing check for $3.85 -$2.85 to pay my back subscription to GLEANINGS, and to pay also for T. B. Terry's book, "How to Keep Well and Live Long." The $1.00 is to pay my yearly subscription to GLEANINGS and also for the Townsend Bee-book, as per your clubbing offer. This will give me some interesting as well as profitable reading for the winter months.

That our subscriber will benefit from reading this journal with its many features, and the Terry and Townsend books, there can not be the slightest question. Many others would do well to follow his example, and arrange for "interesting and profitable reading for the winter months." How does your subscription stand?







BIG MONEY IN FRUIT

GET THIS PROFIT MAKING COMBINATION

Save your crops from frost and get a big harvest every year.

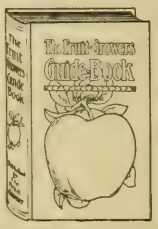

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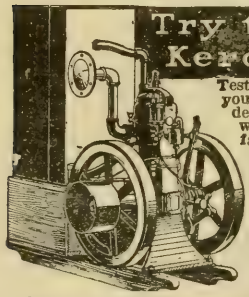
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Try the Wonderful Columbia Kerosene Engine at our Risk

Test it out on your own place for fifteen days. Give it the hardest engine test you can think of. Compare it with any other engine. If the Columbia doesn't develop more power at less cost, send it back quick. No conditions. We are willing to let you be the judge and jury. Kerosene (common lamp oil) is by far the cheapest fuel today. The price of gasoline is climbing all the time, while kerosene remains the same, and in the right engine, it lasts longer and produces more power per gallon than gasoline. You get ALL the power when you use a Columbia, because it is the right engine. It is the one really simple and perfect kerosene engine. It never bucks when you need it most. It is always on the job.

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We are going to double our output for next year. We can do it easily. It is just a matter of getting engine users to test the Columbia for themselves. So we are making a great special money saving offer on Columbia Kerosene Engines. This offer is liable to be withdrawn at any time, so write today for full particulars, for it is a money saver you would hate to miss. Free Book No. 66 full of engine facts you need to know, sent free.

Sizes 2 to 16 H.P.

Columbia Engine Co., 66 Fuller St., Detroit, Mich., U. S. A.

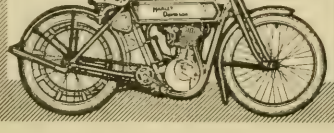
HARLEY DAVIDSON

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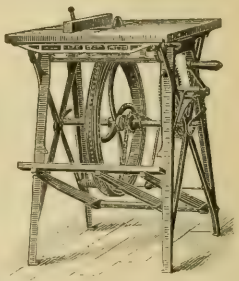
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BARNES' Hand and Foot Power MACHINERY



This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

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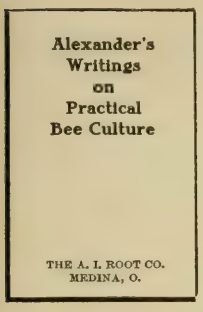
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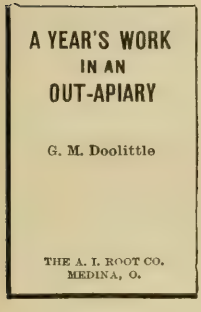
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By the late E. W. Alexander, who conducted the largest apiary in the United States. A wonderfully interesting discussion of bee-keeping in its broadest phases. Any one can understand it; 35 chapters; 95 pages; paper bound; 50 cts. postpaid.

$2125 in six months from 100 colonies of bees. The ordinary bee-keeper doesn't get this from his bees, and will probably say it can't be done, and yet that is exactly what E. W. Alexander did and what YOU can do if you use proper methods. No special location necessary, no special crops for forage, just scientific bee-keeping of the highest and simplest order.

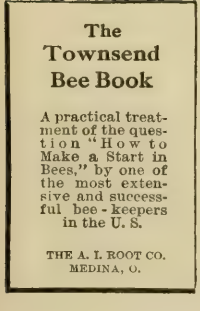


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By G. M. Doolittle. Packed full of most valuable information ever given to bee-keepers. A practical and interesting book by a very successful apiarist. Sale has reached nearly 5000 copies. 60 pages; paper bound; 50 cts. postpaid.

Here are some of the things Mr. Doolittle talks about:

Chap. 1. Putting the bees on summer stands.
" 2. An inspection of the brood-frames.
" 3. Bloom-time.
" 4. How to control swarms when running for comb honey.
" 5. A simple plan for making increase.
" 6. How to save unnecessary lifting taking off full supers.
" 7. Taking off surplus; what to do with unfinished sections
" 8. Progress in the supers.
" 9. A simple way to put on escapes without lifting.
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Table of Contents:

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" 2. What hive to adopt.
" 3. How to buy bees.
" 4. Folding sections and putting in foundation.
" 5. What to do just preceding the honey-flow.
" 6. Strong v. medium colonies at opening of the harvest.
" 7. How to take care of swarms.
" 8. Management previous to the honey-flow to prevent swarms.
" 9. The honey-flow.
" 10. Spring management.
" 11. Making up winter losses.

In combination with GLEANINGS IN BEE CULTURE for one year, any one of the above books may be had for the price of GLEANINGS alone, $1.00. Foreign postage, 60c extra. Canadian postage, 30c extra. . . . . Write plainly the name of the book you want when you send your subscription. This offer applies alike on new and renewal orders.

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Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

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FOR SALE.—White comb honey, choice article. Write for prices. THOS. ATKINSON, Cozad, Neb.

FOR SALE.—8000 lbs. of melilotus honey in 60-lb. cans, two cans per case, 9 cents per lb. f. o. b. Cochrane, Ala. JOE C. WEAVER, Fox Trap, Miss.

FOR SALE.—Nice white-clover extracted honey, thoroughly ripened, and fine flavor. Write for prices. D. H. WELCH, 834 Park Ave., Racine, Wis.

FOR SALE.—Water white and light-amber alfalfa and light-amber fall honey, put up in any size packages. First class. DADANT & SONS, Hamilton, Ill.

FOR SALE.—Fall honey of fine flavor; light, dark amber, 10 cts., 8 cts., in 60-lb. cans, 1 or 2 in case. Small sample free.
EDW. REDDOUT, Baldwinsville, N. Y.

Light-amber extracted honey, principally from cotton bloom, in new 60-lb. cans. Price 8½ cts. per lb. f. o. b. Bogart, cash with order. Samples free.
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FOR SALE.—Amber comb, also No. 2 white comb, at $3.00 per case of 24 sections; also ten cases No. 3 at $2.50; dark and amber extracted at 8 to 9 cents.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

RASPBERRY HONEY.—We have a few cans to sell yet of this fine honey. It was left on the hives until it was all sealed and thoroughly ripened. It is thick, rich, and delicious. A good large sample for 10 cents, which may be deducted from any order sent for honey. It is put up in new 60-lb. tin cans. Price, per can, $6.00.
ELMER HUTCHINSON, Pioneer, Mich.

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WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—Extracted honey, both white-clover and basswood, in cans. State price.
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WANTED.—To buy amber and dark extracted honey; to sell, second-hand 60-lb. cans.
A. G. WOODMAN CO., Grand Rapids, Mich.

WANTED.—White honey, both comb and extracted. Write us before disposing of your crop.
HILDRETH & SEGELKEN,
265 Greenwich St., New York.

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WANTED.—Cheap, bees in box or frames, for cash.
WILEY A. LATSHAW, Carlisle, Ind.

WANTED.—50 to 300 hives of bees for cash. Give particulars and price.
GEORGE LARINAN, Pasadena, Cal.

WANTED.—To exchange Root bee-supplies, either for money or honey. November cash discount, 5 per cent. Catalog. E. W. PEIRCE, Zanesville, O.

WANTED.—Apiarist to take charge at once, while owner is absent for two or three months. Possibility of permanent job. Will pay traveling expenses up to $110, and $8.00 a week while here. No objection to a man who uses tobacco, but does not spit on the floor, and is otherwise neat about his person. This is a good chance to see some of the world with expenses paid. W. J. YOUNG, Arecibo, Porto Rico.

For Sale

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

FOR SALE.—Choice winter apples in barrels or boxes. F. E. SCHRIVER, Rt. 3, Grafton, O.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case.
C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—14 Root chaff hives complete, ten-frame, with telescope cover, super cover, chaff tray, at $1.50 each; also 8 Root eight-frame chaff hives at $1.25 each, in good condition.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—New crop of alfalfa seed; 4 pounds by mail, prepaid, $1.10; 50 to 100 lbs., 14½ cts. per lb. Sacks, 25 cts. extra.
R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successor to J. M. Jenkins.) Penn, Miss.

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FOR SALE.—A quarter-section 7 miles from county-seat, on running stream; 70 acres cultivated, 90 in pasture; new house and barn; hay-fork; 8 acres hog-tight; fruit; $53 per acre, or $55 with stock and crops. Possession now.
CARSON G. PEARCE, Eldorado, Kan.

FOR SALE.—15 acres land, fine for bees, chickens, hogs, or truck-garden; alfalfa valley, excellent for bees; good local market, 2 miles from city; well improved; all small tools and farm machinery, and 65 colonies of bees included. Price $3700. Terms.
SORENSON & BURBANK, Miles City, Montana.

Fruit lands, general store in English colony; apiary locations for sale, rent, or trade; bees, queens, honey, wax, hives, and other supplies; fine opportunity for tropical bee-man with small capital; climate and lands finest in the world. Gather honey the year round.
D. W. MILLAR, Los Pasos, Oriente, Cuba.

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Bees and queens of quality. Supplies. Catalog.
Stringham, 10 Park Place, New York City.

Fine warranted queens ready to mail at 75 cts.; 6 for $4.00. J. B. CASE, Port Orange, Fla.

FOR SALE.—22 colonies Italian bees, $100.
WM. DAVENPORT, 2300 Lunt Ave., Chicago, Ill.

FOR SALE.—55 colonies of full-blooded Italian bees; 100 hives and 200 supers. Write for prices.
AL CLEM, Harper's Ferry, Iowa.

Missouri-bred Italian queens; none better; prices right. Write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction.
W. W. DAKIN, Hood River, Ore.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Bradley's Store, Va.

Golden queens — very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white sheeted lids; each neat, modern, and full of stores—any time.
Jos. WALLRATH, Antioch, Cal.

FOR SALE.—175 colonies of bees in 8-frame hives, run for comb honey, with 500 comb-honey supers, and about 35 full-depth hive-bodies filled with honey for next season's feeding. I am close to the Nevada State-line. No foul brood in this valley.
H. CHRISTENSEN, Coleville, Mono Co., Cal.

Poultry

A few choice W. C. B. Polish cockerels and pullets, $1.50 each. E. Y. SAFFORD, Salem, N. Y.

Our Buttercups are beauties. Write for prices.
RIVERVIEW POULTRY FARM, Union City, Mich.

FOR SALE.—Buttercups, Dumaresq strain; also a gasoline-engine, planer and matcher.
CLAUD IRONS, Linesville, Pa.

April-hatched Indian Runner ducks, fawn and white; $2.00 each; $3.50 a pair; $5.00 per trio. White-egg strain. KENT JENNINGS, Mt. Gilead, Ohio.

INDIAN RUNNER DUCKS.—Full-grown young stock for sale, either fawn and white or penciled, from best strains in America. Eggs for hatching. All sales guaranteed as represented.
C. O. YOST, Rt. 4, Winchester, Ind.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St. Joseph, Mo.

Miscellaneous

Fountain pens from $2.00 to $3.75. If not satisfactory you may return the pen and I will return the money. E. F. PATTERSON, Box 96, Montrose, Col.

Special magazine offers. World To-day, Cosmopolitan, Good Housekeeping, and Gleanings, $4.00; Woman's Home Companion and Gleanings, $2.00. Above magazines may be sent to different addresses if desired. Send for catalog.
C. L. COLE, Medina, O.

FOR SALE.—Two Remington typewriters, good as new, cheap; one six-inch foundation-mill, $6.00; 100 lbs. propolis, $20.00; 30,000 folding cartons for 4¼ plain sections, $3.00 per 1000; 150 dovetailed ten-frame supers, with section-holders, cheap.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

THE BEE-KEEPERS' REVIEW.—Have you read it? Just the journal for both beginner and expert. Tells the former in plain simple language just what the latter is doing; helps the matter by giving all latest methods. Send 15 cts. in stamps for a three-months' trial subscription. Agents wanted in all localities. Subscription price $1.00 per year.
E. R. TYRRELL, Editor and Publisher,
230 Wooland Ave., Detroit, Mich.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, $1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school.
W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1911; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 60 cts.; select, 75 c.; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices see large advertisement.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Convention Notices

The annual meeting of the Pennsylvania State Bee-keepers' Association will be held in the court-house, Lancaster, Pa., Dec. 1 and 2. This promises to be the most important meeting yet held. Every bee-keeper is invited to be present. Matters of interest will come up for discussion. An examinrtion for volunteer apiary inspectors will be held at the same time. H. C. KLINGER, Sec.
Liverpool, Pa., Oct. 20.

ENGRAVINGS for "GLEANINGS"
MADE BY GRAY PRINTING CO., Fostoria, O.

Special Notices

By Our Business Manager

QUEENS.

As we go to press we have a very limited number of select tested queens which we can send out by return mail. We can let these go for $3 each on immediate cash orders. They are young queens of this season's rearing, and are excellent value.

COMB AND EXTRACTED HONEY.

We have some very choice lots of buckwheat and amber comb honey which grade No. 1 and No. 2. The amber lots are practically all white honey, but the cappings are slightly discolored; and as we maintain a high grade for our white honey, these lots are marked "amber." If you have any trade for such lots our prices will be of interest to you.

We have a good supply of sweet-clover and alfalfa extracted honey on hand. The quality is good. Samples free.

REMOVAL SALE.

We have the following special bargains to offer from our New York warehouse. The items vary a little from regular equipment, and for that reason we offer it at special prices to close out, rather than move to new quarters. In order to secure any of this at these prices, orders must be sent at once.

Ten-frame Dovetailed hives, with regular ⅞-inch bottom-board, thick-top staple-spaced frames, metal-roof cover, and bee-escape board for super-cover; regular price $15.50 for 10; will sell on immediate cash order at $12.50 for 10; 50 for $60.00; 100 for $115; 500 for $550.

Ten-frame bodies, or upper stories, with thick-top staple-spaced frames; regular price $8.80 for 10. We offer these at $7.50 for 10; 50 for $35.00; 100 for $65.00; 500 for $300.

Ten-frame bodies, or upper stories, with metal-spaced frames; regular price, $9.30 for 10; will sell at $8.00 for 10; 50 for $37.50; 100 for $70.00.

Combined bottom and hive-stand; regular price, $3.20 for 10; eight-frame, offered for $2.50; and $3.50 for ten-frame, offered at $2.80.

Old-style tight-bottom chaff hives, with telescope cover, super cover, chaff-tray frames, and foundation starters, 15YW6 | 8; old price, $39.00; will sell for $33.75.

15 YW6 | 10; old price $40.50; will sell for $35.00.

10XW7 | 10, same as above, with extra-deep cover and full sheets of foundation; old price $34.00; will sell for $29.50.

1 Boardman wax-extractor, in good condition; has been used. Price $3.00.

1 German wax-press, second-hand, in good condition. Price $5.00.

16 double flat covers, with paper, 10 frames; offered at 30 cts. each.

65 same, 8-frame, offered at 25 cts. each.

800 Hoffman frames with end-bars having square edges, offered at $2.50 per 100.

2500 Hoffman frames with molded top-bar instead of double groove and wedge; offered at $2.50 per 100; $22.00 per 1000.

1 No. 17 Cowan extractor; new, but without ball bearings, slip gear, or die-molded gear-wheels; offered at $11.00.

Special Notices

By A. I. Root

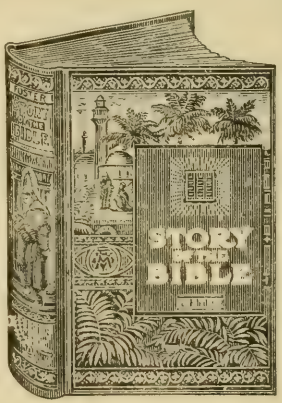
FORECASTING A LAYING HEN; THE LATEST ADVICES.

There are several reasons why we are short of "hen fruit" just now. It is moulting time, and we have only 13 hens, and they are all old biddies—that is, our hens up here in Medina. There is one beautiful matronly White Leghorn hen, however, that is still laying; but we get only one egg a day, and not quite that. Last Sunday she did not lay at all. Monday forenoon she laid an egg, and another on Tuesday afternoon. About that time I forecasted, for Mrs. Root's benefit, that on Wednesday there would be no egg, and there was none. Then I said there would be an egg on Thursday forenoon, and it came to pass. Again, I predicted an egg on Friday afternoon. Between one and two on that afternoon I found her on the nest. To-morrow, Saturday, Oct. 28, there will be none, and so on. Now, I am watching that Leghorn hen with as much interest and enthusiasm as an astronomer watches for the coming of a comet; and, my good friends, if you too have a hen that lays two eggs, then skips, and so on, just keep her and give her good care, for she is worth considerable if not more.

Oct. 30.—"Forecast" O. K. Hen lays at 10 A.M.; next day at 2 P.M.; then skips a day.

STORY OF THE BIBLE.

Those who have read Gleanings for twenty years or more will remember what was said about the Story of the Bible, or, rather, how *much* was said about it over twenty years ago. I do not know just how I got hold of it; but as it is a good-sized book, with the whole Bible in regular order in language so plain that a child can understand it, it appealed to me at once. Of course I took it home and showed it to Mrs. Root and the children. Our boy Huber, then nearly ten years old, took a great fancy to it. I remember he would take it with him to the table, and while he was chewing slowly a mouthful of food (according to the directions of Terry and Fletcher) he was also taking into his young life the characters described in the Story of the Bible. After a time he read the book clear through, then turned over to the beginning and commenced reading it through again. After he had read it *twice*, and had begun reading it the third time, I made a gentle remonstrance. I told him there were other valuable books within his comprehension that should receive *some* of his attention. Huber is now grown up, has a wife and a home, and a girl big enough to look at the pictures in the Story of the Bible, and she will very soon begin reading it.



I do not know exactly how it is that we stopped keeping the Story of the Bible in stock, as there has been a continual demand for it more or less during the twenty years that are past. Especially when Christmas is approaching, many wise and thoughtful parents think of this beautiful book as a Christmas present. If I am correct, the original author, Charles Foster, is dead; but a son of his has been for some time at work in getting out a new enlarged and revised edition. There are now over 700 pages in the book; and as it weighs about 3 lbs. the postage on it alone is 24 cts. There are 300 beautiful illustrations in it. As a rule I do not greatly admire Holy-Land pictures, such as we have in some of our Sunday-school books and papers; but the illustrations in this are beautiful and wholesome. And besides these pictures there are four or five colored plates that are gems of art. The publisher informs me that they are copies of valuable old pictures in his possession. This book is not only a valuable one for children, but many a grown-up man and woman will find it a great help in straightening out the chronology of the Bible. For instance, in our recent Sunday-school lessons in Isaiah, Jeremiah, and Ezekiel, we have had passages referring to events described in the earlier parts of the Bible in chronological order. But the Story of the Bible places all of these events in the order in which they occurred. It is in many respects an exceedingly clear and plain commentary on the Bible. Nothing can help our nation, and, for that matter, nothing can help the great wide world more, in my opinion, than to let the young people, even at a tender age, begin to get as much knowledge as possible of the Bible. And this reminds me that quite often, when I have been trying to recall something in the Bible, Huber would help me out, and he

would have it correct because he had gotten his information from that diligent study of the Bible in his early years.

Perhaps I had better confess to you that I am not very much in favor of Christmas presents—that is, as they are ordinarily managed, giving people things they do not need, and then making them feel that they are in duty bound to remember the giver at some future time by giving *him* something he does not need and does not want. I *do* believe, however, in rewarding merit and good behavior; and I believe, too, in placing good and useful books in the hands of children—books like the one under consideration that will help in molding a good character. I think I make no mistake in saying that just *now* the Bible is valued and read more than ever before since the world began. It is now printed in something like 300 languages—that is, whole or in part; and it may not be out of place for me to state that the work of printing the Bible has resulted in giving an alphabet and a printed form to fully 150 languages. Of what other book can that be said?

In a recent letter from the publisher of this book he told me that up to date 730,000 copies of the Story of the Bible had been sold.

The regular price of the book is $1.50, including postage; but by a special arrangement we are enabled to furnish it clubbed with GLEANINGS for only $1.50 if you will send 24 cts. also to pay for postage; and all subscribers who have already paid for GLEANINGS one year or more in advance may have the book for an even dollar if they will send 24 cts. also for postage.

Fifteen years, we are told, were spent in hard and diligent work in studying the Bible and making this book not only a plain but *accurate* record of what actually transpired, according to the facts furnished us in the Bible.

Later.—There are two things I wish to add to the above. The first is that this part of the Story of the Bible covering the New Testament is a splendid "harmony" of the gospels. I have just examined it in regard to the crucifixion and resurrection, for instance, and it is one of the best brief summings-up of the four gospels I have ever come across. The other fact is that, instead of Huber's reading it through twice, his mother said he read that whole book through six or seven times. He was so young when he first got hold of it that it would not be strange if he did not remember exactly. But he says he is sure he read it through as many as *four* times before I began to protest, with the result that he has now and has had all his life a splendid birdseye view of the whole Bible—something of great value to any man, woman, or child; and I think even the enemies of the Bible, if there are any such in this *present* day and age, will be compelled to admit as much. In this age of information it is of vast importance that every person know just what *is*, and what is not, in the Holy Scriptures.

CONKEY'S POULTRY REMEDIES; A BARGAIN FOR SOMEBODY.

Some time ago our people took a lot of poultry remedies from the Conkey Co., of Cleveland, in exchange for advertising, printing, etc. At that time our company contemplated handling poultry supplies; but with the increase in our business we were obliged to give it up. We have now in stock to the value of $468 of these remedies, listed at regular prices. It includes the laying tonic that I used last winter—see page 153, March 1. Besides that, there is lice-powder, lice-liquid, head-lice ointment, healing salve, cholera cure, roup cure, gape cure, and taroline. The different remedies are put up in packages to retail at 10, 25, 50 cents, and $1.00 each. I expect to use some of the laying tonic myself. I am glad to say, however, that there are no vermin of any sort in my Florida poultry-yard, so at present I have no use for the other things. The taroline we are using all the time for keeping flies off our horses and cattle. I believe they are all good for what Dr. Conkey recommends them. In fact, I notice on several of the packages he says that if they do not effect a cure, and you will return the empty can, he will return the money; and so far as I know he does all he agrees.

Now we wish to dispose of these remedies; and I wish that some of you who are in the poultry business, especially those who are in the wholesale business, and have had experience with the above standard remedies, would make us an offer for the lot. If there is any thing in the stock that is not in good order, and ready for use, it will cost you nothing.

You will find a list of the remedies, price of packages, etc., on page 13 of the advertising department for March 1.

Books and Magazines.

THE BEST KIND OF FAMILY READING.

For your home, where the right influence counts for so much, choose the reading that quickens the pulse, that tells of deeds of daring, that takes the reader into strange parts of the world, and yet, with all its power to entertain, depicts honor, true manliness, gentleness, loyalty to principle, as the things of chief importance in life. It benefits while it entertains.

You will find such reading week after week in the pages of The Youth's Companion, contributed by the most popular story-writers, and by men and women whose names are famous in every field of enterprise and scholarship.

Send us your address on a postal card, and we will mail you the beautiful prospectus of The Companion for 1912, together with sample copies of the paper.

We think you will agree, when you have read them, that there is no other paper that gives quite so much of such a high quality as The Companion, and it costs only $1.75 now for the 52 weekly issues. On January 1, 1912, the subscription price will be advanced to $2.00.

The new subscriber receives a gift of The Companion's Calendar for 1912, in ten colors and gold, and all the remaining issues of 1911 free from the time the subscription is received.

THE YOUTH'S COMPANION,
144 Berkeley St., Boston, Mass.

HOW AN $1800 INCOME WAS SPENT.

The November Woman's Home Companion contains a suggestive article on "Experiments in Spending." The chief idea advanced is that every family ought to have a budget. Following is an extract from the article, showing how one $1800 man and his wife divide their income:

Mr. Allison is a California teacher with a salary of $1800 a year. He has before him the possibility of a college position and the probability of a long life with plenty of work. Mrs. Allison brews and bakes, and sews and gardens. Their financial outlook is very limited, for the average pay of the men teachers in the United States is not large, and only a few college positions go up into the thousands. Neither Mr. nor Mrs. Allison has any illusions about fortunate speculations, or specially created chairs in universities with vast salaries. They realize that their prosperity depends on what they can save out of their small but reasonably certain income.

Now, Mrs. Allison has a lot of business sense, and she began her housekeeping by organizing it on the basis of the least they could live on—put their expenses almost at the level of subsistence, as you may say, and then made every expense beyond that tell for their business advantage. Mrs. Allison didn't begin the budget plan consciously, but her system of accounting developed naturally into a habit of forecasting her expenses, and that grew into the carefully planned schedule which follows:

	Per month:	Per year:
Mortgage on house	$ 30.00	$360.00
Car-fare	5.85	70.20
Food	18.00	216.00
Wages	4.95	59.40
Gas	1.95	23.40
Electricity	1.50	18.00
Laundry	1.20	14.40
Clothes	18.75	225.00
Telephone	1.95	23.40
Insurance	7.65	91.80
Church	.90	10.80
Books, etc	5.40	64.80
Amusements	4.20	50.40
Incidentals	4.20	50.40
Savings	48.50	522.00
	$150.00	$1800.00

Early-Order
Cash Discounts

Apply Here just as They do at the Factory. . . . .

As Southwestern distributors of ROOT'S Satisfactory Bee-supplies, we are very glad to make this first announcement of a special discount for early orders, accompanied by cash, to our bee-keeping friends throughout this territory.

We give exactly the same discount that is granted by the manufacturers of these famous supplies, and the prices in our special catalog are the same as in their own. There is an extra saving for you in ordering from us—FREIGHT. Better give this your careful consideration before sending elsewhere.

The Cash Discount on Early Orders Placed in November is 5 per cent

This applies to every thing in the way of bee-supplies except a few special articles. On a large general order we will allow the discount on some of the excepted articles, not exceeding ten to twenty per cent of the entire order.

Remember We Manufacture the Famous Weed Process Comb Foundation

We have a big demand for this product, and are turning out comb foundation of the finest quality. Include what you will need for the opening of next season in your early order. Shipment may be held subject to your convenience if desired; but get your order in now and save 5 per cent.

Power Honey-extracting Outfit for Sale

We offer at a bargain price a new one-horse-power Gilson gasoline-engine and one eight-frame honey-extractor. Both of these have been used for demonstration only, and are as good as though they had just come from the factory. Seventy-five dollars takes the outfit. Full particulars upon request.

TOEPPERWEIN & MAYFIELD COMPANY

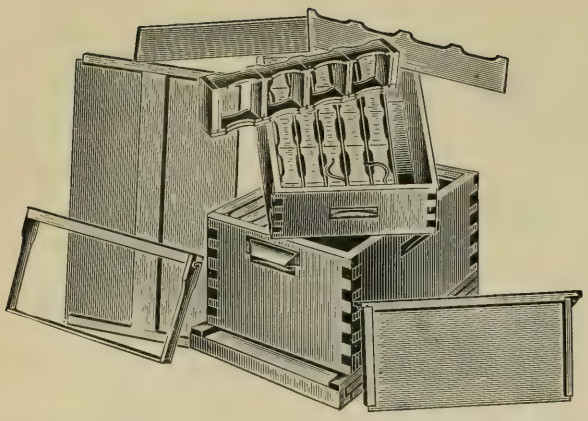
Cor. Nolan and Cherry Sts., San Antonio, Texas



STUDY BEE CULTURE BY MAIL

There is money in Bees if you know how. Make a good living from Bees or keep down the high cost of living. Always a good demand for men who know Bee Culture. Just the opportunity you have been wanting—**learn at home.** You can make your spare time count and finish this course this winter. Individual correspondence courses in General Farming, Dry Farming, Poultry, Truck Farming, Vegetable Gardening, Fruit Growing, Flowers, Greenhouse, Live Stock, Soils, Crops, Dairying, Farm Engineering and Management, Farm Book Keeping, Veterinary Science, Agr. Course etc. Only school in the world devoted exclusively to teaching farming by mail. Write today for **FREE BOOKLET "HOW TO MAKE THE FARM PAY MORE,"** also temporary low rate, easy terms, full particulars. (Which course interests you)

American Farmers School. **92 Laird Bldg., Minneapolis, Minn.**



$9.75
Buys Complete Bee-keepers' Outfit

At the above price we furnish this complete outfit and every thing needed to start in this profitable business with five colonies of bees.

With this outfit we send you five complete 1½-story 8-frame Dovetailed hives, equipped with "Improved" covers, supers, section-holders, section-follower board, spring, hive-body, Hoffman self-spacing frames, and reversible bottoms, 1 Bingham smoker, 120 honey-sections, 1 swarm-catcher, 1 lb. foundation comb, 1 heavy bee-veil.

We are headquarters for Bee Supplies, and sell direct to the consumer at regular wholesale prices. No matter how small or great your requirements, we guarantee you a saving of 30 to 50 per cent.

Our Bee Supplies represent the very best quality of materials and the highest grade of workmanship. No matter whether you are an established bee-keeper or a beginner, you will be interested in our line and our great money-saving bargains. Complete outfit, as shown and described above, $9.75.

Steel Roofing, Siding, Ceiling



Economical and easy to put on, no previous experience necessary; absolutely guaranteed, brand new, clean stock — bright as a dollar. 1½-in. corrugated, unpainted steel sheets, light weight, 22 in. wide, 6 and 8 ft. long, 100 sq. ft. **$1.85**

Painted, same as above.. **$1.95**

1½-inch corrugated, galvanized, rust-proof steel sheets, light wt., 22 to 24 in. wide, 2 to 7 ft. long, 100 sq. ft..... **$3.25**

We pay the freight at these prices to all points east of Colorado in the U. S. Samples mailed free. Write for prices to other points, and for our Roofing Catalog.

LUMBER and MILLWORK

We have millions of feet of *brand new* Lumber and thousands of items of millwork, doors, windows, interior finish, mantels, colonades, etc., at our Chicago plant, where you can see it before purchasing. We are prepared to furnish all material for any building from the ground up at a saving of 30 to 50 per cent.

Our FREE BOOK OF PLANS

This book shows many designs of houses, barns, bungalows, etc. These designs represent comfort, harmony, economy, and general utility. The material we furnish is all brand new, high grade, bright clean stock. Every article positively guaranteed, and prices the lowest. This Plan Book is sent you free for the asking.

Send Us Your Lumber Bill for Our Freight Paid Estimate

WIRE FENCING



This is a continuous woven Galvanized Wire Fence; 12-gauge galvanized wire is used throughout, the upper and lower cable consisting of two 12-gauge wires twisted together. Stays are spaced either 6 or 12 inches apart, and are continuous, being woven into the upper and lower cables from one stay to another. No loose ends, and the wires do not break. This is the most reliable construction possible. *Special price on Hog Fencing 25 inches high; 7 line wires; 12-inch Stays, 19½c per rod.* Other heights for Cattle, Horse, and Field Fencing at prices ranging from 19 to 36c. Send for our Special Wire and Fence List. We guarantee a saving of 30 to 50 per cent.

Our 1,000-Page Price Wrecking Catalog Free

Send for a copy at once. It is the greatest economizer the world has ever known. A thousand bargains in every line. It describes our mammoth purchases at SHERIFFS', RECEIVERS', MANUFACTURERS', AND OTHER FORCED SALES at extraordinarily low prices. Our customers get the benefit. The goods are shown true to life, and fully described.

Fill Out This Coupon (688)

CHICAGO HOUSE WRECKING CO.

35th and Iron Sts., Chicago

Saw your ad. in Gleanings in Bee Culture.

I am interested in .....

Name .....

Town..... County.....

State.....R.F.D.....Box.....

Our broad binding guarantee to satisfy you in every particular, or refund your money together with all transportation charges, is your absolute protection when you deal with us.

Just fill out the coupon shown here, send it to us, and we will immediately send you, free of charge, this magnificent Economy Guide, "The Great Price Wrecker."

Any of These Valuable Books Sent you Free

Men's Clothing Book,	Ladies' Wearing Apparel,	Sporting Goods,
Floor Coverings,	Roofing,	Harness and Vehicles,
Gasoline Engines	Boots and Shoes,	Heating,
Grocery Price List,	Sewing Machines	Plumbing,
Book of Plans,	Jewelry,	Structural Steel.
Wall Paper Catalog,	Dry Goods,	

Chicago House Wrecking Co.

35th and Iron Sts., Chicago



VOL. XXXIX NOV. 15, 1911 NO. 22

FREE!! The Two BEST Books on POULTRY and BEE CULTURE!!

HERE is the most liberal clubbing offer ever made—an opportunity for every reader of this publication to secure, absolutely free of cost, two of the most practical, most authoritative, most indispensible books ever written on the big subjects of ***profitable*** poultry and bee raising.

The names of Hicks and Townsend are known in every poultry and bee community in America. Their writings are always in ***demand*** because they ***know*** the subjects which they undertake to discuss. Many thousands of copies of these two great books have been sold---

Tricks of the Poultry Trade

By Reese V. Hicks, Editor of Poultry Culture and President of the American Poultry Association.

The Townsend Bee Book

By E. D. Townsend, one of the most extensive and successful bee keepers in America.

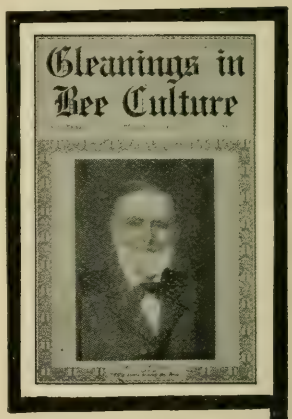
We Send You These Two Great Books As An Outright Gift on This Great Clubbing Offer

"POULTRY CULTURE" 1 Year . . . . . Sub. Price 50 Cents a Year,
"GLEANINGS IN BEE CULTURE" 1 Year Sub. Price $1.00 a Year,
"TRICKS OF THE POULTRY TRADE" . .
"THE TOWNSEND BEE BOOK" . . . . .

All For Only $1.50

This Great Offer is made for a Limited Time Only, so get your subscription order in the mails at once if you want the two free books. Money back if you are not satisfied.





"Tricks of the Poultry Trade." This book is different from any other book, and it gives you not only the good side of many 'tricks," "methods," and "systems" of poultry raising, but also points out the weakness of each so-called "system," etc. It leaves you to select a method that will suit you after showing you the weakness of each. It is the result of years of practice, investigations and observations on big poultry farms. It is not a one-idea or one-man book, but the experiences and discoveries of many. You need it if you are in the poultry business. No matter if you are an old breeder or a new one, you can get pointers from this book that are worth money to you every day.



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HISTORY

A few interesting facts concerning the life and growth of the **"falcon"** *plant.*

In the seventies, William T. Falconer, then a young man, began making hives for neighboring bee-keepers in his father's planing-mill. The Falconer property was then located in what is now Falconer, N. Y., just east of Jamestown, in Southwestern New York, on the famous Chautauqua Lake.

At that time the only power used was that from the Chadakoin River, the outlet of Lake Chautauqua. The old original saw-mill in which hives were first made still does good service, but now as a storehouse, the first floor holding three million sections, and the second floor an equal bulk of crated hives, frames, etc., ready for shipment. Another interesting landmark on the property of the W. T. Falconer Mfg. Co is the first building to be erected in what is now the village of Falconer.

The superiority of machine-made hives over the home hand work was very apparent, and the trade steadily grew till, in 1879, the first printed catalog was issued. Hives made during this early period for the large apiary of Mr Falconer's father have been in constant use ever since, and are now in good condition in the apiary of the foreman of our hive department, John Jacobson, one of our men who has been with us thirty years.

During these early days Mr. Falconer began his day's work at five in the morning, ending it at ten or eleven at night to keep up with orders in the rush season. His personal attention and energy have always been put into every detail of the work, and he is still actively engaged every day in directing this large enterprise which his hard labor has built.

The business thus humbly started has grown, and with it the capacity of the plant. The sawmill outgrown, a second manufacturing building was put up; this enlarged once, twice, a third story added, finally a building erected, doubling the entire floor space, then an addition to the new factory, a large warehouse and so it goes on. Private tracks for lessening haulage expense to and from our yard of two to four million feet of lumber, private freight-loading platforms, and improved machinery of the latest type, have made our plant the best equipped to take care of our ever increasing trade.

The manufacture of foundation was taken up at an early date, as the demand for this article increased with that for Mr. Falconer's factory-made hives From the old dipping-process of sheeting and lever press we have passed through every stage, always experimenting, always in the lead, till now we manufacture by our own special machinery a superior foundation which the bees accept most readily.

Mr. Falconer early experimented on the manufacture of sections, and was the first to make polished sections. The process which we now use in section manufacture is far superior to any other, and our special sanders and buffers are the only ones of this kind used in the world. From the first hive made, stress has been laid on the quality of the produce. On this vital point almost the entire trade has been built. "Once a customer always a customer" is a phrase very fitting to the business so substantially built up by Mr. Falconer.

Every customer has been a walking advertisement, constantly increasing the business, till now **"falcon"** bee-supplies are sold north, south, east, and west in this country. In foreign lands they are regularly stocked in Mexico, Cuba, Jamaica, Santo Domingo, South America, British Isles, Europe, Africa, Turkey in Asia, Australia, New Zealand, and Hawaiian Islands.

Mr. Beekeeper, follow the proven advice of these thousands upon thousands of satisfied customers of every land, and use **"falcon"** goods.

A RED CATALOG, and name of nearest dealer, upon request.

W. T. FALCONER MFG. COMPANY,

Where the good bee-hives come from

Factory--Falconer, N. Y. **117 North Jefferson St., Chicago, Ill.**

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy and No. 1 white comb, 17 to 18; light colors, 16; amber, 15; fancy white extracted, 11 to 12; light, 10; amber, 9. Beeswax, 30.

BLAKE-LEE CO.

4 Chatham Row, Boston, Sept. 23.

KANSAS CITY.—The receipts of both comb and extracted honey are not large—demand good. We quote No. 1 white comb, 24-section cases, $3.25; No. 2 ditto, $3.00; No. 1 amber ditto, $3.00; No. 2 ditto, $2.75 to $3.00; extracted white, per lb., 8½ to 9; ditto amber, 7 to 8. Beeswax, 25 to 28.

C. C. CLEMONS PRODUCE CO.

Kansas City, Nov. 6.

DENVER.—We quote our local market in a jobbing way as follows: No. 1 white, per case of 24 sections, $3.15; No. 1 light amber, $2.90; No. 2, $2.70; white extracted, per lb., 9 to 10; light amber, 8 to 9; amber, strained, 7½. We are paying 25 cts. in cash or 27 in trade for clean yellow beeswax delivered here.

THE COLORADO HONEY PRODUCERS' ASS'N.

Denver, Col., Nov. 4.

ALBANY.—The honey market is steady at fully as high prices as the consumptive demand will stand for the off grades of honey that make up the bulk of this season's crop. We quote 17 to 18 for fancy white honey, but quotations are nominal, as there is no fancy white. Good No. 1 white brings 15 cts.; mixed, 14; dark and buckwheat, 13 to 13½; extracted white is scarce at 9 to 9½; mixed, 8; buckwheat, 7½ to 8. Beeswax, 32.

Albany, N. Y., Nov. 6. H. R. WRIGHT.

BUFFALO.—White comb honey is now in pretty fair demand; receipts not heavy, and not likely to increase much. The future looks good for steady prices. No buckwheat is on the market, but there is some call for it. We quote No. 1 to fancy white-clover comb honey, 16 to 17; No. 2 ditto, 12 to 13; amber, 11 to 13; buckwheat, 11 to 13; white extracted, 8 to 9; dark extracted, 7 to 7½. Beeswax, 30 to 32 cts. per lb.

Buffalo, N. Y., Oct. 26. W. C. TOWNSEND.

INDIANAPOLIS.—Demand is good for best grades of honey, but prices are irregular. White comb sells for 18 cts. in ten-case lots, finding prompt and ready sales. Amber grades find slow demand with much lower prices. Extracted seems to be plentiful, and is selling at 11 to 12 cts. in five-gallon cans. Beeswax is in good demand, and producers are being paid 30 cts. per lb.

Indianapolis, Nov. 11. WALTER S. POUDER.

Continued on page 5.

HEARD OVER THE FENCE ONE DAY.

Brown.—"I say, Jones, wish you would tell me where you send your **HONEY**, you seem to get such good results."

Jones.—"Sure, glad to. **THE FRED W. MUTH CO., 51 WALNUT ST., CINCINNATI, O.**, gets every pound I raise, and I always receive my money the day the shipments arrive. They buy my **BEESWAX** too. And, by the way, they handle the finest **BEE-SUPPLIES** on the market—Falconer Manufacturing Co.'s make. Write them for a **Catalog**—am sure they will be glad to send you one."

Trade a Part of Your Honey Crop for Supplies for Next Season; Send Your Order NOW and Save 5 per cent

We are in the market for honey, both extracted and comb, in carload lots and less. We should like to have samples and lowest prices on your crop, and will advise you immediately what we can use, and treat you right.

May be you would like to send us a shipment of honey in payment of an early order for bee-supplies. No better time to do this than in November. Send sample of your honey and get our prices—tell us what supplies you will want, and we will try to accommodate you. Your supply order may be made up from our regular catalog, and you may deduct our special early-order discount of 5 per cent for November.

Only a few articles listed in the big WEBER LINE of Bee-supplies are excepted from this discount. On paint, Porter bee-escapes, Bingham smokers, bees, queens, printed matter, cartons, honey-packages (tin and glass), bushel boxes, hotbed sash, honey-labels, seeds, and such seasonable goods, the discount is not allowed; but where a large general order includes some of the excepted articles, not exceeding ten to twenty per cent of the whole order, the discount may be applied to the whole order.

If you have mislaid our catalog sent you at the beginning of the season, let us mail another. It's worth your while to make up your order now and send it to us with a cash remittance. You can buy your supplies for next season cheaper than at any other time during next year.

Save freight by ordering from Cincinnati. This is an item worth looking after.

C. H. W. Weber & Co.

2146 Central Ave. Cincinnati, Ohio

Gleanings in Bee Culture

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Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, Mrs. H. G. Acklin.

$1.00 per year. When paid in advance: 2 years, $1.50; 3 years, $2.00; 5 years, $3.00.

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Honey Markets, continued from page 2.

SCHENECTADY.—Receipts of both comb and extracted honey are more liberal, with the exception of fancy white comb, of which there is practically none on the market. It would bring 17 to 18 cents; off grades, 13 to 15; mixed and buckwheat, 12 to 13; extracted white, 9 to 10; amber and buckwheat, 7½ to 8.

Schenectady, Nov. 4. CHAS. MACCULLOCH.

CINCINNATI.—The market on comb honey is good. It retails at $4.00 per case; jobbing lots, $3.60 to $3.75 according to quantity. There is no demand for off grades or dark comb honey. Light amber in barrels brings 6½ to 7; in cans, 8½; white table honey in cans, 10 to 11. Beeswax is in fair demand, and is selling at $33.00 per 100 lbs. The above are our selling prices, not what we are paying.

C. H. W. WEBER & Co.

Cincinnati, Ohio, Oct. 31.

CINCINNATI.—Comb honey is becoming rather scarce. We are selling strictly fancy to our trade at $3.75 per case, f. o. b. our store, and it finds ready sale. Extracted honey is still coming in quite lively. Amber extracted honey is selling at 6 to 7½, according to quality and quantity purchased, while strictly fancy water-white table honey is selling at 9 to 10. For choice bright yellow beeswax, absolutely free from dirt, we are paying from 28 to 30, delivered here.

Cincinnati, Oct. 30. THE FRED W. MUTH Co.

NEW YORK.—The demand for comb honey is good, especially for all grades of white. Receipts, however, on account of the short crop, are rather light. We quote fancy white at from 16 to 17; No 1 at from 14 to 15; No. 2 at 13; mixed and buckwheat, from 10 to 11. Extracted also is in good demand, especially the lighter grades. We quote California water-white at 10; white, 9 to 9½; light amber, 8 to 8½; white clover and basswood, 9 to 9½; buckwheat, 7½. Beeswax is quiet at 30.

New York, Nov. 3. HILDRETH & SEGELKEN.

ZANESVILLE.—The demand for honey, while not especially brisk, is not far from normal. The best grades of comb bring 20 cents wholesale in single-case lots. There is a pretty fair demand for extracted in small glass packages, and a lesser demand for quantities. In five-gallon cans, the best grades of extracted bring 10 to 12, according to quantity. Ten-cent and 1-lb. glass jars are quoted at 90 cts. to $2.00 per dozen, wholesale, respectively. Producers are offered for good beeswax 28 cts. cash, or 30 in exchange for supplies.

Zanesville, O., Nov. 2. E. W. PEIRCE.

CHICAGO.—This market has received several cars of comb honey from the Western States during the past fifteen or twenty days; and while the market is steady, the demand is not as active as it has been. The choice grades of white to fancy bring 16 to 18 cts., with the amber from 2 to 5 cts. less. Indeed, the amber grades are difficult to move on any concession. Extracted white is steady at from 8 to 9, according to the kind. White clover and basswood bring the outside prices, while the Western white brings 8. The ambers range from 7 to 8, according to quality. Beeswax is in good demand at 32 cents.

Chicago, Nov. 3. R. A. BURNETT Co.

ST. LOUIS.—Our honey market is unchanged since our last, with a good demand for the better grades of comb honey. Dark comb honey is not in demand, and dragging. We quote fancy white comb honey at 18; No. 1, 16 to 17; light amber, 15 to 16; dark, 9 to 11. Broken and leaking honey is almost unsalable — nominal at 7 to 8. Extracted honey is in good demand, and quotable, white, at 9½; light amber, California, 9; Southern light amber, 8½, all in five-gallon cans; Southern in barrels, 7 to 7½ for light amber; dark, 6 to 6½. The latter grade, however, is not wanted. Beeswax, prime, 29½; impure and inferior, less.

R. HARTMANN PRODUCE Co.

St. Louis, Mo., Nov. 3.

THE NATIONAL BEE-KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey.

MEMBERSHIP DUES

One dollar a year.

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LIVERPOOL.—A fair to good business has been done in Chilian honey at from $4.92 for no pile to $8.16 for good white-pile X. A fair quantity of Haitien has also been sold at good prices for the quality, which was generally dark liquid, at $6.24 to $6.72. For Californian there are no stocks to offer near at hand; $10.92 has been paid for fine white; $10.20 is quoted for light amber, and $9.60 for amber quality. Jamaican offers at $6.24 for old brown up to $7.68 for pale; Peruvian, $3.84 to $4.80. We have had a poor demand for beeswax, and only a small quantity has been sold at $33.88 to $39.32. The nominal quotations for other qualities are as follows: African, $32.64 to $34.96; American, $37.48; West Indian, $27.80 to $36.28.

Liverpool, Oct. 27. TAYLOR & Co.

CHICAGO.—The comb-honey situation at this writing is very much unsettled. There does not seem to be the demand for honey which was anticipated earlier in the season. No doubt this is occasioned by still heavy arrivals of fruits on this as well as other markets, and honey is being somewhat neglected for the time being. However, with cooler weather in view we can look for a reaction. Extracted honey shows somewhat more activity. A good demand exists for white-clover and basswood extracted honey. We quote No. 1 white and No. 1 light amber, Western comb honey, packed in 24-section double-deck cases, glass fronts, 16 to 17; second quality, 15 to 16; white-clover and basswood extracted, in 60-lb. cans, two cans to the case, 9 to 10; white alfalfa extracted honey, in 60-lb. cans, two cans to the case, 9; Southern California light-amber extracted honey, in 60-lb. cans, two cans to the case, 8¼. Bright pure beeswax is firm at from 30 to 32 cents.

Chicago, Nov. 3. S. T. FISH & Co.

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THIS is the title of a neatly printed, illustrated booklet, the second edition of which has just been published. Each operation in the process of extracted-honey production is explained in detail with photographic reproductions and drawings to make the text more plain. Beginning with the chapter on "Preparing Colonies for the Honey-flow," the booklet concludes with a description of "Packages for Extracted Honey." . . . Many helpful and valuable suggestions will be found within the 44 pages this booklet contains, and it is a pleasure to announce its addition to our Bee-keepers' 10-cent Library. Order by name or specify Number 25.

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That master bee-man, W. Z. Hutchinson, used to say, "Keep more bees." Some one has paraphrased this, "Keep better bees." Both pieces of advice are sound, but best results will still be wanting if the bee-keeper neglects to heed a third admonition, "Keep bees better."

In not one year in twenty is honey so plentiful as to glut the market; and, on the other hand, there is scarcely a year in twenty when good bees properly managed will not yield at least some surplus. How shortsighted, then, is the bee-keeper who neglects his bees!

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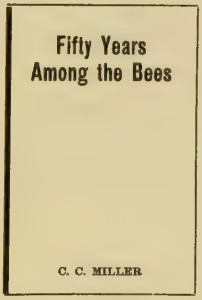
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In the year 1886 there was published a little book written by me entitled "A Year Among the Bees." In 1902 it was enlarged, and appeared under the title "Forty Years Among the Bees." In preparation for the present edition I undertook the revision with little thought of the number of changes to be made or the number of pages to be added in order to bring it up to date (about one-eighth being new matter), but it is hoped that the changes and additions may make it of more value to the reader. As I began bee-keeping in 1861, fifty years ago, the present name seems appropriate.

However much some personal friends may like the brief biographical sketch that occupies the first few pages, others may think that the space could have been better occupied. There remains, however, the privilege of skipping those few pages.

Most of the pictures are from photographs taken by myself or under my immediate supervision, at least so far as concerned "touching the button;" the Eastman Kodak Co. "did the rest." C. C. MILLER.

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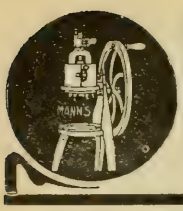
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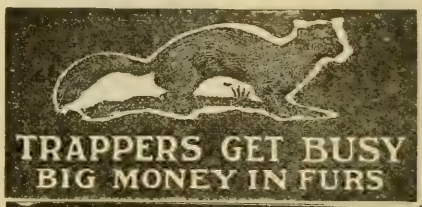
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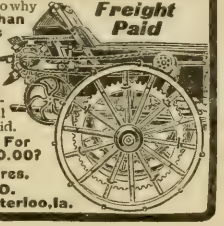
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Here's just the car you want for those quick business trips — and to get the most enjoyment out of the hour or so that you and your family may have after the work for the day is done.

The Cartercar is most reliable because of the extremely simple and strong construction. No matter whether rain or shine it is always ready for the word "Go."

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The bee-keeper who drives a Cartercar has more time — can do more work — make more money—and knows the real joy of living.

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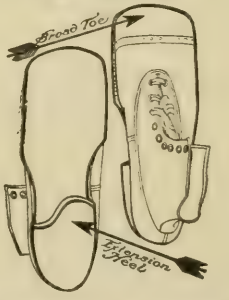
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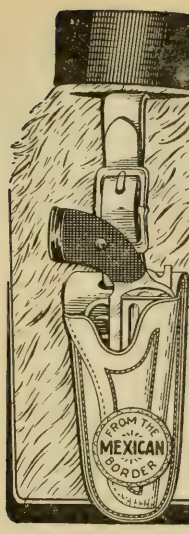
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A complete treatise on the subject; fully illustrated. A text-book for the beginner and advanced bee-keeper. Cloth-bound, $1.50 postpaid; leather edition, $2.50.

THE A. I. ROOT CO., Medina, Ohio.



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No. 2.—We have had Mr. C. P. Dadant revise Newman's "Bees and Honey" book of 160 pages, making it now nearly 200 pages, with over 150 illustrations. It is called "First Lessons in Bee-keeping." Just the book for Beginners. Bound in strong paper cover, with brood-comb illustration. Price 50 cts. postpaid, or we will send it (to a new subscriber) with American Bee Jour. nal *from now to the end of 1912*—all for only $1.00-

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The Buckeye

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is the title of a brand-new booklet from our press. It is an exhaustive discussion of the management of bees in double-walled hives, and tells of the merits of the Root double-walled hive in particular. Bee-keepers who face the wintering problem will greatly profit from a careful perusal of this booklet, which contains 80 pages, and is illustrated throughout. Copies are sent free upon request to

The A. I. Root Company,

Medina, Ohio.

New York Chicago Philadelphia DesMoines

Buyer's Bureau

There is every indication that the several combination offers made in our new subscription catalog will bring a larger response from friends of GLEANINGS than any offers before announced. Some of these combinations are particularly attractive, and are being eagerly grasped by friends who are renewing their subscriptions, or who have received a copy of the catalog by reason of some former evidence of interest in bee-keeping for pleasure or profit.

The offer of *Poultry Culture*, a monthly magazine on this great pursuit, edited by Reese V. Hicks, President of The American Poultry Association, with GLEANINGS one year, and one copy each of Mr. Hicks' practical book, "Tricks of the Poultry Trade," and "The Townsend Bee-book," is so far the best puller of all the combinations in our subscription catalog. Whoever has seen either of the handsome publications included in this offer, and become acquainted with the character of their contents, will readily realize that these two magazines, with a book on poultry and a book on bees, all for only $1.50, is an offer that must not be turned down. The growing interest in bees and poultry as an alliance from which a good living can be made, induced us to work out some special combination for our bee-keeping friends, and we are justly proud since returns have proven our judgment did not go amiss.

Readers of GLEANINGS who have written us during the past few months for information on automobiles will appreciate the co-operation we are now giving through the insertion of several automobile announcements in our advertising columns. For three or four issues back we have carried the advertisment of The Cartercar Company, Pontiac, Mich., manufacturers of a high-grade and thoroughly reliable motor car which is in every sense of the word "a practical car for busy bee-keepers." In suggesting to all bee-keepers interested in the motor-car question that the Cartercar literature can be obtained for a careful reading, we are acting upon the advice of Mr. Huber H. Root, associate editor of GLEANINGS, who has driven a car of this make for the past two years. He is most enthusiastic over its performance.

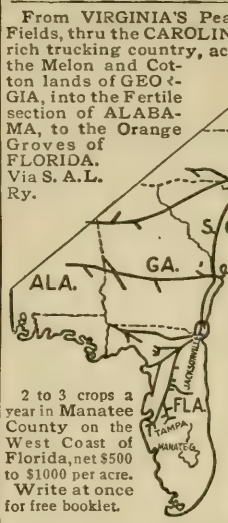
In this number The Overland Company, Toledo, Ohio, announce their new five-passenger touring-car at $900. Surely this is a worth-while bargain for an automobile of the Overland quality.

Any bee-keeper who has automobile inclinations should nurse his desires through the winter, and profit from the opportunity afforded to study up on the motor-car question. We should be very glad to answer any questions that may be asked on this subject, and to send catalogs and other literature to any of our friends who may request this service, and who will address the Buyer's Bureau.

"It was a striking cover." This has been the unanimous opinion of our readers in commenting upon our reproduction of the very fine photograph of bees at work on brood-comb on our November 1st issue. We are going to try to present a number of covers of this character during the next few months, and shall be glad to know what our friends think of them as they appear. Show some of these late issues of GLEANINGS in its new dress to your friends who keep bees, or who are interested in knowing more of the habits of the busy little workers, and you may be able to render us a valuable service. Of course, you appreciate that each new name added to our list contributes in a small way to our ability to publish a better and more handsome magazine, and we hope that none of our readers will overlook an opportunity to help, even if the extent of their co-operation is only the speaking of a kind word.

Come to the Six Southern States

From VIRGINIA'S Peanut Fields, thru the CAROLINA'S rich trucking country, across the Melon and Cotton lands of GEORGIA, into the Fertile section of ALABAMA, to the Orange Groves of FLORIDA. Via S. A. L. Ry.



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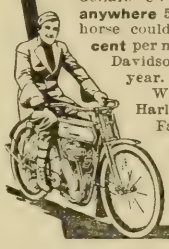
2 to 3 crops a year in Manatee County on the West Coast of Florida, net $500 to $1000 per acre. Write at once for free booklet.

J. A. Pride, Gen. Ind. Agt., Seaboard Air Line Ry. Suite 611, Norfolk, Va

HARLEY-DAVIDSON

MOTORCYCLES

are just about as useful on the farm as wagon or plow—they save you time and dollars every day. Carry you **anywhere** 5 times as quickly as a horse could—at cost of **one-tenth cent** per mile. Nearly 4000 Harley-Davidsons sold to farmers this year.



Write for booklet "The Harley-Davidson On The Farm."

HARLEY-DAVIDSON MOTOR COMPANY
262 A. St.
Milwaukee, Wis.

Every Bee-keeper Should Own and Read

"The Manual of the Apiary"

By PROF. A. J. COOK

This interesting book is a very complete treatise on bees and bee-keeping, and is particularly valuable where one is interested in the anatomy and physiology of the bee, which has been very completely covered in this work. It is also valuable for its chapter on honey-plants, or bee-botany; 540 pages with good illustrations; bound in cloth. Price, by mail, $1.15; $1.00 by express or freight. . . Order from the author,

A. J. Cook, Pomona College, Claremont, Cal.
Or from Dealers in Bee-supplies Everywhere

Virginia Apple Orchards Pay Big Profits!
$350.00 on long time and easy payments buys a ten-acre apple-orchard tract in the beautiful Shenandoah Valley of Virginia—other lands $15 per acre and up. Write for beautiful booklets and excursion rates.
F. H. LA BAUME,
Agr'l Agt., N. & W. Ry., Box 4015, Roanoke, Va.

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

FOR SALE.—8000 lbs. of melilotus honey in 60-lb. cans, two cans per case, 9 cents per lb. f. o. b. Cochrane, Ala. JOE C. WEAVER, Fox Trap, Miss.

FOR SALE.—Water white and light-amber alfalfa and light-amber fall honey, put up in any size packages. First class. DADANT & SONS, Hamilton, Ill.

FOR SALE.—Clover honey ripened on the hive, in 60-lb. cans. Satisfaction guaranteed. Sample free.
J. F. MOORE, Tiffin, Ohio.

FOR SALE.—2000 lbs. buckwheat honey in tin (60-lb.) cans, 6½ cts. per lb., f. o. b. Sherman, N. Y.
L. D. GALE, Sherman, N. Y.

FOR SALE.—Choice white-clover honey in 60-lb. cans, at $6.00 per can, f. o. b. Waymart, Pa. Sample, 5 cts. J. D. HULL & BRO., Honesdale, Pa.

Light-amber extracted honey, principally from cotton bloom, in new 60-lb. cans. Price 8½ cts. per lb. f. o. b. Bogart, cash with order. Samples free.
JOHN W. CASH, Bogart, Ga.

FOR SALE.—Amber comb, also No. 2 white comb, at $3.00 per case of 24 sections; also ten cases No. 3 at $2.50; dark and amber extracted at 8 to 9 cents.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Wants and Exchanges

WANTED.—Cheap, bees in box or frames, for cash.
WILEY A. LATSHAW, Carlisle, Ind.

Free for stamp, "Breeding a Better Bee."
GERMANIA APIARIES, Germania, Ark.

WANTED.—To exchange Root bee-supplies, either for money or honey. November cash discount, 5 per cent. Catalog. E. W. PEIRCE, Zanesville, O.

WANTED.—To let my bees and outfit for one or more years—five yards; have produced from them 50,000 lbs. of honey in one season. For particulars address D. H. COGGSHALL, Rt. 12, Groton, N. Y.

WANTED.—Apiarist to take charge at once, while owner is absent for two or three months. Possibility of permanent job. Will pay traveling expenses up to $110, and $8.00 a week while here. No objection to a man who uses tobacco, but does not spit on the floor, and is otherwise neat about his person. This is a good chance to see some of the world with expenses paid. W. J. YOUNG, Arecibo, Porto Rico.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—Extracted honey, both white-clover and basswood, in cans. State price.
EDW. WILKINSON, Wilton, Wis.

WANTED.—To buy amber and dark extracted honey; to sell, second-hand 60-lb. cans.
A. G. WOODMAN CO., Grand Rapids, Mich.

WANTED.—White honey, both comb and extracted. Write us before disposing of your crop.
HILDRETH & SEGELKEN,
265 Greenwich St., New York.

For Sale

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case.
C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Second-hand and new bee-supplies, in good condition; going out of business. Send for list. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—New crop of alfalfa seed; 4 pounds by mail, prepaid, $1.10; 50 to 100 lbs., 14½ cts. per lb. Sacks, 25 cts. extra.
R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successor to J. M. Jenkins.) Penn, Miss.

Send 15 cts. for a three-months' trial subscription to the *Review*, and read about "*The Most Profitable Year of a 1200-colony Bee-keeper*," in the December number. Address THE BEE-KEEPERS' REVIEW,
230 Woodland Ave., Detroit, Mich.

Help Wanted

I should like to hear from some bee-man who needs an experienced hand, in United States or out. State salary. Reference if necessary.
E. W. COLEMAN, Whittaker, Texas.

WANTED.—First-class comb-honey man—a hustler, and not afraid to work—one who can handle 500 colonies of bees, and familiar with Root line of goods. Single man preferred. State wages wanted. Board furnished. THE PENN CO., Penn, Miss.

Bees and Queens

Missouri-bred Italian queens; none better; prices right. Write for circular.
L. E. ALTWEIN, St. Joseph, Mo.

FOR SALE.—115 colonies of bees in eight-frame dovetailed hives with plenty of stores for winter. Cheap for cash. FRED H. WULF, Columbia, Cal.

"*A Battle between Bees and Red Ants.*" Read it in the December *Review*. Three months' trial subscription, 15 cts. THE BEE-KEEPERS' REVIEW, Detroit, Mich.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction.
W. W. DAKIN, Hood River, Ore.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Bradley's Store, Va.

FOR SALE.—44 colonies of Italian bees: 89 comb-honey supers, never used, for 4¼ x 4¼ x 1½ sections; 72 extracting-supers, 65 with drawn combs; 1 two-frame extractor, all in good condition.
M. A. JONES, Carlinville, Ill.

Golden queens — very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

Miscellaneous

FOR SALE.—Typewriter, 3A kodak, and 4 x 5 plate camera. WILLIAM N. MILLER, Dodgeville, Wis.

A California bee-keeper "*Believes Thousands of Dollars are Lost each Year by Producing Comb Honey Instead of Extracted.*" Told in the December *Review*. Send 15 cts. for three-months' trial subscription. THE BEE-KEEPERS' REVIEW, Detroit, Mich.

Special magazine offers. World To-day, Cosmopolitan, Good Housekeeping, and Gleanings, $4.00; Woman's Home Companion and Gleanings, $2.00. Above magazines may be sent to different addresses if desired. Send for catalog.
C. L. COLE, Medina, O.

FOR SALE.—Two Remington typewriters, good as new, cheap; one six-inch foundation-mill, $6.00; 100 lbs. propolis, $20.00; 30,000 folding cartons for 4¼ plain sections, $3.00 per 1000; 150 dovetailed ten-frame supers, with section-holders, cheap.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Real Estate

FOR SALE.—Two acres of garden land in city limits; six-room house; city water; barn, chicken-yards, and a few stands of bees; good market for all products; ideal location; healthful climate.
C. T. CHAPMAN, Canon City, Colo.

FOR SALE.—A quarter-section 7 miles from county-seat, on running stream; 70 acres cultivated, 90 in pasture; new house and barn; hay-fork; 8 acres hog-tight; fruit; $53 per acre, or $55 with stock and crops. Possession now.
CARSON G. PEARCE, Eldorado, Kan.

FOR SALE.—15 acres land, fine for bees, chickens, hogs, or truck-garden; alfalfa valley, excellent for bees; good local market, 2 miles from city; well improved; all small tools and farm machinery, and 65 colonies of bees included. Price $3700. Terms.
SORENSON & BURBANK, Miles City, Montana.

FOR SALE.—Large apiary with all appliances necessary for conducting the business of raising honey in an up-to-date manner; located in the far-famed Hudson River Valley—a region abounding in fruit-trees, raspberries, the clovers, buckwheat, and fall flowers. The owner has kept from 100 to 250 colonies in his present location for 32 years, and has never failed to get a paying crop of honey. The apiary has been run for extracted honey exclusively, and at present it consists of 250 colonies with an eight-frame power extractor, Hershiser wax-press, 5000 surplus combs, large honey-tank, and every convenience for conducting the business successfully. No other apiary of any size within many miles. JAMES MCNEILL, Hudson, N. Y.

Poultry

A few choice W. C. B. Polish cockerels and pullets, $1.50 each. E. Y. SAFFORD, Salem, N. Y.

Our Buttercups are beauties. Write for prices.
RIVERVIEW POULTRY FARM, Union City, Mich.

FOR SALE.—Buttercups, Dumaresq strain; also a gasoline-engine, planer and matcher.
CLAUD IRONS, Linesville, Pa.

April-hatched Indian Runner ducks, fawn and white; $2.00 each; $3.50 a pair; $5.00 per trio. White-egg strain. KENT JENNINGS, Mt. Gilead, Ohio.

INDIAN RUNNER DUCKS.—Full-grown young stock for sale, either fawn and white or penciled, from best strains in America. Eggs for hatching. All sales guaranteed as represented.
C. O. YOST, Rt. 4, Winchester, Ind.

GOLDEN BARRED ROCKS.—The beauty and utility breed. They are barred buff on white, making a most beautiful fowl. Write for descriptive catalog.
L. E. ALTWEIN, originator, St. Joseph, Mo.

America's Premier Barred Rocks (Prolific strain, 240 eggs). Cockerels $3.00 to $10.00; pullets, $2.00 to $5.00. ORCHARD PLACE POULTRY YARDS—the Quality Plant—Box 54, Seville, Ohio.

FOR SALE.—S. C. White Leghorn cockerels, $1.50 to $3.00, McClave stock. Also White Rock, Buff Wyandotte, and White Orpington cockerels for sale cheap. F. A. YOUNG, Medina, O.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, $1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school. W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1911; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 60 cts.; select, 75 c.; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices see large advertisement. QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

GRAY PRINTING CO., Fostoria, O.
Make ENGRAVINGS for GLEANINGS

Convention Notices.

The semi-annual meeting of the Connecticut Bee-keepers' Association will take place at Bridgeport, Friday, Dec. 1. There will be a regular experience meeting, with the question-box the chief issue. For particulars address JAMES A. SMITH, Sec., Box 38, Hartford, Ct.

The annual meeting of the Kansas State Bee-keepers' Association will be held at the State Agricultural College, Manhattan, Nov. 27 and 28. All persons, whether members or not, are cordially invited to attend. Several matters of vital interest to bee-keepers will be discussed. This convention promises to be the most successful one ever held by the association. O. A. KEENE, Sec.

The Colorado State Bee-keepers' Association will hold its annual convention Dec. 12 and 13, at the Auditorium Hotel, 14th and Stout Streets, Denver. There will be a rate of one fare for the round trip, good from Dec. 8 to 15. The American National Live-stock Association meets at the same time, so those interested may attend both conventions. There will be sessions devoted to freight rates, foul brood, grading honey, selling, etc. This convention will be one of discussion rather than of set speeches or papers prepared in advance. The Auditorium Hotel has placed its convention hall, seating 175, at our disposal. WESLEY FOSTER, Secretary.

The following is the program of the eighth annual convention of the Pennsylvania State Bee-keepers' Association, to be held in the court-house in Lancaster, Pa., Dec. 1 and 2, 1911.

FRIDAY, 10 A.M.

Invocation, Rev. Calvin Fassold, Williamstown.
Roll-call.
Reading of minutes.
Address of welcome, L. B. Huber, Landis Valley.
Report of Legislative Committee, W. A. Selser, Philadelphia.
Story Management, Geo. M. Steele, Philadelphia.
Regular business.

1 : 30 P.M.

Report of Secretary-Treasurer.
Wintering Colonies, F. Hahman, Philadelphia.
Bee-keeping for the Professional Man, Rev. Calvin Fassold.
Selection and Breeding, Penn G. Snyder, Swarthmore.
The New National Constitution, Wm. A. Selser.

7 : 15 P.M.

Bee Diseases and Apiary Inspection, Dr. H. A. Surface, Harrisburg.
Election of officers.
City Bee-keeping, Dr. L. M. Weaver, Philadelphia.
Relation of the Queen to a Large Crop of Honey, Geo. M. Steele.

SATURDAY, 8 A.M.

Examination for volunteer apiary inspection.

10 A.M.

Honey Conditions of 1911 and 1912, J. R. Rambo, Collingdale.
Sweet Clover, E. S. Hacker, Ephrata.
Extracted or Comb Honey, W. S. Kilheffer, Lititz.
Swarm Control, C. N. Greene, Troy.

1 P.M.

Stimulative Feeding, G. H. Rhea, Reynoldsville.
Marketing the Crop, Elmer J. Weaver, Ronks.
Bees and Fruit on a Small Place, Dr. Surface.
Improving the Apiary, Franklin S. Fox, Erwinna.
This program is subject to change.

Bee-keepers and supply-dealers are requested to make exhibits of honey and supplies.

Good hotel accommodations may be had for $1.50 per day and up. The headquarters of the association will be at Hotel Weber—rates $2.00 per day.

This promises to be one of the most important and interesting meetings ever held. Some important questions will come up for discussion, and no bee-keeper should miss this meeting. Come prepared to take part in discussing the topics. Do not expect only to receive information, but also to give. "It is more blessed to give than to receive."

Persons desiring to take the examination for apiary inspector can obtain information as to requirements by addressing the president.

DR. H. A. SURFACE, President, Harrisburg, Pa.
H. C. KLINGER, Secretary, Liverpool, Pa.

Books and Magazines.

DRY FARMING AS A RESOURCE OF THE SOUTHWEST.

While in the Gulf coast country there is more need of drainage than of more moisture, the high plains labor under the disadvantage of a small annual rainfall. How to overcome this has been one of the problems of the farmer. The Government experiment stations and the State agricultural colleges have given it much careful investigation. As a result they have found means for conserving the rainfall so that crops get a greater benefit than when nature was allowed to take its course and every shower ran off into the canyons and draws.

Dry farming, in its last analysis, means only such tillage as will hold the moisture and lessen the rate of evaporation. This has been brought to a practical stage, and many farmers have harvested good crops from a minimum amount of moisture. To be sure, it has been necessary to have some rain—dry farming will not produce showers, though general cultivation may in time, according to some authorities, increase the annual average.

Down in New Mexico, which is a part of the southwest range, it is frankly admitted that dry farming has not proved successful generally. But with a rainfall of from 12 to 20 inches a year, intelligent cultivation can produce crops profitably, and this is being done by those who have gone to the new territory. Hundreds of farms are showing progress, and their owners are happy and prosperous with a fair promise for their future.—From "The New Era of the Ranch Lands," by Charles Moreau Harger, in the *American Review of Reviews* for November.

In "Interesting People," in the November *American Magazine*, E. I. Farrington writes of J. H. Hale, the "Peach King." When Mr. Hale was a small boy, there was a mortgage on his mother's house. Young Hale bought some peach-trees and just as the mortgage was to be foreclosed he sold his first crop and paid it off. Mr. Farrington writes:

"After that the Hale boy was much in the local public eye. He went to town meeting one year and asked for a better road between Glastonbury and Hartford. The conservative tobacco farmers frowned on the forward youth. Next year he was on hand again, however, this time to plead for permission to have built only ten rods of good road at the town's expense. He was politely informed that boys were made to be seen and not heard and went home disappointed once more. But the next year he bobbed up a third time, more determined than ever, and evinced a disposition to talk all day. On that occasion his persistency and filibustering tactics were too much for the town fathers, and they consented to the appointment of a committee, with young Hale as chairman, to lay ten rods of modern roadway, telling them to build it anywhere they chose, but naturally expecting that Hale would select the section in front of his own farm. Instead, he picked out the worst section of road, at least four miles from his home.

"When next spring came, this piece of roadway was like an oasis in a desert of mud, and there was little further opposition to road improvement in that part of the Connecticut Valley."

Special Notices

By Our Business Manager

QUEENS.

We have been obliged to double up some of our colonies for wintering, and, as a consequence, have a limited number of very good queens which we can furnish within the next ten days. A few untested for $1 each, and about a dozen tested for $2 each. These are fine stock, and a bargain for some one who has queenless colonies.

REMOVAL.

Our New York office is now located at 139, 141 Franklin St., eighth floor; entrance only a few steps from Franklin station of Sixth Ave. elevated line. Our customers and friends while in New York are invited to call. The special prices on hives offered in this department last issue are withdrawn, as the stock is now moved and a part of it returned to Medina, and there is no longer any reason for the special offer.

PORTER BEE-ESCAPE REDUCED IN PRICE.

Under a new contract with the makers of the Porter bee-escape we are able to sell at a lower price this valuable article, which is indispensable in the equipment of every well-regulated apiary. The new price on the hive-escape is 15 cts. each; $1.65 per dozen; for the honey-house escape, 20 cts. each, $2.25 per dozen. A corresponding reduction is made in the wholesale price to dealers.

INVESTIGATION OF A QUEEN-BREEDER.

Our friends who are concerned in the investigation of complaints filed with the publishers of GLEANINGS against W. S. McKnight, Newton, Ala., will be glad to have a recent assurance from the Postoffice Department that their complaints are being duly investigated. Not having heard from the Chief Inspector of the Postoffice Department for some months, we took this matter up with the Congressman from this district, with the result that a letter from Washington addressed to our Representative, and dated October 31, 1911, has just reached our hands. For the benefit of our readers who ordered queens from Mr. McKnight after his advertisement had appeared in GLEANINGS, we reproduce this letter, which is as follows:

Hon. Paul Howland, 802 Engineers Building, Cleveland, Ohio.

Sir:—In answer to your letter of the 27th instant, which the Postmaster-General has referred to me, making inquiry concerning the complaint of The A. I. Root Company, Medina, Ohio, alleging use of mails for fraudulent purposes by W. S. McKnight, Newton, Alabama, I have to state that the complaint is in the hands of a postoffice inspector for investigation, and information relative thereto can not be given at this time.

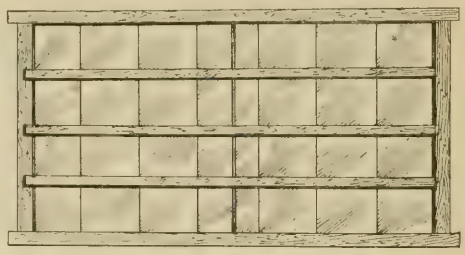
However, your communication will be referred to the inspector having the matter in charge, with direction to expedite the investigation as much as practicable.

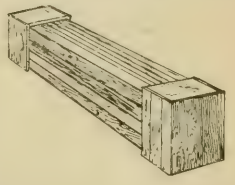
Respectfully,

Washington, D. C., Oct. 31, 1911. CHIEF INSPECTOR.

This is the first news we have had concerning Mr. McKnight since the special notice entitled "Complaints Against a Queen-breeder" appeared in our September 1st issue.

SASH FOR COLD-FRAMES.





We have ready for prompt shipment a good supply of choice cypress hot-bed sash of the regular size, 3 ft. 4 in. wide, 6 feet long, made for four rows of eight-inch glass slid in grooves. Sash-bars are 1⅜ in. thick; side bars 2½ in. wide, and intermediate bars 1½. Price K. D., 90 cts. each; five for $4.25, or ten for $8.00. If put up, add 10 cts. each. If painted, add 10 cts. for each coat of paint. Special low prices on glass are prevailing at present, and we can furnish 8 x 10, A quality at $2.50 per box of 50 feet, or 90 pieces, five boxes, at $2.30; ten boxes, at $2.20. We will furnish the sash in lots of five or more, put up, painted two coats, and glazed, at $2.00 each.

If you prefer sash rabbetted so as to lap the glass and putty it in we can furnish them so made when you specify in your order. If you prefer them for three rows of 11-inch glass we can also furnish this style, and we make special sizes to order. Prices on application.

SPECIAL BARGAIN IN PREMIUM JARS.

It would be hard to find another fruit-jar with as many desirable features as the Premium jar, which we have listed in our general catalog for the past two seasons. It has an extra-large mouth, 3¼-inch. The cover as well as the jar is of clear glass with a rubber ring between. The wire sealing-clamp is very simple and effective. The cover is sunk so that jars may be tiered up on shelves, one resting securely on the one below. Nothing could be nicer for putting up "chunk" comb honey in glass.



The factory making them got into financial difficulty, and we have secured considerable stock at a low price, which enables us to make a special sale price as follows, good only while the stock lasts. The jars are packed in corrugated-paper cartons of one dozen each, which usually carry safely. On long-distance shipments we will put six cartons in a crate for further safety, if desired, at 30 cents per gross extra.

One-pint jars, 70 cts. per doz.; $7.20 per gross.

One-quart jars, 75 cts. per doz.; $7.80 per gross.

Two-quart jars, $1.00 per doz.; $10.80 per gross.

These prices apply only on shipments from Medina, ordered from this notice, for a limited time. If more convenient the order may be placed with your dealer, to be forwarded, and shipment made from Medina direct.

Early-Order
Cash Discounts

Apply Here just as They do at the Factory. . . . .

As Southwestern distributors of ROOT'S Satisfactory Bee-supplies, we are very glad to make this first announcement of a special discount for early orders, accompanied by cash, to our bee-keeping friends throughout this territory.

We give exactly the same discount that is granted by the manufacturers of these famous supplies, and the prices in our special catalog are the same as in their own. There is an extra saving for you in ordering from us—FREIGHT. Better give this your careful consideration before sending el-ewhere.

The Cash Discount on Early Orders Placed in November is 5 per cent

This applies to every thing in the way of bee-supplies except a few special articles. On a large general order we will allow the discount on some of the excepted articles, not exceeding ten to twenty per cent of the entire order.

Remember We Manufacture the Famous Weed Process Comb Foundation

We have a big demand for this product, and are turning out comb foundation of the finest quality. Include what you will need for the opening of next season in your early order. Shipment may be held subject to your convenience if desired; but get your order in now and save 5 per cent.

Power Honey-extracting Outfit for Sale

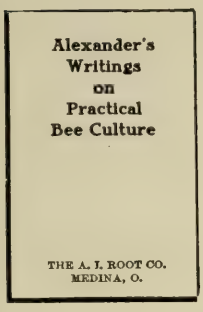
We offer at a bargain price a new one-horse-power Gilson gasoline-engine and one eight-frame honey-extractor. Both of these have been used for demonstration only, and are as good as though they had just come from the factory. Seventy-five dollars takes the outfit. Full particulars upon request.

TOEPPERWEIN & MAYFIELD COMPANY

Cor. Nolan and Cherry Sts., San Antonio, Texas

GLEANINGS LIBRARY

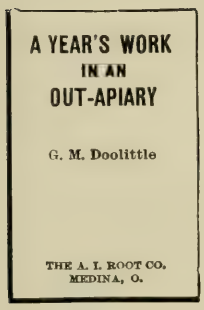
So called because of the great popularity of the following books when offered in combination with GLEANINGS IN BEE CULTURE



Alexander's Writings on Practical Bee Culture.

By the late E. W. Alexander, who conducted the largest apiary in the United States. A wonderfully interesting discussion of bee-keeping in its broadest phases. Any one can understand it; 35 chapters; 95 pages; paper bound; 50 cts. postpaid.

$2125 in six months from 100 colonies of bees. The ordinary bee-keeper doesn't get this from his bees, and will probably say it can't be done, and yet that is exactly what E. W. Alexander did and what YOU can do if you use proper methods. No special location necessary, no special crops for forage, just scientific bee-keeping of the highest and simplest order.

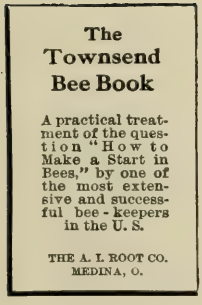


A Year's Work in an Out-apiary.

By G. M. Doolittle. Packed full of most valuable information ever given to bee-keepers. A practical and interesting book by a very successful apiarist. Sale has reached nearly 5000 copies. 60 pages; paper bound; 50 cts. postpaid.

Here are some of the things Mr. Doolittle talks about:

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" 10. Spring management.
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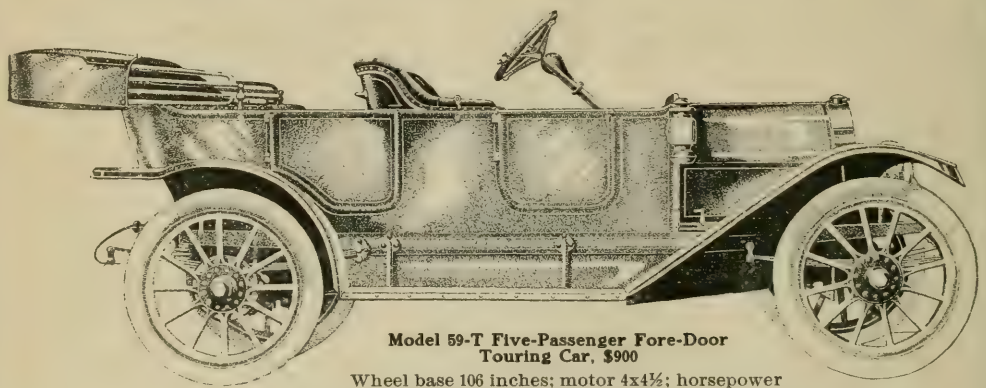
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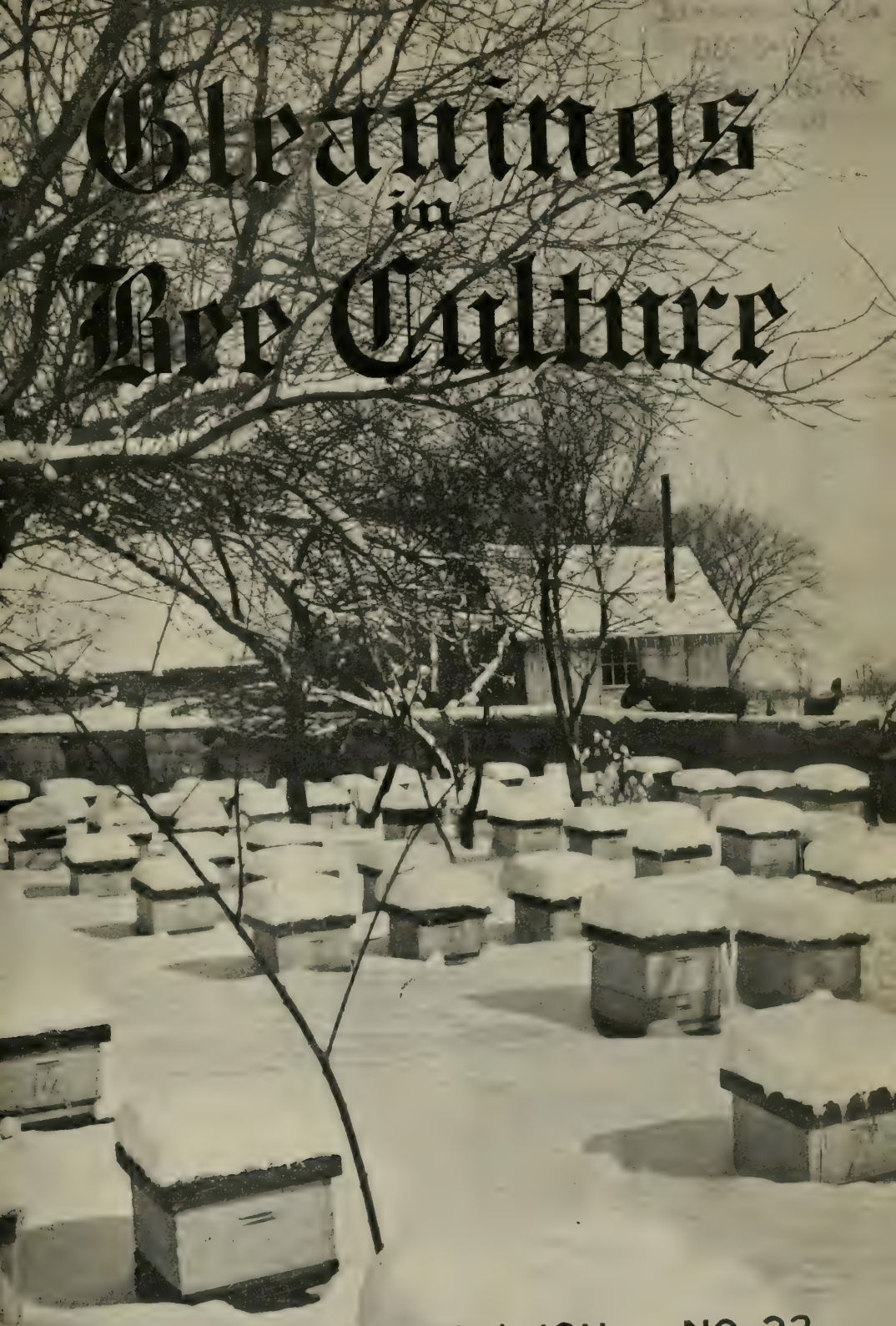
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Gleanings in Bee Culture



VOL. XXXIX DEC. 1, 1911 NO. 23

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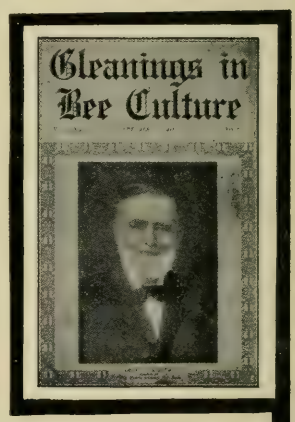
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HISTORY

A few interesting facts concerning the life and growth of the **"falcon"** *plant.*

In the seventies, William T. Falconer, then a young man, began making hives for neighboring bee-keepers in his father's planing-mill. The Falconer property was then located in what is now Falconer, N. Y., just east of Jamestown, in Southwestern New York, on the famous Chautauqua Lake.

At that time the only power used was that from the Chadakoin River, the outlet of Lake Chautauqua. The old original saw-mill in which hives were first made still does good service, but now as a storehouse, the first floor holding three million sections, and the second floor an equal bulk of crated hives, frames, etc., ready for shipment. Another interesting landmark on the property of the W. T. Falconer Mfg. Co. is the first building to be erected in what is now the village of Falconer.

The superiority of machine-made hives over the home hand work was very apparent, and the trade steadily grew till, in 1879, the first printed catalog was issued. Hives made during this early period for the large apiary of Mr. Falconer's father have been in constant use ever since, and are now in good condition in the apiary of the foreman of our hive department, John Jacobson, one of our men who has been with us thirty years.

During these early days Mr. Falconer began his day's work at five in the morning, ending it at ten or eleven at night to keep up with orders in the rush season. His personal attention and energy have always been put into every detail of the work, and he is still actively engaged every day in directing this large enterprise which his hard labor has built.

The business thus humbly started has grown, and with it the capacity of the plant. The sawmill outgrown, a second manufacturing building was put up; this enlarged once, twice, a third story added, finally a building erected, doubling the entire floor space, then an addition to the new factory, a large warehouse and so it goes on. Private tracks for lessening haulage expense to and from our yard of two to four million feet of lumber, private freight-loading platforms, and improved machinery of the latest type, have made our plant the best equipped to take care of our ever increasing trade.

The manufacture of foundation was taken up at an early date, as the demand for this article increased with that for Mr. Falconer's factory-made hives. From the old dipping process of sheeting and lever press we have passed through every stage, always experimenting, always in the lead, till now we manufacture by our own special machinery a superior foundation which the bees accept most readily.

Mr. Falconer early experimented on the manufacture of sections, and was the first to make polished sections. The process which we now use in section manufacture is far superior to any other, and our special sanders and buffers are the only ones of this kind used in the world. From the first hive made, stress has been laid on the quality of the produce. On this vital point almost the entire trade has been built. "Once a customer always a customer" is a phrase very fitting to the business so substantially built up by Mr. Falconer.

Every customer has been a walking advertisement, constantly increasing the business, till now **"falcon"** bee-supplies are sold north, south, east, and west in this country. In foreign lands they are regularly stocked in Mexico, Cuba, Jamaica, Santo Domingo, South America, British Isles, Europe, Africa, Turkey in Asia, Australia, New Zealand, and Hawaiian Islands.

Mr. Beekeeper, follow the proven advice of these thousands upon thousands of satisfied customers of every land, and use **"falcon"** goods.

A RED CATALOG, and name of nearest dealer, upon request.

W. T. FALCONER MFG. COMPANY,

Where the good bee-hives come from

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Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy and No. 1 white comb, 17 to 18; light amber, 16; amber, 15; fancy white extracted, 11 to 12; light, 10; amber, 9. Beeswax, 30.

BLAKE-LEE CO.

4 Chatham Row, Boston, Nov. 18.

INDIANAPOLIS.—Demand is good for best grades of honey, but prices are irregular. White comb sells for 18 cts. in ten-case lots, finding prompt and ready sales. Amber grades find slow demand with much lower prices. Extracted seems to be plentiful, and is selling at 11 to 12 cts. in five-gallon cans. Beeswax is in good demand, and producers are being paid 30 cts. per lb.

Indianapolis, Nov. 17. WALTER S. POUDER.

CHICAGO.—The demand for fancy comb honey is steady, but all of the off grades are slow of sale. Choice white brings 17 to 18 cts., with off grades of white and amber from 1 to 5 cts. per lb. less, according to color and quality. White extracted is steady at from 8 to 9, with amber grades ranging from 7 to 8. The demand is only fair, with very little white clover and basswood offered. Beeswax sells upon arrival at 32 cts. if clean and of good color.

Chicago, Nov. 17. R. A. BURNETT CO.

SCHENECTADY.—We think that most of the honey in this section is now out of the hands of producers. The demand is very good, but we have much complaint from customers of comb honey being candied—especially so-called clover. There is really no fine white comb honey on our market. We quote fancy white at 16 to 18: No. 2, 14 to 15; mixed and buckwheat, 12 to 13; light extracted, 9 to 10; amber, 7½ to 8; buckwheat, 7½ to 8.

Schenectady, Nov. 16. CHAS. MACCULLOCH.

LIVERPOOL.—Since we last reported, Chilian honey has been in good request, and 75 barrels have been sold at $6.00 to $6.18 for pile 3, $6.96 for pile 1, and $8.40 for pile X. Of Jamaican, 20 casks have sold at $6.24 for old crop. Of Haitien there is a shortage in the market of good quality, for which there is a good demand this winter. There are some stocks of inferior quality which do not sell very well. Other honey we quote nominally as follows: Haitien, $5.76 to $7.20; Chilian, $6.00 to $8.40; Jamaican, $6.24 to $7.68; Peruvian, $3.84 to $4.80; Californian, $9.60 to $10.92. The market for all descriptions of beeswax is steady, but without active demand. Recent sales have been made of Chilian at $33.88 to $38.08 per cwt. Other descriptions are nominally worth as follows: African, $32.64 to $34.48; American, $37.48; West Indian, $27.80 to $36.28.

Liverpool, Nov. 10. TAYLOR & CO.

Continued on page 5.

HEARD OVER THE FENCE ONE DAY.

Brown.—"I say, Jones, wish you would tell me where you send your **HONEY**, you seem to get such good results."

Jones.—"Sure, glad to. **THE FRED W. MUTH CO., 51 WALNUT ST., CINCINNATI, O.**, gets every pound I raise, and I always receive my money the day the shipments arrive. They buy my **BEESWAX** too. And, by the way, they handle the finest **BEE-SUPPLIES** on the market—Falconer Manufacturing Co.'s make. Write them for a **Catalog**—am sure they will be glad to send you one."

A Merry Christmas to Bee-keepers Everywhere.

IN HIS DEPARTMENT "The Busy Bee," in December Farm Journal, D. Everett Lyon, bee-keeper and author, has to say of the advantages of early buying of bee-supplies:

> I have made it a practice to purchase my supplies during the winter for the following season, for two reasons: First, there is a discount given by the supply houses, who are anxious to get their customers supplied now rather than when they are naturally rushed during the spring; and, second, because during the leisure time of winter I can put the hives and sections together.

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Buy ROOT'S BEE SUPPLIES here in December and you save 4 per cent. For January the early-order cash discount is 3 per cent. These discounts apply on practically every thing listed in the big **Weber Line**—the exceptions were noted in our November advertisement in this journal.

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C. H. W. Weber & Co.

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Gleanings in Bee Culture

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2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey.

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Honey Markets, continued from page 2.

ZANESVILLE.—The demand for honey is not especially brisk at the present time. The best grades of comb would bring 20 cents wholesale in single-case lots. There is a pretty fair demand for extracted in small glass packages, and a lesser demand for quantities. In five-gallon cans, the best grades of extracted bring 10 to 12, according to quantity. Ten-cent and 1-lb. glass jars are quoted at 90 cts. and $2.26 per doz., wholesale, respectively. Producers are offered for good beeswax 28 cts. cash, or 30 in exchange for supplies.

Zanesville, O., Nov. 17. E. W. PEIRCE.

BUFFALO.—There is a very good demand for white comb honey that will grade No. 1 or better. Stock in the market is very light; some call for buckwheat, but none is arriving. The sooner it is put on the market, the better the result will be. We quote No. 1 to fancy white comb honey at 16 to 18; No. 2 ditto, 12 to 13; No. 1 buckwheat, 13 to 14; No. 2 ditto, 10 to 12; white extracted, 8 to 9; dark, ditto, 7 to 8. There is considerable call for extracted in five-gallon cans. Beeswax, 30 to 35.

Buffalo, N. Y., Nov. 22. W. C. TOWNSEND.

ST. LOUIS.—Since our previous report we have no change to note in our honey market. Choice white comb honey is scarce, and in good demand. The dark grades are neglected and almost unsalable. We quote fancy white comb honey at 18; No. 1, 16 to 17; light amber, 15 to 16; dark is nominal at 9 to 11. Broken and leaking honey is almost unsalable—nominal at 6 to 8. Extracted honey is in good demand, and quotable, white clover, at 10; white alfalfa, 9½; California light amber, 9 to 9½; Southern light amber, 8½, all in five-gallon can. Southern, in barrels, brings 7 to 7½ for light amber; dark, 6 to 6½. Beeswax, prime, 30; impure and inferior, less.

R. HARTMANN PRODUCE CO.

St. Louis, Mo., Nov. 21.

CINCINNATI.—The market on comb honey is firm, and is selling in jobbing lots according to quantity, from $3.65 to $3.75 per case. There is no demand for off grades nor amber comb honey. Extracted is in fair demand; light amber, 8 to 8½ in 60-lb. cans; white honey, 10 to 11. Beeswax is in fair demand, selling at $33.00 per 100 lbs. The above are our selling prices, not what we are paying.

C. H. W. WEBER & CO.

Cincinnati, Ohio, Nov. 17.

NEW YORK.—Comb honey is in good demand for all grades. On account of the short crop, receipts are rather light, and hardly sufficient to fill demands. No. 1 and fancy white find ready sale at from 15 to 17, according to quality and style of package; No. 2 white, 14; mixed and amber, 13; buckwheat, 10 to 12, according to quality. Extracted is in fair demand. Early in the season reports from California and the Northwest indicated a short crop. These reports, however, have been misleading, as it is now generally conceded that the crop in California, as well as in the far West, was much larger than the reports given out indicated; consequently prices show a downward tendency, and are likely to go still lower. On account of the high prices asked in the beginning of the season, some large concerns have cut honey out altogether, while others have been able to secure their supply in foreign honey at considerably lower figures. Extracted, from the above-mentioned points, is now being offered freely, and it is evident that there are large quantities yet to be disposed of. We quote California white sage at 9 to 9½; light amber, 8 to 8½; amber, 7 to 7½; alfalfa, 7½ to 8; white clover and basswood, 9 to 9½; buckwheat and dark, 7 to 7½—possibly 8.

New York, Nov. 18. HILDRETH & SEGELKEN.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873 CIRCULATION 35,000. 62 pages Semi-monthly

A. L. BOYDEN, Advertising Manager

ADVERTISING RATES.

Twenty-five cents per agate line, flat. Fourteen lines to inch.

SPACE RATES. To be used in one issue: One-fourth page, $12.50; one-half page, $25.00; one page, $50.00.

Preferred position, inside pages, 30 per cent additional.

Preferred position, inside cover, 50 per cent additional.

Outside cover page, double price.

Reading notices, 50 per cent additional.

Cash-in-advance discount, 5 per cent.

Cash discount if paid in 10 days, 2 per cent.

Bills payable monthly.

No medical or objectionable advertising accepted.

Column width, 2⅝inches.

Column length, 8 inches.

Columns to page, 2 (regular magazine page).

Forms close 10th and 25th.

Address Advertising Department, Gleanings in Bee Culture, Medina, Ohio.

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All Exhibition and Sample-room Hives, Extractors, and other Bee Fixtures are being offered at reduced prices in order to make room for new goods. Better write to-day and save from ten to fifteen per cent. **FIVE PER CENT SPECIAL DISCOUNT** is allowed on all orders for new stock purchased from us this month for immediate or future shipment, so send list of your requirements if you want to purchase Bee Supplies, the best that are made, at absolutely rock-bottom prices.

Do not forget our Bee-Book, **'How to Make Money in Bees,"** which is a complete guide to profitable bee-keeping, tells you how to buy bees, what are the best bees to buy, how to locate the hives—in fact, tells you all that you will need to know to make bees highly profitable as a business or for pleasure.

With this book goes our large, illustrated catalog, sent free of charge.



BLANKE MFG. & SUPPLY CO.
Successors to
Blanke & Hauk Supply Co.
Blanke Building
St. Louis, Missouri



Established 1885
WE CARRY AN UP-TO-DATE LINE OF
Bee-keepers' Supplies
Write for our 50-page catalog free, and for lowest prices on supplies. Full information given to all inquiries. We handle the best make of goods for the bee-keeper. Freight facilities good. Let us hear from you.
JOHN NEBEL & SON SUPPLY CO., High Hill, Mo.

Boston Is the Shipping Center of **New England**
Bee-keepers should bear this in mind when ordering their supplies. . A full line of supplies always in stock. . . . . Send for catalog.
H. H. JEPSON
182 Friend Street . BOSTON, MASS.

Clark & Pike
LANDSCAPE ENGINEERS
. WILLOUGHBY, OHIO .

FRUIT-GROWING AND BEE-KEEPING.
EVERY one interested in bees should also be interested in fruit-growing. FRUIT-GROWING is profitable. One grower in the South netted $35,000 on 100 acres in peaches this season. Another netted $100,000 on apples. Read the *Southern Fruit Grower*, and learn all about this profitable industry in the South. Contains from 32 to 40 pages per month. Bound to interest you. Price 50 cents per year, but will be sent six months on trial for 15 cents if you mention this paper. Send to-day to **The Southern Fruit Grower, Dept. B. C., Chattanooga, Tenn.**

BEE-SUPPLIES
WE ARE WESTERN AGENTS FOR
"FALCONER"
Write for fall discounts—we can save you money.
C. C. Clemons Bee-Supply Co., Kansas City, Mo.
128 Grand Avenue

PATENTS
25 YEARS' PRACTICE
CHAS. J. WILLIAMSON, Rooms 304 to 307, Savings Bank Bldg., 7th and E. Sts., WASHINGTON, D. C.
Patent Practice in Patent Office and Courts. **Patent Counsel of The A. I. Root Co**

FIRST LESSONS IN BEE-KEEPING
Just the bee-book for beginners. All about bee-keeping and producing the finest honey. It has nearly 200 pages and over 150 illustrations. Revised by Dadant, one of the highest authorities on bees in both America and Europe. Most unique and original cover, showing honey-comb, etc. Sent by mail for 50 cents; or with the **American Bee Journal** for one year—both for only $1.00—the price of the Journal *alone*, which is now over 50 years old. It is an authority on bees, and the most successful honey-producers write for it every month. It has a department for Women, and also Answers Questions for beginners.



Send 2-cent stamp for sample copy; or, better send $1.00 today and get both book and Journal for one year. Address,
George W. York & Co., 117 N. Jefferson St., Chicago, Ill.



New Stock

We are now receiving a stock of goods for next season.

If you can place your order for goods for use next season we shall be glad to have your order.

Catalogs for 1912 are not yet out; but you can use the one you have of 1911. During the month of November there is a discount of 5 per cent. December, 4 per cent.

THE A. I. ROOT COMPANY,
Syracuse, N. Y.

BANKING BY MAIL

4%

Deposit your savings here, pending permanent investment.

The advantages offered are: Unquestioned safety and four per cent interest, compounded semi-annually.

This bank is under the supervision of the State, and its strict laws.

Its officers and directors are successful men.

Write to-day for booklet explaining our convenient banking-by-mail system.

Resources $1,000,000

Under ordinary circumstances all or any part of your deposits may be withdrawn at will.

The Savings Deposit Bank Company, . . Medina, Ohio

A. T. SPITZER, Pres. E. R. ROOT, Vice-pres.
E. B. SPITZER, Cashier

Are You a Locomotive or a Caboose?

These startling words greeted me from a piece of advertising matter that recently came to my desk. It suggested a **train** of thought.

There are two kinds of bee-keepers—**locomotives** and **cabooses**. The locomotive bee-keeper is always ahead. He informs himself. He has the A B C and X Y Z of Bee Culture. He takes GLEANINGS IN BEE CULTURE. He supplements the knowledge thus acquired with actual painstaking work among the bees. He masters the details, with the result that he always gets honey—and money. He does not wait until he has a swarm hanging on a tree before he orders hives, nor until the honey-flow has actually begun before securing sections and foundation. He does not buy cheap, inferior supplies and then lose half his crop waiting for them to come. He saves on the cost of his supplies by sending his order to **Peirce** for ROOT'S GOODS during the fall and winter, thus getting the early-order discount

The other kind of bee-keeper is a **caboose**. Which are **You?**

December discount, 4 per cent. Catalog for the asking.

EDMUND W. PEIRCE
136 West Main St., ZANESVILLE, O.

Save from 25c to 50c on the $

By getting a copy of our Free Book

It will save you money on every magazine or paper you read.

This book contains 64 pages; gives the descriptions, prices, club rates, etc., of hundreds of periodicals and poultry books, and costs you nothing.

Send your name and address, and ask for our agency catalog, and it will be sent you at once, postpaid.

American Subscription Agency
540 So. Dearborn St., Chicago, Illinois

ONE OF OUR OFFERS:

American Poultry Journal, 1 year, 50c
Animal Husbandry . . . 1 year, 50c
Ranch and Range . . . 1 year, $1
} ALL FOR $1.00

Take advantage of this offer now if you want to, but don't neglect to send for free book which contains many more as good—some better

Poultrymen....

Who Seek a Market for

SURPLUS.... STOCK OR EGGS FOR HATCHING

Should not overlook the Classified Advertising Department of

Gleanings in Bee Culture

The close alliance of these two industries makes this a profitable medium for poultry advertisers.

The single-insertion rate is 25 cents per line of about seven words, but there are liberal discounts for regular advertisers, as explained in a new booklet—"WHY Gleanings in Bee Culture Pays People who Advertise Poultry, and WHAT it Costs to Reach its Readers." Ask for this booklet—it is free.

The Buckeye Bee - Hive

is the Latest Model Root's Chaff Hive.

For wintering bees use the Buckeye bee-hive

It Keeps Them Warm

and they will consume less honey.

For summering bees use the Buckeye bee-hive

It Keeps Them Cool

and they will store more honey.

Send for the Buckeye booklet. It shows in detail the exclusive feature of the Buckeye bee-hive.

M. H. HUNT & SON

Lansing, Michigan

Opposite
Lake Shore Depot

Use The Briggs System and Get Big Poultry Profits

The fourth editlon of "Profits in Poultry Keeping Solved" gives the complete poultry system and secrets of Edgar Briggs, the most successful poultry expert in America. It thoroughly covers every branch of poultry-keeping from start to finish. I tells how to plan, build, and operate a poultry plant, and market the product; how to get the most eggs; run incubators; raise nearly every chick hatched; prevent diseases; how to make the best poultry feed for 10 to 15 cts. per bushel; how to make the most money and greatest success with poultry. There is nothing difficult or complicated about the Briggs' System.

Best, Simplest, Most Practical.

Briggs' System calls for less equiptment, labor, and expense than any other system, and by it one man can easily care for 2,000 layers and 3,000 chicks.

Follow Briggs' System and Success is Yours.

When this system is used, sick fowls are rarely seen, more eggs are hatched, more chicks are raised to maturity, the egg-basket is filled oftener, and feed bill is cut way down.

Don't Experiment Longer, Use Briggs' System.

Send $1.00 for this book, and we will include one year's subscription to **Poultry Success,** that big splendid poultry magizine, the best paper for poultry people, whether fanciers, amateur, or utility breeders. Regular subscription price, 50 cents a year.

BRIGGS' SYSTEM SAVES { **FEED** **TIME** **LABOR** **MONEY** **CHICKS** **EQUIPMENT**

Price Only $1.00 including one year's subscription to **POULTRY SUCCESS** We will send the book free for a club of four new subscribers to **POULTRY SUCCESS.**

The A. D. Hosterman Co.,

Briggs' Desk 151 **Springfield, Ohio**

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine

J. B. MASON, Manager

SEND FOR FREE ADEL BEE

and Supply Catalog. You will save money if you buy direct from my factory. I make the finest polished sections on earth. I want to prove it to you. Send me your order for sections, or any thing in bee-supplies. 45,000 brood-frames at $1.50 per 100 as long as they last; size is 9 1-8 in. deep; top-bar is 19 1-16 in. long, V-shape or two-grove and wedge, or Simplicity, all loose-hanging frames. 65,000 section-holders at $1.00 per 100 as long as they last. They are nicely dovetailed and are for 4 1-4 by 4 1-4 by 1 1-2, and for 4 by 5 by 1 3-8 sections. Carload section orders a specialty.

Chas. Mondeng, 140 Newton Ave., N. Minneapolis, Minn.

The Buckeye

Bee-Hive

is the title of a brand-new booklet from our press. It is an exhaustive discussion of the management of bees in double-walled hives, and tells of the merits of the Root double-walled hive in particular. Bee-keepers who face the wintering problem will greatly profit from a careful perusal of this booklet, which contains 80 pages, and is illustrated throughout. Copies are sent free upon request to

The A. I. Root Company,

Medina, Ohio.

New York **Chicago** **Philadelphia** **DesMoines**

Do You Love SWEETS?

Ralph Waldo Emerson Did

He said you can attain to royalty by loving sweets.

> "He who knows what SWEETS . . . are in the ground, the waters, the plants, the heavens, and how to come at these enchantments, is the rich and royal man."

"HOW to come at these?"

Aye, there's the rub.

How many people miss them! and perhaps some of these many, strange to say, *keep bees.*

Want to know how?

Send $1.00 for a year's subscription to

The Guide to Nature
Arcadia: Sound Beach, Conn.

It is edited by Edward F. Bigelow, a sweets extractor—in other words, "a bee-man" and a naturalist.

How to Produce

EXTRACTED HONEY

THIS is the title of a neatly printed, illustrated booklet, the second edition of which has just been published. Each operation in the process of extracted-honey production is explained in detail, with photographic reproductions and drawings to make the text more plain. Beginning with the chapter on "Preparing Colonies for the Honey-flow," the booklet concludes with a description of "Packages for Extracted Honey."

Many helpful and valuable suggestions will be found within the 44 pages this booklet contains, and it is a pleasure to announce its addition to our Bee-keepers' 10-cent Library. Order by name or specify Number 25.

THE A. I. ROOT COMPANY
NEW YORK MEDINA, O. CHICAGO

Water White Alfalfa Honey | **Light Amber Alfalfa Honey** | **Light Amber Fall Honey**

In any size quantities, in any size packages. If your honey crop is short, and you want to supply your regular trade, write to us for prices. We are sure that we can supply what you want at prices you can pay. Five cents for a liberal sample of any kind desired. . .

We want your BEESWAX to work into

DADANT'S FOUNDATION

or will pay cash for it in exchange for goods

DADANT & SONS, Hamilton, Ill.

These Combinations on

Gleanings in Bee Culture

with the leading publications on

FRUIT-GROWING

are sure to make new friends

The opportunity was never better for the man or woman with a little land to engage in bee-keeping in connection with fruit-growing and poultry-raising. The demand for all products resulting from intelligent efforts in these healthful, out-of-door pursuits grows greater every year, and the reward of the bee-keeper, fruit and poultry man correspondingly increases. . . . . Take GLEANINGS IN BEE CULTURE with one of the exceptional publications listed below. . . You will get an abundance of interesting and instructive reading-matter at a very nominal price.

No. 1.—FRUIT GROWER.
(Monthly.) This big, beautiful, authoritative journal is published at St. Joseph, Mo., in the heart of the land of the Big Red Apple. It is the finest horticultural publication in America. Regular price, $1.00 yearly.
With GLEANINGS—instead of $2.00
Both publications . **$1.50**

No. 2.—GREEN'S FRUIT GROWER.
(Monthly.) This well-known journal is edited by a leading successful nurseryman, and published in the center of the eastern fruit belt, Rochester, N. Y. Regular price, 50 cts. yearly.
With GLEANINGS—instead of $1.50
Both publications . . **$1.25**

No. 3.—The FRUITMAN and GARDENER and STRAWBERRY Magazine.
(Monthly.) A well-edited magazine of special interest to the grower of small fruits. Published at Mt. Vernon, Iowa. Regular price 50 cts. yearly.
With GLEANINGS—instead of $1.50
Both publications . . **$1.25**

No. 4.—Gleanings in Bee Culture,
The Fruit Grower,
Green's Fruit Grower, and
The Fruitman and Gardener.
Instead of $3.00,
The FOUR publications **$2.00**

No. 5.—Gleanings in Bee Culture,
The Fruit Grower, and
Green's Fruit Grower.
Instead of $2.50,
The THREE pub's, **$1.75**

No. 6.—Gleanings in Bee Culture,
The Fruit Grower, and
The Fruitman and Gardener.
Instead of $2.50,
The THREE pub's, **$1.60**

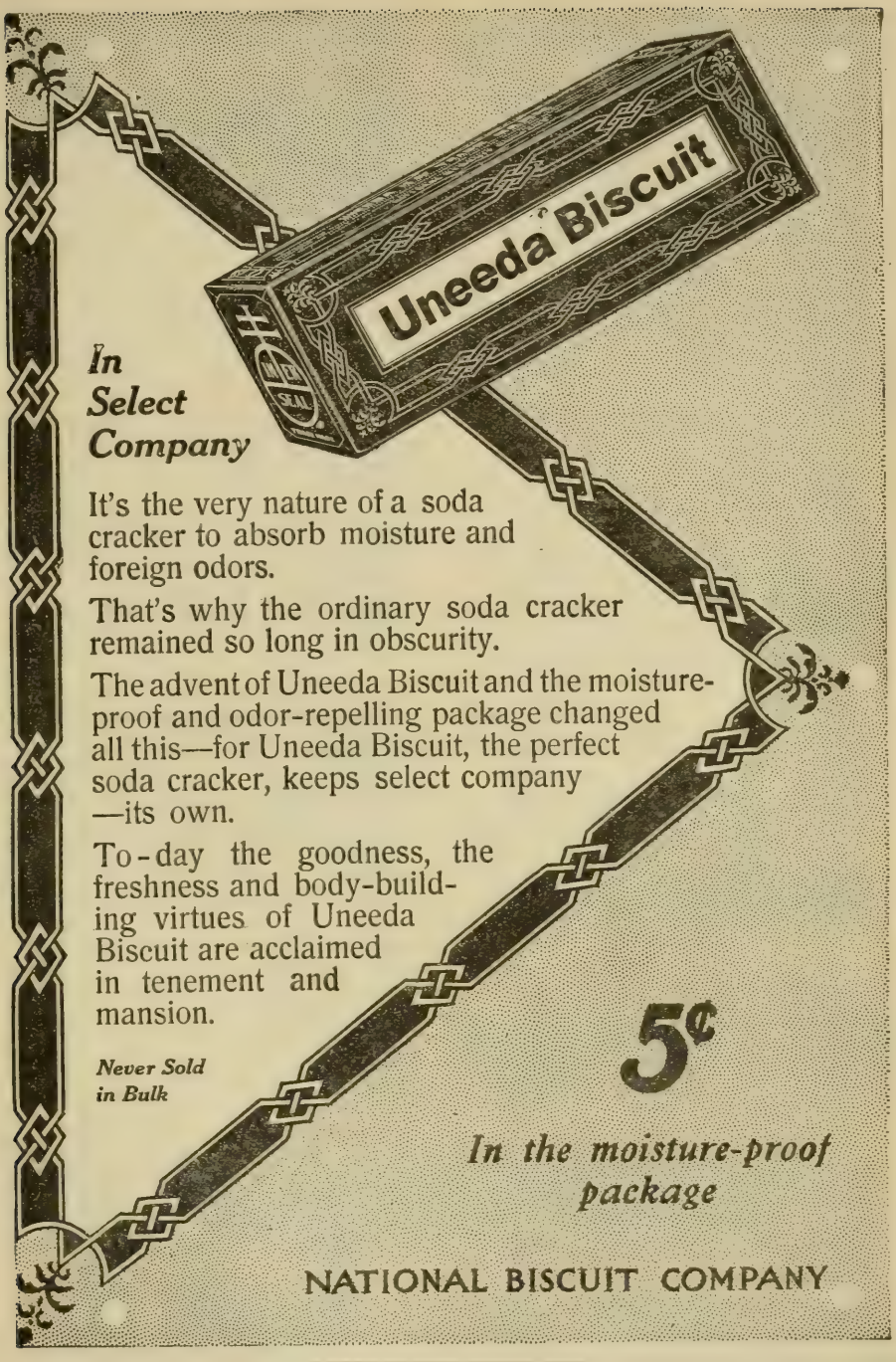
No. 7.—Gleanings in Bee Culture,
Green's Fruit Grower, and
The Fruitman and Gardener.
Instead of $2.00,
The THREE pub's, **$1.35**

A free booklet on "Bee-keeping and Fruit-growing" may be had upon application to the publishers of GLEANINGS IN BEE CULTURE.

You may have all publications sent to one address or each to a different address, as you choose. Specify your wishes when you send order and remittance.

Foreign postage on either of the above combinations is 75 cts. extra. To Canada the additional charge on any number is 50 cts.

THE A. I. ROOT CO., Medina, Ohio.

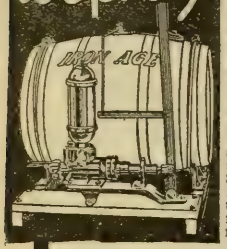


GOOD NEWS FROM CALIFORNIA.

Mr. A. I. Root:—I appreciate all you are doing to help bring God's kingdom on earth. I note with interest the temperance notes in GLEANINGS, Oct. 15. As a result of an election held in this State, Oct. 10, I believe we have the means whereby we can close the saloons here. We have the initiative, and the women (God bless them!) have full suffrage. With such conditions confronting them, the forces of evil will likely be crowded to the wall, I should like very much to have some literature on temperance.

Folsom City, Cal. GEO. A. BALDERSTON.

Ready to Spray



EVERY fruit grower, gardener and farmer needs a small dependable spraying outfit. The Iron Age Barrel Sprayer is mounted on skids—easily moved no danger of upsetting—**high pressure, perfect agitation, easy to operate, pump outside, hemp packing,** bronze ball valves—no corrosion. Hand lever operates pump and dasher at same time. Sold in several combinations. Surprisingly **low prices.** If you want to save time and labor, also make money, send for free booklets describing our complete line of orchard, field and garden tools. Backed by 76 years' experience. Write a postal today.

BATEMAN M'F'R CO., Box 120H GRENLOCH, N. J.

KITSELMAN FENCE



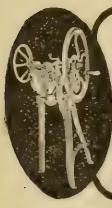
A quality fence at a quantity price. Farm, Hog, and Poultry Fencing; both square and diamond mesh; light or heavy—

11½ CENTS A ROD AND UP

Any style that you want. **EVERY ROD GUARANTEED** to be satisfactory, and our guarantee is backed by 27 years of selling direct to the farmer. **Kitselman Fence** stretches well and wears well. Made from Open Hearth steel wire, thoroughly galvanized. Large Catalog free to you for the asking. Write for it today.

KITSELMAN BROS. Box 21 Muncie, Indiana

LARGE EGGS



Bring more money. You can make your hens—no matter what the breed—lay large, uniform size, better tasting eggs by feeding fresh bone cut in a

HUMPHREY BONE CUTTER

with its always open hopper. If you have 10 hens or more and want lots of eggs write for our free test offer, and poultry book, "Making the Golden Egg."

HUMPHREY, MINE ST. FACTORY, JOLIET, ILL.

FREE THIS ALADDIN LAMP FREE

BURNS KEROSENE (Coal Oil)



Outshines city gas or electricity. Simple, noiseless, odorless, clean, safe, money-saving. Guaranteed. Write nearest office for catalogue M and learn how to get an **Aladdin Mantle Lamp FREE.**

AGENTS T. H. BALL SOLD 850 on money back guarantee, not one returned. Stacey sold 12 in one hour. Newsom sold 12 in 10 calls. Gibson sold 48 in 5 days. Sells itself. Needed in every home. Our **Sunbeam Burner** fits other lamps. Complete line for homes, stores, etc. Ask for our liberal agency proposition.

MANTLE LAMP CO. OF AMERICA, Dept. 111 P,

Offices at — Chicago, Ill., Portland, Ore., Waterbury, Conn., Dallas, Tex., Winnipeg, Montreal, Canada



WHITEWASHING

and disinfecting with the new

"Kant-Klog" Sprayer

gives twice the results with same labor and fluid. Also for spraying trees, vines, vegetables, etc. **Agents Wanted.** Booklet free. Address

Rochester Spray Pump Co.
207 Broadway, Rochester, N. Y.



MONEY IN THE BAG

Pearl Grit is an extra egg producer. Extra eggs increase egg money. The extra money more than pays for Pearl Grit. Users say so, and keep a supply on hand. The reason is, IT PAYS. We want you to write us today for free detail information.

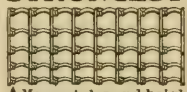
OHIO MARBLE COMPANY
759 S. Cleveland St., Piqua, Ohio

Latest Book

"Profitable Poultry," finest published, 120 pages of practical facts, 160 beautiful half tones. Tells how to breed, hatch, feed and market to make big money. Tells about big poultry farm. 45 pure-bred varieties. Beautiful, hardy and money makers. We start you right. Lowest prices on fowls, eggs, incubators, etc., sent for 5c. **Berry's Poultry Farm, Box 97, Clarinda, Iowa.**



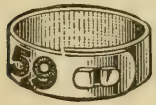
STRONGEST FENCE MADE



26-inch Hog Fence,.....15c.
47-inch Farm Fence,...23½c.
60-inch Poultry Fence....30c.
80-rod spool Barb Wire, $1.40

Many styles and heights. Our large Free Catalog contains fence information you should have.

COILED SPRING FENCE CO. Box 101 Winchester, Ind.



IDEAL ALUMINUM LEG BAND

To Mark Chickens
CHEAPEST AND BEST

12 for 15c; 25--20c; 50--35c; 100--60c. Sample Band Mailed for 2c Stamp.

Frank Myers, Mfr. Box 69, Freeport, Ill.

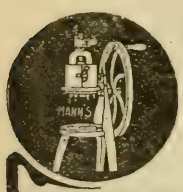
BROWN FENCE

MOST durable fence made. Heaviest wires. Double galvanized. Stock strong. Chicken tight.

13 to 35c per rod.

Sample free. We pay freight

The Brown Fence & Wire Co. Dept. 91 Cleveland, O.



MAKE YOUR HENS LAY

Free Book Tells How

You can double your egg yield by feeding fresh-cut, raw bone. It contains over four times as much egg-making material as grain, and takes the place of bugs and worms in fowls' diet. That's why it gives more eggs—greater fertility, stronger chicks, larger fowls.

MANN'S Latest-model BONE-CUTTER

cuts easily and rapidly all large and small bones with adhering meat and gristle. Automatically adapts to your strength. Never clogs. Sent on **10 Days' Free Trial.** No money down. Send for our free books to-day.

F. W. MANN CO., Box 37, MILFORD, MASS.



TRAPPERS GET BUSY
BIG MONEY IN FURS

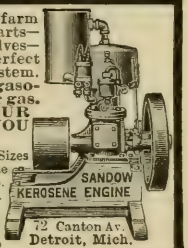
Over ten million dollars will be paid to trappers of fur bearing animals during the coming winter. Any man or boy living in the country can add a goodly sum to his earnings by trapping during spare moments. We furnish ABSOLUTELY FREE a complete Trapper's Guide which tells you the size of trap and kind of bait to use for the different animals, how to remove the skins and prepare them for market. We also furnish the best traps and baits at lowest prices. We receive more furs direct from trapping grounds than any other house in the world, therefore can pay the highest prices for them. Our price lists, shipping tags, etc., are also FREE for the asking. If you are a trapper or want to become one, write to us today. We will help you.

F. C. TAYLOR & CO.
GREATEST FUR HOUSE IN THE WORLD
370 Fur Exchange Building, St. Louis, Mo.

Sandow $37.50
2½ H.P. Stationary Engine—Complete

Gives ample power for all farm uses. Only three moving parts—no cams, no gears, no valves—can't get out of order. Perfect governor—ideal cooling system. Uses kerosene (coal oil), gasoline, alcohol, distillate or gas. Sold on 15 days' trial. YOUR MONEY BACK IF YOU ARE NOT SATISFIED.

5-year ironclad guarantee. Sizes 2½ to 20 H. P., at proportionate prices, in stock, ready to ship. Postal brings full particulars free. Write for proposition on first engine in your locality. (116)



Detroit Motor Car Supply Co., 72 Canton Av., Detroit, Mich.



OUR TRAPPERS GUIDE FREE

Not a CHEAP, but a VALUABLE Book with pictures of all animals, their tracks and signs, game laws and valuable information FREE. Don't go through another season without it, as it will mean dollars to you. Our "BEST" BAITS, recommended by the U. S. Forestry Service, will increase your catch. We are the originators of sending circulars to Trappers direct.

WEIL BROS. & CO., Box 83, Ft. Wayne, Ind.
The Square Deal House, where you get those good returns

"I Can Let You Have 100 Bushels of Corn Right Away"



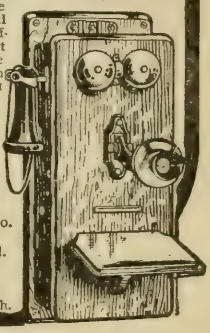
If you're the man with the telephone, the quick deals with the big money, will come your way. Buyers and commission men often haven't time to write or send a messenger. But if you're at the other end of an independent telephone you're in for some business you'd never hear about otherwise. A telephone gives you much more than cash returns. It's pretty pleasant to be able to chat with neighbors every evening after work and it's mighty comforting to know that help can be summoned instantly in any emergency.

Stromberg-Carlson Independent Telephone

may be a lifesaver in case of accident or sickness. It's a time saver and money-maker every day. You can have market and crop reports direct. Call up your neighbor and have him bring your mail from town, ahead of the R. F. D. man. Have repair parts rushed out when a binder breaks. A Stromberg-Carlson telephone makes every day hours longer.

Satisfaction Guaranteed or Money Refunded.

Valuable Book: "How the Telephone Helps the Farmer" sent FREE telling how ten men can easily have an independent telephone company of their own. All about farm telephones, different styles, etc. Don't wait. Get all the telephone facts now. Ask for Edition No. 21 and address us at nearest office.



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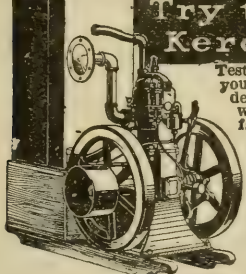
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Cards, circulars, books, newspapers. Press, $5; larger, $18; rotary, $60. Save money. Big profit printing for others. All easy; rules sent. Write factory for press catalog. TYPE, cards, paper, &c.

THE PRESS CO., Meriden, Conn.

Try the Wonderful Columbia Kerosene Engine at our Risk



Test it out on your own place for fifteen days. Give it the hardest engine test you can think of. Compare it with any other engine. If the Columbia doesn't develop more power at less cost, send it back quick. No conditions. We are willing to let you be the judge and jury. Kerosene (common lamp oil) is by far the cheapest fuel today. The price of gasoline is climbing all the time, while kerosene remains the same, and in the right engine, it lasts longer and produces more power per gallon than gasoline. You get ALL the power when you use a Columbia, because it is the right engine. It is the one really simple and perfect kerosene engine. It never bucks when you need it most. It is always on the job.

Write for Particulars of Our Big Special Offer

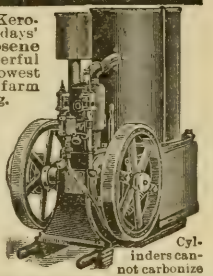
We are going to double our output for next year. We can do it easily. It is just a matter of getting engine users to test the Columbia for themselves. So we are making a great special money saving offer on Columbia Kerosene Engines. This offer is liable to be withdrawn at any time, so write today for full particulars, for it is a money saver you would hate to miss. Free Book No. 66 full of engine facts you need to know, sent free.

Sizes 2 to 16 H.P.

Columbia Engine Co., 66 Fuller St., Detroit, Mich., U. S. A.

Use KEROSENE Engine FREE!

Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves **kerosene** cheapest, safest, most powerful fuel. If **satisfied**, pay lowest price ever given on reliable farm engine; if **not**, pay nothing.



Gasoline Going Up!

Automobile owners are burning up so much gasoline that the world's supply is running short. Gasoline is 9c to 15c higher than coal oil. Still going up. **Two** pints of coal oil do work of **three** pints gasoline. **No** waste, **no** evaporation, **no** explosion from coal oil. Cylinders cannot carbonize

Amazing "DETROIT"

The "DETROIT" is the **only** engine that handles **coal oil** successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Basic patent—only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p., in stock ready to ship. Complete engine tested just before crating. Comes all ready to run Pumps, saws, threshes, churns, separates milk, grinds feed shells corn, runs home electric-lighting plant. **Prices (stripped), $29.50 up.**

Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate amazing, money-saving, power-saving "DETROIT." Thousands in use Costs only postal to find out. If you are first in your neighborhood to write, we will allow you **Special Extra-Low Introductory** price. Write!

Detroit Engine Works, 373 Bellevue Ave., Detroit, Mich.

APPLE GROWING

The healthier the tree, the better the fruit. The longer trees are sprayed with "SCALECIDE" the more beautiful, healthful and fruitful they become. "SCALECIDE" is the acknowledged leader of all soluble oils—the only one containing distinct fungicidal properties. "SCALECIDE" will positively kill all soft-bodied sucking insects without injury to the tree. Let us prove these statements. Send today for free booklet "SCALECIDE—the Tree Saver." Address B. G. PRATT CO., Mfg. Chemists, 50 Church St., N. Y. City.

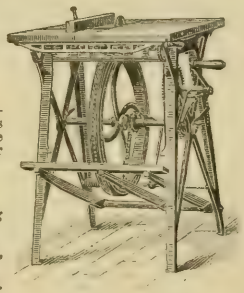


The BEST Light

Cheapest and best light for homes, stores, factories, churches and public halls. Makes and burns its own gas. Brighter than electricity or acetylene. Cheaper than kerosene. Over 200 styles. Agents wanted. Write for catalogue.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

BARNES' Hand and Foot Power MACHINERY



This cut represeuts our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JNO. BARNES CO., 545 Ruby St., ROCKFORD, . ILLINOIS.

PAINT WITHOUT OIL

Remarkable Discovery that Cuts Down the Cost of Paint Seventy-five Per Cent.

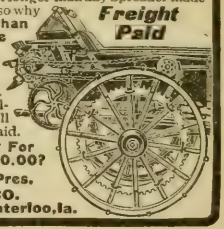
A Free Trial Package is Mailed to Every One Who Writes.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather-proof, fire-proof, and as durable as oil paint. It adheres to any surface, wood, stone, or brick, spreads and looks like oil paint, and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 8 North St., Adams, N. Y., and he will send you a free trial package, also color-card and full information showing you how you can save a good many dollars. Write to-day.

I'll Save You $50 On a Manure Spreader If You'll Let Me

This is just a little ad—but a postal will bring my **Big Book**—and give you my $50.00 Saving Price and Special Proposition. You can save as much answering this little advertisement as if it covered a page. My Spreader positively will do better work and last longer than any Spreader made—no matter what the price—so why pay $50 more? **More than 50,000 farmers have stamped their O. K. on my spreader and money saving price.** My Special Proposition will interest you. Just a postal addressed to Galloway of Waterloo, Iowa, will bring you everything postpaid.



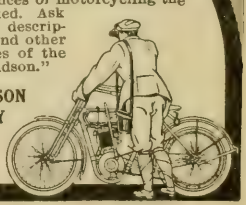
Will You Pay a Penny For The Postal and Save $50.00?

Address **Wm. Galloway, Pres.**
WM. GALLOWAY CO.
1689 Galloway Sta., Waterloo, Ia.

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MOTORCYCLES

are now built with **"Ful-Floteing" Seats,** that take up all the jars and jolts due to rough roads. These seats add to the economy and conveniences of motorcycling the comfort it lacked. Ask for prices and descriptions of this and other exclusive features of the new "Harley-Davidson."



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There is nothing like being sure. I will prove that my famous incubator—price only $7.55, freight prepaid, sold on 1, 2, or 3 months home test—will out-hatch any machine made, no matter what kind or price. Don't you want to be sure? Why pay more than my price for any machine defeated by my

World's Champion

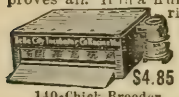
140-Egg Belle City Incubator $7.55 Freight Paid East of Rockies

which is easiest to operate, surest of results. Let me send you proof in my big portfolio, "Hatching Facts"—it carries all the evidence—tells you how to start in the poultry business on a profit-making basis at a small outlay. Has double walls and door—and dead air space all over, copper tank, hot water heater, self-regulator, "Tycos" thermometer, egg-tester, safety lamp, nursery, high legs.

My 140-chick Brooder double wall, hot water, top heat $4.85 Guaranteed best brooder made. $11.50 gets complete outfit when ordered together, freight prepaid. My portfolio proves all. If in a hurry order right from this ad on Home Test Plan—thousands do. I guarantee satisfaction or return money.



We ship quick from St. Paul, Buffalo, Kansas City or Racine.



$4.85

140-Chick Brooder

JIM ROHAN, President
Belle City Incubator Company
Box 69 Racine, Wis.

The Fertile Northwest

Locate in this Land of Fortune. Make a good living — and a good profit — at raising bees and honey along with apples and other fruits. The clover and alfalfa fields of the Northwest make bee-raising specially attractive. . Ready markets and high prices for all you can produce. Delightful climate, fertile valleys, irrigated land, choice Government land open to Homesteaders along the

NORTHERN PACIFIC RAILWAY

Very low fares to the Northwest. Ask for free booklet. Tell us what locality you are interested in. Write to

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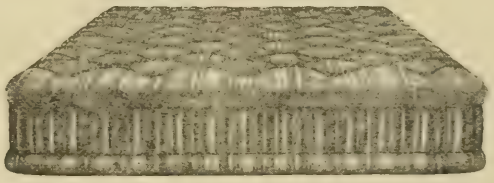
NORTHERN PACIFIC
YELLOWSTONE PARK LINE

HOW TO KEEP BEES!

By Anna Botsford Comstock. A most entertaining and practical book for the beginner. . Tells a beginner's experiences in a way to help other beginners.

PRICE $1.10 POSTPAID. **The A. I. Root Co., Medina, Ohio**

A 55-lb. Mattress



For $9.85

We Pay the Freight.

Not Sold in Stores

The Genuine Worthmore Mattress.

GUARANTEED. All pure Cotton Felt. Weight Full 55 pounds.

We want your trade.

OUR MOTTO:—A fair and square deal. One price. One standard
OUR INDUCEMENT:—A splendid, fresh, clean mattress right from the factory at a big bargain.

"Made by hands that make but one thing and MAKE IT BEST."

We'll send you a full size (4—6x6—4) for $9.85. Free folder and tick samples.
Reference: German National Bank

Address
The Worthmore Bedding Co,
Dep't. B-1 **Cincinnati, O**

Each Regular Number of More than Usual Merit and Six Special Issues of Particular Excellence

This is the Program for GLEANINGS IN BEE CULTURE Through the Coming Year

BEE-KEEPERS who are keeping down to date, and posted on the world's progress in matters apicultural, appreciate with what painstaking care each issue of GLEANINGS IN BEE CULTURE is edited. It has always been our pleasure to be just a little bit more careful than we thought necessary; to investigate just a little deeper than our readers might require; to assume an optimistic attitude, and to search everywhere for advanced methods in bee-keeping.

This policy has brought rich reward. Loyal readers of GLEANINGS IN BEE CULTURE are numbered in all parts of the world, and our lists show that the GLEANINGS family is fast approaching the 50,000 mark.

The reponsibility which rests upon us spurs us on to greater efforts. It is no easy task, this work of publishing 24 numbers of a truly interesting and instructive bee-paper each year. Of the hundreds of contributions which come in we must choose only the best, and carefully avoid duplication or the publication of uninteresting or theoretical articles of no practical value, that would tire our readers. And the selection of pictures is a task in itself. In addition to the many excellent photographs voluntarily submitted by our friends, our own cameras are at all times busy—snapping such scenes as we think will depict the operations which words will not entirely describe.

The covers and the advertisements—these are other features which largely contribute to the worth of a "well-rounded" substantial bee-journal—just such a magazine as we ourselves feel we should like to read.

Since its foundation some 40 years ago, GLEANINGS IN BEE CULTURE has steadily advanced. Thus our friends may accept with confidence our assurance that we are going to try to make greater progress through the coming year than ever before.

We have been planning ahead for several months. We know that we have never had more interesting articles nor a larger number of beautiful and instructive photographs on hand; and to utilize these in a most attractive way we have planned a series of six special issues of GLEANINGS IN BEE CULTURE for 1912.

IT will be the purpose of these special numbers to cover thoroughly a few of the most popular and practical phases of the interesting work of keeping bees for pleasure and profit. The best contributions from writers well qualified to discuss the subjects at hand with authority will be embodied in each of the issues named on the following program:

JANUARY 1

Beginner's Number.

Opportunities in Bee-keeping.
Bee-keeping for Women.
A Recreative Pursuit for Professional Men.
What a Lifetime of Experience has Taught Me.—Isaac F. Tillinghast.
Common Mistakes Beginners are Apt to Make the First Year.

FEBRUARY 15

The Bee-keeper and Poultryman.

Bees and Chickens—How They Work Together.
Combined Poultry and Bee-house.
Profits of Poultry-raising and Bee-keeping Combined.

MARCH 15.

Bee Culture and Horticulture.

Why and How the Interests of the Bee-keeper and Fruit-grower are Mutual
Bees as Pollenizing Agents.
When to Spray Trees.
Bee-keeping and Truck-gardening for a Livelihood.
Why Bees can Not Injure Sound Fruit

MAY 1.

Preparing Colonies for the Harvest.

Swarming and Increase.
Weeding out Undesirable Stock.
Puting on Supers.
Mechanical Methods of Swarm Control

JULY 1.

Honey Harvesting and Marketing.

Shipping-cases.
Straining Thick Honey.
Developing the Home Market.

SEPTEMBER 1.

Wintering Bees.

Where Cellars should Not be Used.
Winter Cases.
Fall Feeding.

YOU do not want to miss a single number of GLEANINGS IN BEE CULTURE during 1912, and certainly not one of the ***SPECIAL ISSUES*** here announced. The only way to be sure, and on the safe side, is to pay your subscription in advance. We offer numerous inducements for you to do this.

Quite a few publishers express surprise at the liberal combination offers we make on GLEANINGS IN BEE CULTURE with books, poultry journals, and various other magazines and books. They know there is very little profit in such generous offers. We realize this, too; but we must have the support of our old friends and a goodly number of new subscriptions each year if GLEANINGS IN BEE CULTURE is to continue to be the thoroughly practical and helpful magazine we aim to make it.

We want to number every beginner—every experienced bee-keeper—among our readers for the coming year.

Wouldn't you like to know all about the combination offers we are making at this time? We have grouped these all together in one subscription catalog, every page of which affords an opportunity to secure helpful reading-matter on several subjects at money-saving prices. You ought to have this catalog, which we will be very glad to send, entirely without expense to you, on request. Just a post-card application will do; but get these offers and renew your subscription without fail. The 1912 volume shall certainly be a collection of the largest and most interesting issues we have ever published.

The A. I. ROOT COMPANY, Medina, Ohio.

Publishers GLEANINGS IN BEE CULTURE

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Honey and Wax for Sale

White alfalfa sweet-clover honey, 8 cts. per lb. in 120-lb. lots. T. H. WAALE, Nampa, Idaho.

FOR SALE.—Clover honey ripened on the hive, in 60-lb. cans; gathered in June, extracted in August. Sample free. J. F. MOORE, Tiffin, Ohio.

FOR SALE.—Water white and light-amber alfalfa and light-amber fall honey, put up in any size packages. First class. DADANT & SONS, Hamilton, Ill.

FOR SALE.—Choice light-amber extracted honey—thick, well ripened, delicious flavor. Price 9 cts. per lb. in new 60-lb. cans.
J. P. MOORE, Morgan, Ky.

Light-amber extracted honey, principally from cotton bloom, in new 60-lb. cans. Price 8½ cts. per lb. f. o. b. Bogart, cash with order. Samples free.
JOHN W. CASH, Bogart, Ga.

FOR SALE.—Amber comb, also No. 2 white comb, at $3.00 per case of 24 sections; also ten cases No. 3 at $2.50; dark and amber extracted at 8 to 9 cents.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—Clear light-colored honey of good flavor, perfectly ripened, weighing full 12 lbs. to the gallon, 120 lbs. to the case; 8¾ cts. per lb.; 10 cases or more, at 8¼ cents. Sample, 5 cts., deducted from order. F. B. CAVANAGH, Hebron, Ind.

FOR SALE.—A quantity of very fine wild-red-raspberry honey, in new 60-lb. (net) tin cans, at 10 cents per lb.; also some light-amber extracted, of good quality for table use, at from 8 to 9 cts. per lb.
E. D. TOWNSEND & SONS, Remus, Mich.

HONEY FOR SALE.—In carload shipments or small quantities. In view of crop shortage we bought liberally of all first-quality honey we could get, with the result that our supply is a little larger than our requirements call for. We offer water-white clover, alfalfa, buckwheat, and amber extracted honey, all bought with greatest care, and of excellent quality, at low prices in any quantity. If interested, write for samples and prices, stating what flavor you want.
THE A. I. ROOT CO., Medina, O.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—Extracted honey, both white-clover and basswood, in cans. State price.
EDW. WILKINSON, Wilton, Wis.

WANTED.—To buy amber and dark extracted honey; to sell, second-hand 60-lb. cans.
A. G. WOODMAN CO., Grand Rapids, Mich.

WANTED.—White honey, both comb and extracted. Write us before disposing of your crop.
HILDRETH & SEGELKEN,
265 Greenwich St., New York.

For Sale

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case.
C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Second-hand and new bee-supplies, in good condition; going out of business. Send for list. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Sweet-clover seed, or Bokhara melilotus. Best fertilizing, hay, grazing, and honey plant known. For particulars write to
MRS. J. T. MARDIS & SONS, Falmouth, Ky.

FOR SALE.—New crop of alfalfa seed; 4 pounds by mail, prepaid, $1.10; 50 to 100 lbs., 14½ cts. per lb. Sacks, 25 cts. extra.
R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successor to J. M. Jenkins.) Penn, Miss.

Send 15 cts. for a three-months' trial subscription to the *Review*, and read about "*The Most Profitable Year of a 1200-colony Bee-keeper*," in the December number. Address THE BEE-KEEPERS' REVIEW,
230 Woodland Ave., Detroit, Mich.

FOR SALE.—24 ten-frame hive-bodies, many of them used but little; one eight-frame hive-body; 40 supers, ten-frame, 5¾ deep, 13 of them new; 3 supers, ten-frame, filled with sections and foundation for comb honey; one super with fences; 350 shallow extracting-frames in flat, top-bar ¾ in. wide, ½ in. thick; bottom-bar ½ in. wide, ¼ in. thick (special order, never been handled); 155 new shallow frames wired; top-bar ¾ x ½ in.; bottom-bar ½ x ¼ in.—10 with foundation, 10 with drawn comb; 21 shallow frames with drawn comb; 63 L. frames, wired; one honey-tank, galvanized iron, 3 ft. 9 in. high, 20 in. in diameter, with cover and improved honey-gate, used but little; 4 bottom-boards, ten-frame; one bottom-board, eight-frame; three bee-escapes with boards; 18 honey-boards, queen-excluders; bee-feeders, different kinds; 3 queen-traps; 3½ lbs. of light brood foundation; 14 covers for ten-frame hive. If any one has use for the above supplies, a bargain at a discount is offered by S. B. HUSSEY,
116 East Cottage Ave., Haddonfield, N. J.

Wants and Exchanges

WANTED.—Cheap, bees in box or frames, for cash.
WILEY A. LATSHAW, Carlisle, Ind.

Free for stamp, "Breeding a Better Bee."
GERMANIA APIARIES, Germania, Ark.

WANTED.—About 400 colonies of bees on shares. Southwestern Texas or New Mexico preferred.
F. KUBALA, Rt. 4, Schulenburg, Texas.

WANTED.—To exchange Root bee-supplies, either for money or honey. November cash discount, 5 per cent. Catalog. E. W. PEIRCE, Zanesville, O.

WANTED.—To let my bees and outfit for one or more years—five yards; have produced from them 50,000 lbs. of honey in one season. For particulars address D. H. COGGSHALL, Rt. 12, Groton, N. Y.

Bees and Queens

"*A Battle between Bees and Red Ants.*" Read it in the December *Review*. Three months' trial subscription, 15 cts. THE BEE-KEEPERS' REVIEW, Detroit, Mich.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction.
W. W. DAKIN, Hood River, Ore.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Bradley's Store, Va.

Golden queens — very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white sheeted lids; each neat, modern, and full of stores—any time.
JOS. WALLRATH, Antioch, Cal.

Help Wanted

WANTED.—Bee-men for the season of 1912. Give age and former experience in first letter.
J. W. GEORGE BEE CO., Imperial, Cal.

WANTED.—Help for the *active* bee season of 1912—one or two young men who want to learn bee-keeping; board promised, and a little more if we do well. Wanted, also, a carload of bees, spring delivery. R. F. HOLTERMANN, Brantford, Ont., Canada.

WANTED.—First-class comb-honey man — a hustler, and not afraid to work — one who can handle 500 colonies of bees, and familiar with Root line of goods. Single man preferred. State wages wanted. Board furnished. THE PENN CO., Penn, Miss.

WANTED.—The following help for the season of 1911: Experienced queen-breeder; five experienced apiarists; five helpers to learn business; 9 yards; 1500 colonies; all extracted honey. State age, nationality, experience, and wages wanted.
R. M. SPENCER, Nordhoff, Cal.

Real Estate

FOR SALE.—560 acres of land in Arkansas, in the rice belt. Half cash; balance, city property.
T. J. GREENFIELD, Hickory Ridge, Ark.

WANTED.—200 stands of bees. Will trade either farms, town lots, or income property in Illinois, Indiana, Ohio, and Michigan. B. F. BOWEN, 517—525 Meridian Life Building, Indianapolis, Ind.

FOR SALE.—6½ acres of best level land; new eight-room house; fine large spring and branch; 5500 sq. feet of greenhouses; cannery; other out-buildings; right at city limits, population 20,000; fine market; $4000 to $5000 yearly business; good for bees. Write for price and further particulars.
M. D. ANDES, Bristol, Tenn.

Miscellaneous

WANTED.—Raw furs. Send me a trial shipment, and receive the highest prices.
GEO. J. FRIESS, Hudson, Mich.

FOR SALE.—1910 Brush Runabout; cost $500; fine condition; three new tires; gas-lamps, etc.; must sacrifice it at $250 cash.
L. F. HOWDEN, Fillmore, N. Y.

A California bee-keeper "*Believes Thousands of Dollars are Lost each Year by Producing Comb Honey Instead of Extracted.*" Told in the December *Review*. Send 15 cts. for three-months' trial subscription. THE BEE-KEEPERS' REVIEW, Detroit, Mich.

FOR SALE.—Two Remington typewriters, good as new, cheap; one six-inch foundation-mill, $6.00; 100 lbs. propolis, $20.00; 30,000 folding cartons for 4¼ plain sections, $3.00 per 1000; 150 dovetailed ten-frame supers, with section-holders, cheap.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Poultry

FOR SALE.—A few S. S. Hamburg cockerels, dandies, $1.50 each. ADAM IMTHURN, Tremonton, Uta.

White Wyandottes—a few choice cockerels for sale at $1.50 up. J. W. ALBERTSON, Ligonier, Pa.

Our Buttercups are beauties. Write for prices.
RIVERVIEW POULTRY FARM, Union City, Mich.

Buttercup cockerels for beauty. Eggs in season. Order now and get the best.
H. C. KNOPP, Rt. 2, Rocks, Md.

R. C. Black Minorcas. Great winter layers. Show and utility stock for sale—$2.00, $3.00, and $5.00.
J. J. SCHWEITZER, East Sparta, Ohio.

April-hatched Indian Runner ducks, fawn and white; $2.00 each; $3.50 a pair; $5.00 per trio. White-egg strain. KENT JENNINGS, Mt. Gilead, Ohio.

America's Premier Barred Rocks (Prolific strain, 240 eggs). Cockerels $3.00 to $10.00; pullets, $2.00 to $5.00. ORCHARD PLACE POULTRY YARDS—the Quality Plant—Box 54, Seville, Ohio.

Stock chicks' eggs ready for delivery; standard-bred heavy-laying Barred Rocks, S. C. R. I. Reds, S. C. White Leghorns. A patron reports over 1500 eggs from 10 hens in 12 months. Catalog free.
CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

INDIAN RUNNER DUCKS.—Full-grown young stock for sale, either fawn and white or penciled, from best strains in America. Eggs for hatching. All sales guaranteed as represented.
C. O. YOST, Rt. 4, Winchester, Ind.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, $1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school. W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1911; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 60 cts.; select, 75 c.; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices see large advertisement.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

ENGRAVINGS for "GLEANINGS" MADE BY GRAY PRINTING CO., Fostoria, O.

Convention Notices.

The annual meeting of the New Jersey Bee-keepers' Association will be held in Trenton, N. J., the last week of December. Time, place, and full program will be printed in next issue of GLEANINGS.
J. H. M. COOK, Pres.
70 Cortlandt St., New York, Nov. 11.

The annual meeting of the Chicago Northwestern Bee-keepers' Association will be held in room L 38, Great Northern Hotel, Chicago, Dec. 6 and 7. As several of the leading bee-keepers of the middle West have promised to be present, the meeting will be an exceptionally good one. Every bee-keeper within reach should make an extra effort to attend, as everybody is cordially welcome.
Hamilton, Ill., Nov. 10. L. C. DADANT, Sec.

The Colorado State Bee-keepers' Association will hold its annual convention Dec. 12 and 13, at the Auditorium Hotel, 14th and Stout Streets, Denver. There will be a rate of one fare for the round trip, good from Dec. 8 to 15. The American National Live-stock Association meets at the same time, so those interested may attend both conventions. There will be sessions devoted to freight rates, foul brood, grading honey, selling, etc. This convention will be one of discussion rather than of set speeches or papers prepared in advance. The Auditorium Hotel has placed its convention hall, seating 175, at our disposal.
WESLEY FOSTER, Secretary.

The convention of the Michigan Bee-keepers' Association will be held in Saginaw, December 13 and 14. The first session will begin at 1 P.M. the 13th, and the second at 7 P.M. The third session will begin Thursday morning at 8:30, and the fourth on the 14th at 1 P.M.

The meetings will be held in the Auditorium, centrally located, and the hotel headquarters will be the Everett House, rates $2.00 per day. Other hotels in easy access are Wesley House, $1.25; Bancroft and Vincent, $2.50. These are all American plan. There are several good European hotels in the neighborhood, with moderate rates. Among these are the Wright and the Sherman.

PROGRAM.

1. Secretary-Treasurer's report.
2. Appointment of committees.
3. President's address, E. D. Townsend, Remus.
4. Adopting the new constitution.
5. Questions of business.
6. Election of officers.
7. The foul-brood fight in Michigan, Inspector G. E. Sanders, Lansing.
8. Foul-brood legislation, E. M. Hunt, Lansing.
9. What is the next best move for the Association to make? Jenner E. Morse, Saginaw.
10. How best to run an apiary to control the spread of foul brood, A. H. Guernsey, Ionia.
11. Out-apiaries, Ira D. Bartlett, East Jordan.
12. The future of Michigan bee-keeping, E. D. Townsend, Remus.
13. Production of comb honey, L. S. Griggs, Flint.
14. Production of extracted honey, Leon C. Wheeler, Barryton.
15. Honey exhibits at fairs, C. M. Nichols, Addison.
16. Bee-keeping for ladies, Mrs. S. Wilbur Frey, Sand Lake.
17. Resolutions.
18. Question-box.

Prizes will be offered for the ten best sections of comb honey, the ten best jars of extracted honey, the three best sections of white comb honey, and the cleanest sample of 10 pounds of beeswax.
E. B. TYRRELL, Sec.
230 Woodland Ave., Detroit, Mich.

Special Notices

By OUR BUSINESS MANAGER

BEESWAX ADVANCED.

In keeping with the advanced price on comb foundation we increase the price we will pay for beeswax to 29 cents cash or 31 in trade for average quality delivered here. We are announcing this advance earlier than usual, but it is warranted by the prices ruling in several markets. We also pay extra for choice yellow; and those having wax to furnish will do well to send it to us.

COMB FOUNDATION ADVANCED.

Market conditions on beeswax give warrant for an advance in the price of comb foundation of one cent. Our new catalog will be issued with prices advanced as follows:

Medium brood, 59 cts. per lb.; 5 lbs., $2.85.
Light brood, 61 cts. per lb.; 5 lbs., $2.95.
Thin super, 66 cts. per lb.; 5 lbs., $3.20.
Extra-thin super, 70 cts. per lb.; 5 lbs., $3.35.

This advance takes effect at once, and is subject to the regular early-order cash discount. A corresponding advance is made in wholesale and jobbing prices.

In our November 1st issue there appeared a special notice by Mr. A. I. Root concerning that wonderful book "The Story of the Bible," by Foster. Our readers were informed that the regular price of this book is $1.50, but that, through a special arrangement with the publishers, we are privileged to furnish one copy, postpaid, with GLEANINGS one year, at only $1.74. A great many of our friends who have never before had an opportunity to obtain this volume, which contains more than 700 pages and 300 beautiful illustrations, have availed themselves of our combination rate, and it is our purpose in repeating this proposition to remind those who may have the offer under consideration that our present stock of "The Story of the Bible" is being rapidly exhausted, and that copies of this book intended for Christmas presentation should be ordered without delay.

In this connection we want to repeat Mr. Root's endorsement of Mr. Foster's inspired work, and to suggest that no better Christmas gift for a child or young man or young woman could possibly be found. Please remember that the price is $1.74 for the book with GLEANINGS one year, either new or renewal subscription. Canadian postage on this offer is thirty cents extra; foreign countries, sixty cents additional.

Within the past few years the publishers of GLEANINGS have been instrumental in the distribution of nearly 1000 copies of Mr. T. B. Terry's great health book, "How to Keep Well and Live Long." Whoever has followed Mr. A. I. Root's writings on health in our columns knows how heartily he has endorsed this volume, and we dare say that no combination offer we have recently made has met with greater success than that of GLEANINGS one year, and Mr. Terry's dollar book, both for $1.50.

Mr. Terry is not a theoretical writer. He is practicing what he teaches, and is to-day both hale and hearty, with good prospects of rounding the century mark, which he does not hesitate to say he hopes to reach. And Mr. Terry is adding every day to his knowledge on matters pertaining to health. His latest discoveries in this line, as well as his able discussions on subjects pertaining to successful farming, appear each week in the *Practical Farmer*—a weekly agricultural paper published at Philadelphia.

The *Practical Farmer* is one of the most worthy of our exchanges, and is, indeed, a down-to-date and worth-while farm paper. It is in no sense localized; and an application of Mr. Terry's teachings, and the teachings of the other editors of this excellent journal, are applicable wherever practical farming is undertaken. The regular subscription price of the *Practical Farmer* is $1.00 per year; but we take pleasure in offering a combination of this weekly paper with GLEANINGS one year for only $1.50, both postpaid in the United States. To Canada the combination rate, including postage, is $2.30, and to other countries $3.15.

If the book "How to Keep Well and Live Long," by Mr. Terry, is included with the *Practical Farmer* one year, and GLEANINGS one year, the rate will be $2.00 in the United States, $2.80 in Canada, and $3.70 to foreign countries.

Special Notices

By A. I. ROOT

"DUCKS" AND "DOLLARS."

Now, the above is not exactly the title of a beautiful new book put out by the *Farm Journal* people, of Philadelphia, for their book is called "Duck Dollars." This book is one of my "happy surprises." With all I have had to do with ducks and ducklings during the past year or more I was ready to drink in every word of this book and to appreciate fully every one of the forty or fifty beautiful pictures. In the first place, there is a beautiful illuminated cover that ought to make any youngster's eyes dance when he gets a glimpse of it. Then there are almost a hundred pages of beautiful plain print on fine heavy paper. Their title-page is a gem. A system of side headings will tell one at a glance every subject treated on in the whole book. Another thing, there is no advertising of ducks for sale, nor any thing else. I have searched the book through to find out who wrote it. He is certainly one of the most able and scholarly writers on poultry I have ever come across. The book is worth dollars—I came near saying, to any one, no matter whether he raises ducks or not. It not only tells about ducks, but it tells how to do business; how to learn *any* business by slow steps and hard work. I suspect our good friend Michael Boyer had something to do with it; but his name as author does not appear anywhere. The *Farm Journal* people certainly deserve great credit for the beautiful books they have been giving us on poultry at such a very reasonable price. This book is only 25 cents; and it is clubbed with the *Farm Journal* so you can get it for even less than that.

Now, right here I wish to make a protest against the poor cheap poultry-books that are being advertised and sent out. There are poultry-books now afloat, almost by the hundreds. *Some* of them are simply advertising catalogs, poorly printed, and that on the cheapest kind of paper; and yet the owners—I can not call them authors—ask 50 or 75 cents, and even $1.00 for books that do not cover the subject at all, and are full of errors and blunders. May be this is a little severe; but, my friends, before you think of pushing off on the world *another* poultry-book, just place before you one of the *Farm Journal* books and see how many pages *they* give of beautiful print and half-tone engravings from real work and actual life. This book I am speaking of is a history of the Weber duck establishment in Wrentham, Mass. These men, father and son, have raised ducks, not only by the hundreds *and* thousands, but *tens of* thousands, and they know what they are talking about.

BUCKWHEAT—ALL ABOUT IT; HOW TO GROW IT; DIFFERENT KINDS, ETC.

After my article on page 545, Sept. 1, was printed, I felt for a time considerably disappointed because no information was forthcoming—that is, in printed form—from our experiment stations in regard to buckwheat. Just now, however, some kind friend has sent us Bulletin 84 from the West Virginia Experiment Station, entitled "Experiments with Buckwheat and Oats." About a dozen pages of it are devoted to reporting experiments with buckwheat. The pamphlet also contains four beautiful half-tone illustrations of buckwheat-fields. Experiments with chemical fertilizers show no results with nitrate of soda alone; but 400 lbs. of acid phosphate gave 43 bushels to the acre, where no fertilizer, side by side, gave only 17 bushels to the acre. This experiment was repeated in 1898, 1899, 1900, 1901, and 1902, with a similar result. Four kinds of buckwheat were tested—the Japanese, silverhull, gray, and the Russian. During a test of three seasons the Japanese gave an average yield of more than ten bushels per acre more than any of the other varieties. Northern-grown seed gave a balance of *three* bushels per acre above seeds grown in the South. In West Virginia two crops have been grown successfully on the same ground in one season, the first crop ripening in July, and the second in September or early in October. The sowing of May 28, however, gave the larger yield.

In the concluding summary they advise plowing as early as possible, and then harrowing the land so as to kill the weeds and aid in getting the soil in soluble and available form. They recommend sowing one bushel of seed and applying from 150 to 300 lbs. of acid phosphate to the acre. The above agrees substantially with our own experience. I am glad to see the Japanese buckwheat, which we introduced, and have recommended for more than twenty years, still holding its own.

Nothing is said in this bulletin regarding the value of buckwheat for bees. Their experiments were evidently conducted with the view of testing its value as a food product. The tables given are worthy of a careful study. I do not know whether this bulletin is available at this late date; but I have written the director; and if it is now in print we will try to make arrangements to furnish it, or a reprint, free of charge to our readers.

MEMORY-BOOKS AND AIDS TO MEMORY, ETC.

After the article on page 407, last issue, was in type I saw a little book on memory culture advertised with such extravagant praise that I at once sent 25 cts. for it. Well, it is a pretty fair little book of a dozen pages or more; but the particular point or help that I found in the book was to write down a list of the things we have trouble in remembering, and put the list in the pocket. There is certainly not much discovery in writing down the names of things you wish to remember; and I think I heard it mentioned years ago, that, after you have written out a word or a man's name you will be pretty sure to remember what you wrote; and if you can also remember that it is written down on a piece of paper which you have in your pocket you can pull out the paper and read what it is. No doubt all of this is a useful exercise in helping you to remember, but I do not quite see that it is a new discovery.

As I approached the end of the book I had not seen any thing advertised, and was going to conclude that the investment was not a bad one after all; but in the last paragraph the author mentions that he has a memory or correspondence school; and if you wish to know more about improving your memory you are to send him $5.00; but if you are real anxious to get the very best up-to-date information you had better send $10.00. Now, let us look at it. The originator gives us to understand that 25 cts. would cover the entire cost of discoveries in aids to memory; but after you pay the 25 cts. and read your book it needs five or ten dollars more to get the "wonderful secret" in full.

A Merry Christmas

To Southwestern Bee-keepers.

Got any beeswax you want to turn into Christmas money? We want 50,000 pounds of beeswax between now and May 1st next, and will pay 28 cts. cash or 30 cts. in trade, per pound, for average clean beeswax delivered at San Antonio.

We need considerable quantities of beeswax to keep our comb-foundation factory going. We have the largest and most complete equipment in the Southwest for the manufacture of **Weed New Process** foundation. Our machinery is all new and down to date, and every pound of foundation we sell is guaranteed to be absolutely perfect and will give entire satisfaction.

We Solicit the Patronage of Bee-keepers Everywhere, and Association Orders.

Remember! We are giving early-order discounts for cash, just as you get from the manufacturers we represent. **You save more** by ordering here, for freight to San Antonio has been paid by us.

December early-order discount **4 per cent** | January early-order discount **3 per cent**

Here's a special to clean up surplus stock of

Shipping-cases for Comb Honey.

10-inch 4-row 3-inch glass, per 100,	$10.35
12-inch 2-row 3-inch glass, per 100,	6.65
16-inch 2-row 3-inch glass, per 100,	7.40
8-inch 3-row 2-inch glass, per 100,	6.75
6¼-inch 3-row 2-inch glass, per 100,	6.75
7⅛-inch 4-row 2-inch glass, per 100,	6.75
7⅛-inch 3-row 2-inch glass, per 100,	6.75

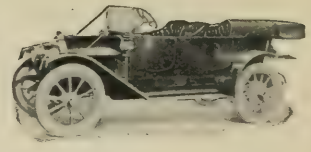
Above prices hold good in lots of 50 or multiples thereof as they are put up in packages of 50.

TOEPPERWEIN & MAYFIELD COMPANY

Cor. Nolan and Cherry Sts., San Antonio, Texas

Cartercar

A practical car for busy bee-keepers



Here's just the car you want for those quick business trips — and to get the most enjoyment out of the hour or so that you and your family may have after the work for the day is done.

The Cartercar is most reliable because of the extremely simple and strong construction. No matter whether rain or shine it is always ready for the word "Go."

When you are in a hurry the Cartercar can be depended on to get you to your destination in double quick time. If it's just pleasure you seek, the car rolls along easily and noiselessly.

The friction transmission of the Cartercar makes it the most reliable yet the most enjoyable of all automobiles. This transmission is so simple that it does not get out of order—and it eliminates all jerks and jars in starting.

There are any number of speeds at your command. All are easily and noiselessly controlled by one lever. The farther forward the lever is pushed the faster the speed. When the lever is pulled back the speed is reversed.

The chain-in-oil drive is noiseless. The case is dust and grit tight and permits the chain to operate in oil, thus eliminating almost all wear on the chain.

The bee-keeper who drives a Cartercar has more time — can do more work — make more money—and knows the real joy of living.

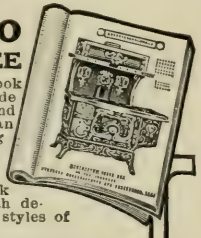
Let us send you valuable information concerning these excellent automobiles.

Cartercar Company

Pontiac, Michigan

Kalamazoo

Stove Book FREE



Write for the stove book with the astounding inside facts about stove making and stove selling—how you can save $5.00 to $40.00 by buying stoves direct from the factory. Built by experts—prices $6.50 and up, east of the Mississippi. Stove Book **yours for the asking** with description of 400 sizes and styles of stoves—richly illustrated.

Stove or Range

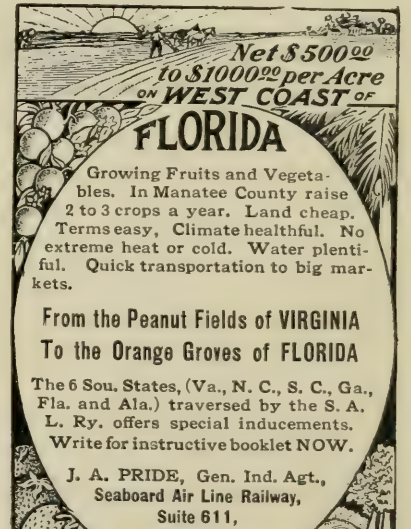
Shipped Freight Prepaid
30 Days' Trial



You don't decide finally until you've used the stove or range 30 days and then it comes back to us—at our expense—if you're not satisfied. 170,000 people have tried Kalamazoos and **bought.** 360 Days' Approval Test. **Cash or credit terms,** shipment within 24 hours. Repairs at cost or less if ever needed. Your interest demands that you get our proposition **first.** Now send for the **Stove Book** and **Catalog No. 416** at once.

Kalamazoo Stove Company Mfrs.
Kalamazoo, Michigan

"A Kalamazoo Direct To You"
And Gas Stoves Too



Virginia Apple Orchards Pay Big Profits!

$35.00 on long time and easy payments buys a ten-acre apple-orchard tract in the beautiful Shenandoah Valley of Virginia —other lands $15 per acre and up. Write for beautiful booklets and excursion rates. F. H. La BAUME,
Agr'l Agt., N. & W. Ry., Box 4015, Roanoke, Va.

Look Over The Housetops To The Country

Big men are always men of broad vision—men who see beyond the confines of their individual activities—men in close touch and quick sympathy with the world *at large.*

Do *you* ever look over the city housetops into the wonderful world beyond—the world of the farm—where the things you eat and wear are growing—tended by millions of people from whose lives and pursuits you can *learn?*

You *should!*—for the pleasure of it and for the broadening influence it will have upon your mind. Take

FARM JOURNAL

Unlike Any Other Paper

as your spy glass. It will bring the life of the farm very near to you. Through it, as through no other paper, you will see what the farmer is doing and thinking. You'll learn how he lives—and who knows how soon *you* may need or desire to apply this knowledge?

Farm Journal pictures farm life in all its delightful reality—more vividly and sympathetically than any other paper—and yet every word and line is full of farm knowledge and horse sense.

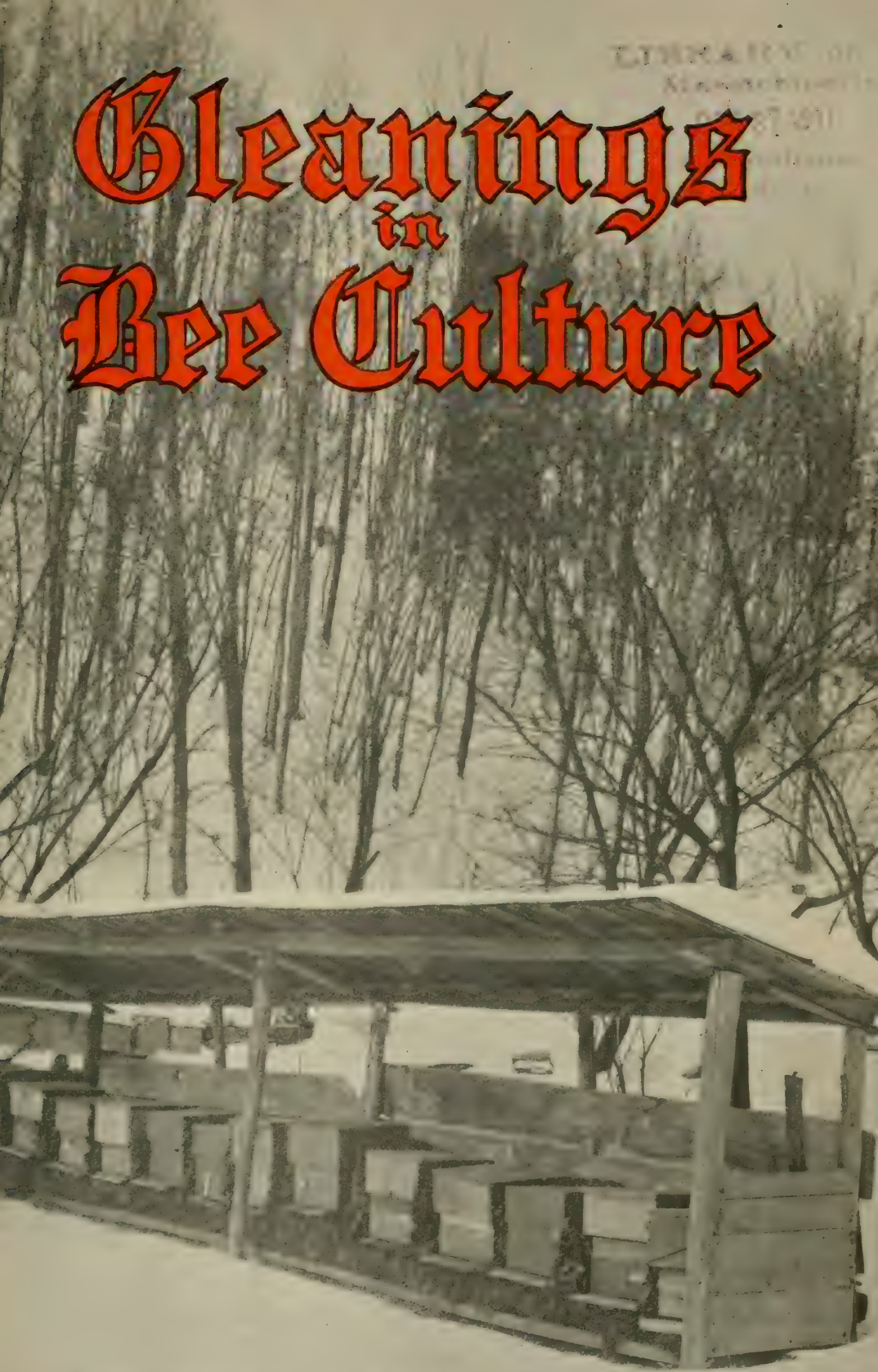
It is intensely practical. Contains helpful and entertaining reading for every member of the household. Is a welcome monthly visitor in 750,000 homes and would be in *yours.*

Send us a dollar for a five years' subscription to this entirely different kind of a farm paper. You'll count it among your wisest investments.

If you order promptly, we will send, absolutely free, "Poor Richard Revived"—our splendid new Almanac for 1912.

FARM JOURNAL 117 N. Clifton Street, Philadelphia

Gleanings in Bee Culture



VOL. XXXIX DEC. 15, 1911 NO. 24

A BRAND-NEW REVISED EDITION

The A B C of POTATO CULTURE

By T. B. TERRY and A. I. ROOT

Tells how to grow successfully one of the greatest money-making crops



Forty Potatoes to the Bushel!

You can get them from your garden. This book tells you how.

Terry's Book on Potato-growing

In 1885 T. B. Terry gave an address to our Medina people on the subject of growing potatoes. I was astonished at the story he had to tell; and I predicted then and there that Mr. Terry was destined to be soon known, not only throughout Ohio but throughout the whole United States. As the years passed, my prediction has become verified, and I feel not a little gratified to know that once in my life, at least, I recognized genius when I came across it. I interviewed Mr. Terry, and told him he would have to put his talk into book form. He did so, and the book went all over the world, and was even translated into several foreign languages. In eight years the edition was exhausted, and a new one was called for; and in 1901 a third edition was called for; and now, after a lapse of ten years, I have been exceedingly busy during the past few days in going over it carefully and preparing for a fourth edition of 10,000 copies. And while I have that experience in my mind, let me tell you it will pay almost every man, woman, and child to read Terry's potato-book, no matter whether you ever did or ever will grow any potatoes or not. If you have read Terry's recent book, "How to Keep Well and Live Long," you will know that he is a student of nature, and a delver after God's gifts and God's secrets; and this potato-book, on every page, shows his remarkable gift. He is a philosopher of modern date; and his love for God's gifts, as well as his love for his fellow-men, shines out on every page. Another thing, this book was written in the prime of his life. It was written with the enthusiasm, energy, and strength of youthful manhood. His studies of potatoes, it occurs to me, paved the way in his explorations in his later work in regard to how we should live, and keep our health. The new book will probably be ready soon after this meets your eye.—*Advance notice in Gleanings in Bee Culture by A. I. Root.*

This is the Standard Text-book on Potato-growing

Contains nearly 300 pages, well illustrated.
Paper bound, 50c each; cloth bound, 75c.

We offer one copy The A B C of Potato Culture, paper bound, and Gleanings in Bee Culture, one year, reg. price $1.00

Both for $1.00

Canadian postage on this offer 30 cents extra; foreign postage 60 cents extra.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

TEXAS

BEE-KEEPERS PLEASED TO HEAR OF ESTABLISHMENT OF "FALCON" HOUSE AT UVALDE.

The "falcon" firm, now nearly forty years old, has in the past done but little advertising. Every year the sales have increased on account of the superior quality of the goods. Each customer has been a booster, and in turn each new customer, thus gained, has become a booster, and so the business has grown. A trade built up entirely on quality, and relying solely upon the kind words of its customers to gain new friends, is the highest possible tribute to the goods; but the increase is not as rapid as when quality and advertising are joined, and therefore the growth of the trade has been more sectional and confined more exclusively to the East. The last few seasons considerable advertising has been employed, and a bee-keeping public, eager for perfect goods, have responded from every point, necessitating, for more rapid deliveries and saving in freight by carload movement of hives, the establishment of distributing points in all sections of the country, in the extreme East, in the South, in the Central States, in the Western States, on the Pacific coast, and now in the Southwest.

J. W. REID, Uvalde, Texas.

Situated in the heart of the great Uvalde country, Mr. Reid is easily accessible from the largest apiaries in this section. Many Texas bee-men who have been prevented from obtaining "falcon" hives and supplies on account of time and excessive local freight will rejoice to learn that they will be stocked in carloads at this convenient point. A full line for every want of the Texas apiarist will be supplied—hives, foundation, frames, extractors, smokers, etc. Texas bee-keepers who are not familiar with "Falcon" quality should send in a trial order immediately. Mail Mr. Reid a list of 1912 wants for quotation less early-order discount.

Southern Bee-keepers.

Last year many became acquainted with "Falcon" goods through our distributor, J. J. Wilder, Cordele, Ga. This year many more will become our fast friends and permanent customers through him. Look over your requirements early, and write Mr. Wilder for a **red catalog.**

California Bee-keepers.

A carload fresh from the saws of the factory will be in stock with John C. Frohliger, 257 Market Street, San Francisco, Cal., by the time this is read. Many have already placed their orders; others should write Mr. Frohliger at once.

Dealers in Every State, in Every Country on the Globe.
Write for nearest one to you. December early-order discount at all "Falcon" dealers, 4 per cent.

W. T. FALCONER MFG. COMPANY,
Where the good bee-hives come from
Factory--Falconer, N. Y. **117 North Jefferson St., Chicago, Ill.**

Honey Markets

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise, all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separatored honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separatored honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separatored honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade, wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separatored honey to average not less than 19 pounds net.

Cases of half-separatored honey to average not less than 20 pounds net per case of 24 sections.

Cases of unseparatored honey to average not less than 21 pounds net per case of 24 sections.

BOSTON.—We quote fancy white comb at 17 to 18; light amber, 15 to 16; amber, 14; fancy white extracted, 10 to 11; light amber, 10; amber, 9. Beeswax, 30.

Boston, Dec. 5. BLAKE-LEE CO.

DENVER.—We quote our local market in a jobbing way as follows: No. 1 white comb honey, per case of 24 sections, $3.15; No. 1 light amber, $2.90; No. 2, $2.70; white extracted, 9; light amber, 8; strained, 6¾ to 7½. We pay 26 cents cash or 28 in trade for clean average yellow beeswax delivered here.

THE COLORADO HONEY PRODUCERS' ASS'N.

Denver, Col., Dec. 5.

KANSAS CITY.—The receipts of both comb and extracted honey are not large. The demand is only fair, but we look for a better demand from now on. We quote No. 1 white comb honey, 24 sections, $3.25 to $3.35; No. 2 ditto, $3.00; No. 1 amber ditto, $3.25; No. 2 ditto, $2.75 to $3.00; extracted white, per lb., 8½ to 9; extracted amber, 7½ to 8; extracted dark, 6 to 7. Beeswax, 25 to 30.

C. C. CLEMONS PRODUCE CO.

Kansas City, Dec. 1.

INDIANAPOLIS.—Demand is good for best grades of honey, but prices are irregular. White comb sells for 18 cts. in ten-case lots, finding prompt and ready sales. Amber grades find slow demand with much lower prices. Extracted seems to be plentiful, and is selling at 11 to 12 cts. in five-gallon cans. Beeswax is in good demand, and producers are being paid 30 cts. per lb.

Indianapolis, Dec. 2. WALTER S. POUDER.

CHICAGO.—The market for comb honey is a little easy at this writing, and is likely to be so the rest of the year. However, A No. 1 to fancy white comb brings 17 to 18, with the off grades from 1 to 3 cents less. Amber grades bring 12 to 15 cents. Extracted remains steady at 8 to 9 for white, and 7 to 8 for the amber grades in 60-lb. cans. Beeswax is in good demand at 31 to 32, according to purity and color.

Chicago, Dec. 2. R. A. BURNETT CO.

SCHENECTADY.—There has been quite a falling-off in the demand for comb honey during the past ten days, and we do not expect to see any improvement, as the quality of the honey produced this season is very unsatisfactory to the consumer, and the price is too high for inferior and candied stock. There seems to be considerable buckwheat extracted still in hands of producers, with no great demand as yet. There is no white on our market. Prices remain unchanged.

Schenectady, Dec. 2. CHAS. MACCULLOCH.

Continued on page 5.

HEARD OVER THE FENCE ONE DAY.

Brown.—"I say, Jones, wish you would tell me where you send your **HONEY**, you seem to get such good results."

Jones.—"Sure, glad to. **THE FRED W. MUTH CO., 51 WALNUT ST., CINCINNATI, O.**, gets every pound I raise, and I always receive my money the day the shipments arrive. They buy my **BEESWAX** too. And, by the way, they handle the finest **BEE-SUPPLIES** on the market—Falconer Manufacturing Co.'s make. Write them for a **Catalog**—am sure they will be glad to send you one."

A Merry Christmas and a Happy New Year to Bee-keepers Everywhere.

IN HIS DEPARTMENT "The Busy Bee," in December Farm Journal, D. Everett Lyon, bee-keeper and author, has to say of the advantages of early buying of bee-supplies:

> I have made it a practice to purchase my supplies during the winter for the following season, for two reasons: First, there is a discount given by the supply houses, who are anxious to get their customers supplied now rather than when they are naturally rushed during the spring; and, second, because during the leisure time of winter I can put the hives and sections together.

There's a Point for You.

Not only is it more practical to buy bee-supplies during the winter, but there's quite a little profit to be had for your foresight.

Buy ROOT'S BEE SUPPLIES here in December and you save 4 per cent. For January the early-order cash discount is 3 per cent. These discounts apply on practically every thing listed in the big **Weber Line**—the exceptions were noted in our November advertisement in this journal.

You save freight by ordering from Cincinnati—and you save the interest on one dollar for a whole year by investing in bee-supplies in December. Just bear these facts in mind.

C. H. W. Weber & Co.

2146 Central Ave. Cincinnati, Ohio

Gleanings in Bee Culture

E. R. ROOT, Editor — A. I. ROOT, Editor Home Dept. — H. H. ROOT, Ass't Editor — J. T. CALVERT, Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J. L. Byer, Mrs. H. G. Acklin.

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Comb and . . . . Extracted Honey

We offer this year a very complete line of cartons for comb honey—any size or color, with any desired printing. Bottles, jars, and cans for extracted honey with capacity ranging from that of a tumbler to a barrel. . Special attention is directed to our assortment of Friction-top Pails and to tin cans of ½, 1, 5 gallon capacity.

Get full information, prices, and samples.

The A. I. Root Company
Medina, Ohio

Honey Markets, continued from page 2.

CINCINNATI.—The demand for all kinds of honey is good. We are selling strictly fancy comb honey at $3.75 to $4.00 per case: fancy table honey, from 10 to 11; amber honey in barrels, 6 to 9, according to the quality and quantity purchased. For choice bright yellow beeswax we are paying from 28 to 30 cents, delivered here.

Cincinnati, Dec. 4. THE FRED W. MUTH CO.

ALBANY.—There is very little honey on this market—that is, any good; no white clover, and the mixed is poor and generally candied. Best buckwheat comb sells at 14; other grades from 12 to 15; extracted buckwheat is more plentiful at 7½ to 8, while white clover is scarce at any price. Beeswax brings 30 to 32. This is certainly an off year for honey.

Albany, N. Y, Dec. 4. H. R. WRIGHT.

ZANESVILLE.—The market is very quiet at this writing—due, doubtless, to the proximity of the holidays. Prices are about as before, with no indications that there will be a material change one way or the other. In single-case lots, best white comb brings about 20 cts.; extracted in 60-lb. cans, 10 to 11. Producers receive for beeswax 29 cts. cash or 31 in exchange for bee-supplies or other merchandise.

Zanesville, O., Dec. 2. E. W. PEIRCE.

ST. LOUIS.—The honey trade in this market has not undergone any change since ours of Nov. 21st. Choice white comb honey is scarce, and in good demand. The darker grades are neglected and almost unsalable. We quote fancy white comb honey at 18 cts.; No. 1, 16 to 17; light amber, 15 to 16; dark, nominal, 9 to 10. Broken and leaking honey is almost unsalable, and nominal at 6 to 8. Extracted honey is in good demand, and quotable, white clover, at 10; white alfalfa, 9½; light-amber California, 9 to 9½; light-amber Southern, 8½, all in five-gallon cans; Southern, in barrels and half-barrels, 7 to 7½ for light amber; dark, 6 to 6½. Beeswax, prime, 30; impure and inferior, less.

St. Louis, Dec. 4, R. HARTMANN PRODUCE CO.

THE NATIONAL BEE-KEEPERS' ASSOCIATION

OBJECTS

1. To promote the interests of bee-keepers.
2. To protect and defend its members in their lawful rights as to keeping bees.
3. To enforce laws against adulteration of honey.

MEMBERSHIP DUES

One dollar a year.

OFFICERS AND EXECUTIVE COMMITTEE

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VICE-PRESIDENT.—W. D. Wright, Altamont, N. Y.
SECRETARY.—E. B. Tyrrell, Detroit, Mich.
TREASURER AND GENERAL MANAGER.—Newell E. France, Platteville, Wis.

Are you a member? If not, why not send the annual dues ($1.00) at once to Treasurer France? Every progressive bee-keeper should be a member of this, the greatest bee-keepers' organization in North America.

HONEY-JARS

No. 25 jars, the best made, $5.00 per gross.
Light honey, 9¼c lb.; amber, 8¾c lb.
Catalog of every thing a bee-keeper uses, free.

I. J. STRINGHAM, 105 PARK PLACE, NEW YORK
Apiaries, Glen Cove, L. I.

CHAS. ISRAEL & BROS.

488-490 Canal Street, NEW YORK
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments solicited. Established 1875.

CHICAGO.—We are approaching the holiday season, which usually shows a lack of demand for honey, as the public prefer to buy Christmas presents rather than honey. Furthermore, inventory time is close at hand, and merchants prefer to reduce their stocks as much as possible before the first of the year. However, after that time we look for a very good demand for both comb and extracted honey. We quote No. 1 white and No. 1 light-amber Western honey, put up in 24-section double-deck cases, glass fronts, 16 to 17; second quality, 1 to 2 cts. per lb. less. Fancy and No. 1 white Wisconsin clover comb honey, put up in 24-section flat cases, glass fronts, bring 17 to 18; No. 2, 16 to 17. Southern California light-amber extracted honey, put up in 60-lb. cans, two cans to the case, brings 8 to 8½; fancy Utah water-white alfalfa extracted honey put up in 60-lb. cans, two cans to the case, 9 to 9½. Bright pure beeswax is firm at 30 to 32.

Chicago, Dec. 6. S. T. FISH & CO.

NEW YORK.—Comb honey, all grades, is in good demand. On account of the short crop, receipts are rather light, and hardly sufficient to fill demands. No. 1 and fancy white find ready sale at from 15 to 17, according to quality and style of package; No. 2 white, 14; mixed and amber, 13; buckwheat, 10 to 12, according to quality. There is a fair demand for extracted. Early in the season, reports from California and the Northwest indicated a short crop. These reports, however, have been misleading, as it is now generally conceded that the crop in California, as well as other parts of the great West, was much larger than the reports given out indicated, and consequently prices show a downward tendency, and are likely to go still lower. On account of the high prices asked at the beginning of the season, some large concerns have cut honey out altogether, while others have been able to secure their supply in foreign honey at considerably lower figures. Extracted from the above-mentioned points is now being offered freely, and it is evident that there are large quantities yet to be disposed of. We quote California white sage at 9 to 9½; light amber, 8 to 8½; amber, 7 to 7½; alfalfa, 7½ to 8; white clover and linden, 9 to 9½; buckwheat and dark, 7 to 7½—posssbly 8.

New York, Dec. 2. HILDRETH & SEGELKEN.

Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS.

Established 1873 CIRCULATION 35,000. 62 pages Semi-monthly

A. L. BOYDEN, Advertising Manager

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Twenty-five cents per agate line, flat. Fourteen lines to inch.

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Do not forget our Bee-Book, "**How to Make Money in Bees**," which is a complete guide to profitable bee-keeping, tells you how to buy bees, what are the best bees to buy, how to locate the hives—in fact, tells you all that you will need to know to make bees highly profitable as a business or for pleasure.

With this book goes our large, illustrated catalog, sent free of charge.



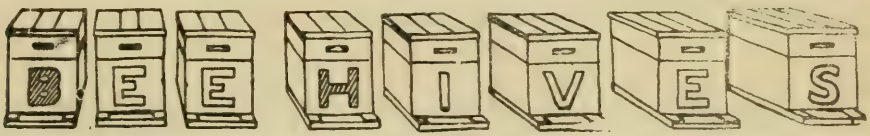
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Successors to
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Bee-keepers should bear this in mind when ordering their supplies. . A full line of supplies always in stock. . . . . Send for catalog.
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Clark & Pike
LANDSCAPE ENGINEERS
. WILLOUGHBY, OHIO .



Distinguished Indiana citizens and our Protection Hives are shown in Dec. 1st GLEANINGS, page 728. Look them up and send for circular, 8 large illustrations.
A. G. WOODMAN & CO., - - - - - - - Grand Rapids, Michigan.

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WE ARE WESTERN AGENTS FOR
"FALCONER"
Write for fall discounts—we can save you money.
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128 Grand Avenue

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Send 2-cent stamp for sample copy; or, better send $1.00 today and get both book and Journal for one year. Address,

George W. York & Co., 117 N. Jefferson St., Chicago, Ill.

New Stock

We are now receiving a stock of goods for next season.

If you can place your order for goods for use next season we shall be glad to have your order.

Catalogs for 1912 are not yet out; but you can use the one you have of 1911. During the month of November there is a discount of 5 per cent. December, 4 per cent.

THE A. I. ROOT COMPANY,
Syracuse, N. Y.

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4%

Deposit your savings here, pending permanent investment.

The advantages offered are: Unquestioned safety and four per cent interest, compounded semi-annually.

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Its officers and directors are successful men.

Write to-day for booklet explaining our convenient banking-by-mail system.

Resources $1,000,000

Under ordinary circumstances all or any part of your deposits may be withdrawn at will.

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A. T. SPITZER, Pres. E. R. ROOT, Vice-pres.
E. B. SPITZER, Cashier

Are You a Locomotive or a Caboose?

These startling words greeted me from a piece of advertising matter that recently came to my desk. It suggested a **train** of thought.

There are two kinds of bee-keepers—**locomotives** and **cabooses**. The locomotive bee-keeper is always ahead. He informs himself. He has the A B C and X Y Z of Bee Culture. He takes GLEANINGS IN BEE CULTURE. He supplements the knowledge thus acquired with actual painstaking work among the bees. He masters the details, with the result that he always gets honey—and money. He does not wait until he has a swarm hanging on a tree before he orders hives, nor until the honey-flow has actually begun before securing sections and foundation. He does not buy cheap, inferior supplies and then lose half his crop waiting for them to come. He saves on the cost of his supplies by sending his order to **Peirce** for ROOT'S GOODS during the fall and winter, thus getting the early-order discount

The other kind of bee-keeper is a **caboose**. Which are **You**?

December discount, 4 per cent. Catalog for the asking.

EDMUND W. PEIRCE
136 West Main St, ZANESVILLE, O.

Save from 25c to 50c on the $

By getting a copy of our Free Book

It will save you money on every magazine or paper you read.

This book contains 64 pages; gives the descriptions, prices, club rates, etc., of hundreds of periodicals and poultry books, and costs you nothing.

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Take advantage of this offer now if you want to, but don't neglect to send for free book which contains many more as good—some better

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Who Seek a Market for

SURPLUS.... STOCK OR EGGS FOR HATCHING

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Gleanings in Bee Culture

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The Buckeye Bee - Hive

is the Latest Model Root's Chaff Hive.

For wintering bees use the Buckeye bee-hive

It Keeps Them Warm

and they will consume less honey.

For summering bees use the Buckeye bee-hive

It Keeps Them Cool

and they will store more honey.

Send for the Buckeye booklet. It shows in detail the exclusive feature of the Buckeye bee-hive.

M. H. HUNT & SON

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Opposite
Lake Shore Depot

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The fourth edition of "Profits in Poultry Keeping Solved" gives the complete poultry system and secrets of Edgar Briggs, the most successful poultry expert in America. It thoroughly covers every branch of poultry-keeping from start to finish. I tells how to plan, build, and operate a poultry plant, and market the product; how to get the most eggs; run incubators; raise nearly every chick hatched; prevent diseases; how to make the best poultry feed for 10 to 15 cts. per bushel; how to make the most money and greatest success with poultry. There is nothing difficult or complicated about the Briggs' System.

Best, Simplest, Most Practical.

Briggs' System calls for less equiptment, labor, and expense than any other system, and by it one man can easily care for 2,000 layers and 3,000 chicks.

Follow Briggs' System and Success is Yours.

When this system is used, sick fowls are rarely seen, more eggs are hatched, more chicks are raised to maturity, the egg-basket is filled oftener, and feed bill is cut way down.

Don't Experiment Longer, Use Briggs' System.

Send $1.00 for this book, and we will include one year's subscription to **Poultry Success,** that big, splendid poultry magizine, the best paper for poultry people, whether fanciers, amateur, or utility breeders. Regular subscription price, 50 cents a year.

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MONEY
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How many people miss them! and perhaps some of these many, strange to say, *keep bees.*

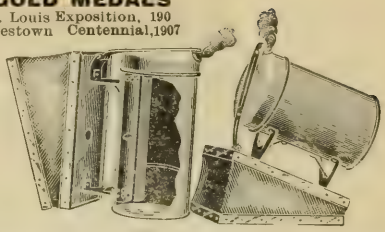
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GOLD MEDALS
St. Louis Exposition, 190
Jamestown Centennial,1907



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Shown above in a standing and reclining position. In the latter the grate is under, that it may have a full head of smoke ready on the job at a touch of bellows.

The perpendicular **FIRE-DRAFT GRATE,** forcing air **BOTH WAYS,** makes and **COOLS** the smoke, forming a **DOUBLE FIRE-WALL** for **SECURELY** riveting the **double-braced** brackets to the cup, that is **FIRMLY BOLTED** to the valveless bellows by **LOCKED NUTS.**

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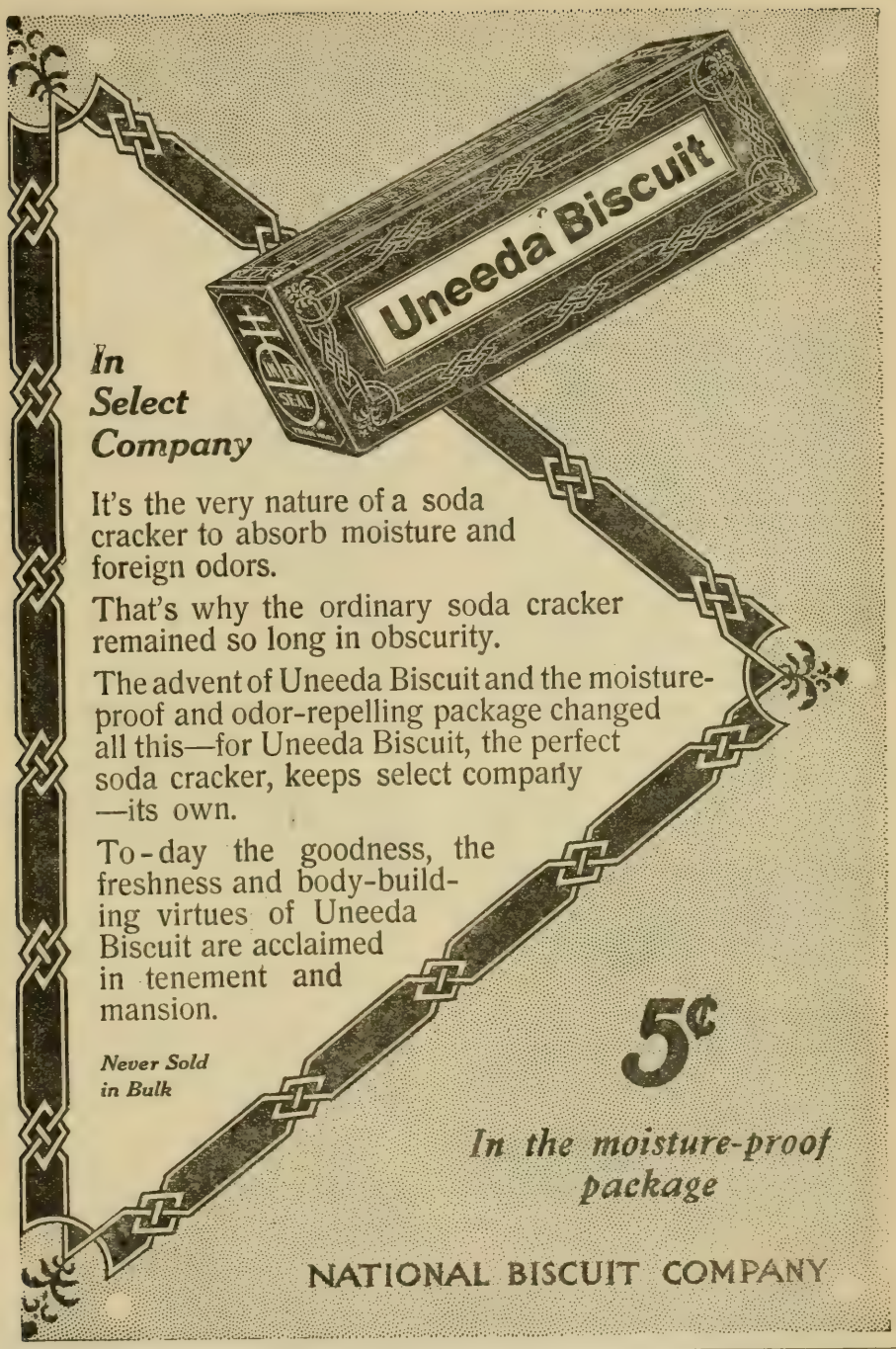
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Let me say to Mr. C. Klabuhn, whose letter you published, p. 707, Nov. 15, that I read *only* the part of GLEANINGS to which he objects—Our Homes, Temperence, etc., I am not a bee-keeper, never was, and never will be—scarcely know a bee from a horse-fly; but I find these articles in the back of the magazine of great human interest. I know of some other persons who take GLEANINGS for the same reason—persons who, like myself, are not interested in bees. Let Mr. Klabuhn go ahead and read all about the swarming of supers, the laying of foundation, the combing of queens, the framing of hives, extracting foul brood, smoking honey, etc., but leave the other departments for me to read.

New York, Nov. 20. J. L. DUNLAP.

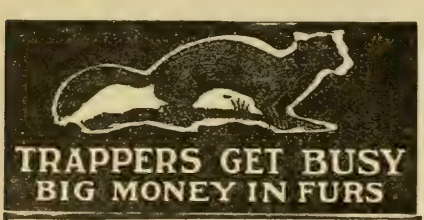


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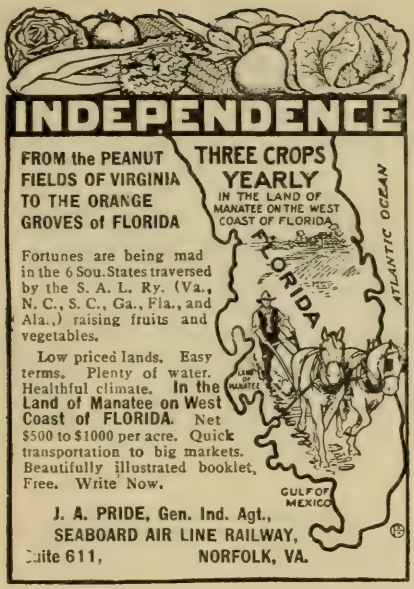
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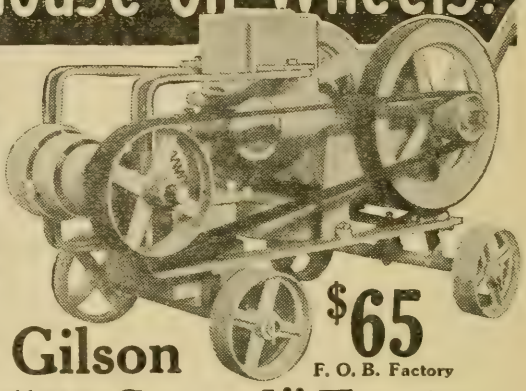
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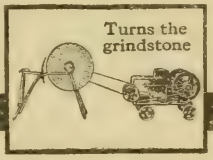
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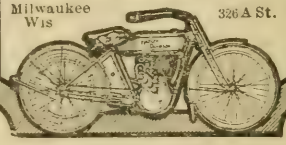
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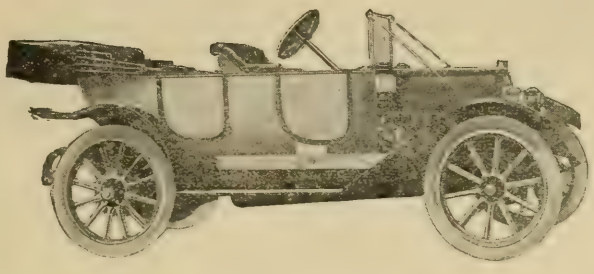
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This is the Program for GLEANINGS IN BEE CULTURE Through the Coming Year

BEE-KEEPERS who are keeping down to date, and posted on the world's progress in matters apicultural, appreciate with what painstaking care each issue of GLEANINGS IN BEE CULTURE is edited. It has always been our pleasure to be just a little bit more careful than we thought necessary; to investigate just a little deeper than our readers might require; to assume an optimistic attitude, and to search everywhere for advanced methods in bee-keeping.

This policy has brought rich reward. Loyal readers of GLEANINGS IN BEE CULTURE are numbered in all parts of the world, and our lists show that the GLEANINGS family is fast approaching the 50,000 mark.

The reponsibility which rests upon us spurs us on to greater efforts. It is no easy task, this work of publishing 24 numbers of a truly interesting and instructive bee-paper each year. Of the hundreds of contributions which come in we must choose only the best, and carefully avoid duplication or the publication of uninteresting or theoretical articles of no practical value, that would tire our readers. And the selection of pictures is a task in itself. In addition to the many excellent photographs voluntarily submitted by our friends, our own cameras are at all times busy—snapping such scenes as we think will depict the operations which words will not entirely describe.

The covers and the advertisements—these are other features which largely contribute to the worth of a "well-rounded" substantial bee-journal—just such a magazine as we ourselves feel we should like to read.

Since its foundation some 40 years ago, GLEANINGS IN BEE CULTURE has steadily advanced. Thus our friends may accept with confidence our assurance that we are going to try to make greater progress through the coming year than ever before.

We have been planning ahead for several months. We know that we have never had more interesting articles nor a larger number of beautiful and instructive photographs on hand; and to utilize these in a most attractive way we have planned a series of six special issues of GLEANINGS IN BEE CULTURE for 1912.

IT will be the purpose of these special numbers to cover thoroughly a few of the most popular and practical phases of the interesting work of keeping bees for pleasure and profit. The best contributions from writers well qualified to discuss the subjects at hand with authority will be embodied in each of the issues named on the following program:

JANUARY 1

Beginner's Number.

Opportunities in Bee-keeping.
Bee-keeping for Women.
A Recreative Pursuit for Professional Men.
What a Lifetime of Experience has Taught Me.—Isaac F. Tillinghast.
Common Mistakes Beginners are Apt to Make the First Year.

FEBRUARY 15

The Bee-keeper and Poultryman.

Bees and Chickens—How They Work Together.
Combined Poultry and Bee-house.
Profits of Poultry-raising and Bee-keeping Combined.

MARCH 15.

Bee Culture and Horticulture.

Why and How the Interests of the Bee-keeper and Fruit-grower are Mutual
Bees as Pollenizing Agents.
When to Spray Trees.
Bee-keeping and Truck-gardening for a Livelihood.
Why Bees can Not Injure Sound Fruit

MAY 1.

Preparing Colonies for the Harvest.

Swarming and Increase.
Weeding out Undesirable Stock.
Puting on Supers.
Mechanical Methods of Swarm Control

JULY 1.

Honey Harvesting and Marketing.

Shipping-cases.
Straining Thick Honey.
Developing the Home Market.

SEPTEMBER 1.

Wintering Bees.

Where Cellars should Not be Used.
Winter Cases.
Fall Feeding.

YOU do not want to miss a single number of GLEANINGS IN BEE CULTURE during 1912, and certainly not one of the ***SPECIAL ISSUES*** here announced. The only way to be sure, and on the safe side, is to pay your subscription in advance. We offer numerous inducements for you to do this.

Quite a few publishers express surprise at the liberal combination offers we make on GLEANINGS IN BEE CULTURE with books, poultry journals, and various other magazines and books. They know there is very little profit in such generous offers. We realize this, too; but we must have the support of our old friends and a goodly number of new subscriptions each year if GLEANINGS IN BEE CULTURE is to continue to be the thoroughly practical and helpful magazine we aim to make it.

We want to number every beginner—every experienced bee-keeper—among our readers for the coming year.

Wouldn't you like to know all about the combination offers we are making at this time? We have grouped these all together in one subscription catalog, every page of which affords an opportunity to secure helpful reading-matter on several subjects at money-saving prices. You ought to have this catalog, which we will be very glad to send, entirely without expense to you, on request. Just a post-card application will do; but get these offers and renew your subscription without fail. The 1912 volume shall certainly be a collection of the largest and most interesting issues we have ever published.

The A. I. ROOT COMPANY, Medina, Ohio.

Publishers GLEANINGS IN BEE CULTURE

Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

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FOR SALE.—Choice light-amber extracted honey—thick, well ripened, delicious flavor. Price 9 cts. per lb. in new 60-lb. cans.
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FOR SALE.—Amber comb, also No. 2 white comb, at $3.00 per case of 24 sections; also ten cases No. 3 at $2.50; dark and amber extracted at 8 to 9 cents.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—Clear light-colored honey of good flavor, perfectly ripened, weighing full 12 lbs. to the gallon, 120 lbs. to the case; 8¾ cts. per lb.; 10 cases or more, at 8¼ cents. Sample, 5 cts., deducted from order. F. B. CAVANAGH, Hebron, Ind.

HONEY FOR SALE.—In carload shipments or small quantities. In view of crop shortage we bought liberally of all first-quality honey we could get, with the result that our supply is a little larger than our requirements call for. We offer water-white clover, alfalfa, buckwheat, and amber extracted honey, all bought with greatest care, and of excellent quality, at low prices in any quantity. If interested, write for samples and prices, stating what flavor you want.
THE A. I. ROOT CO., Medina, O.

Honey and Wax Wanted

WANTED.—Comb, extracted honey, and beeswax.
R. A. BURNETT & Co., 199 S. Water St., Chicago.

WANTED.—Extracted honey, both white-clover and basswood, in cans. State price.
EDW. WILKINSON, Wilton, Wis.

WANTED.—White honey, both comb and extracted. Write us before disposing of your crop.
HILDRETH & SEGELKEN,
265 Greenwich St., New York.

Position Wanted

WANTED.—Position with bee-keeper in Southern California. Can give the best of references.
C. B. BAXTER, Nauvoo, Ill.

Wants and Exchanges

WANTED.—Cheap, bees in box or frames, for cash.
WILEY A. LATSHAW, Carlisle, Ind.

WANTED.—Bees in Florida, Georgia, or South Carolina, in frame or box hives. Give full particulars and lowest price. Address
"BEES," Box 197, Augusta, Ga.

WANTED.—To exchange Root bee-supplies, either for money or honey. November cash discount, 5 per cent. Catalog. E. W. PEIRCE, Zanesville, O.

For Sale

A. I. Root supplies. Send for catalog and save freight. ARTHUR M. JOHNSON, Poplar, Wis.

FOR SALE.—Empty second-hand 60-lb. cans, as good as new, two cans to a case, at 25 cts. per case.
C. H. W. WEBER & Co., Cincinnati, O.

FOR SALE.—Second-hand and new bee-supplies, in good condition; going out of business. Send for list. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Sweet-clover seed, or Bokhara meliotus. Best fertilizing, hay, grazing, and honey plant known. For particulars write to
MRS. J. T. MARDIS & SONS, Falmouth, Ky.

New crop alfalfa seed; 4 lbs. by mail, $1.10; 50 to 100 lbs., 14½ cts. per lb. Sacks, 25 cts. extra.
R. L. SNODGRASS, Rt. 4, Augusta, Kansas.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and honey a specialty. Write for catalog and particulars. THE PENN CO.,
(Successor to J. M. Jenkins.) Penn, Miss.

Send 15 cts. for a three-months' trial subscription to the *Review*, and read about "*The Most Profitable Year of a 1200-colony Bee-keeper*," in the December number. Address THE BEE-KEEPERS' REVIEW,
230 Woodland Ave., Detroit, Mich.

FOR SALE.—300 supers, 14 x 16, with section-holders for 21 beeway sections, Falconer made, painted white, 25 cents each; one three-basket Ferris wax-tractor, $5.00; one Alexander honey-strainer, $1.50.
F. W. LESSER, East Syracuse, N. Y.

Miscellaneous

WANTED.—Bee-keepers to look at picture in Dec. 1st GLEANINGS, p. 728, showing distinguished Indiana men, and Protection hives from
A. G. WOODMAN CO., Grand Rapids, Mich.

A California bee-keeper "*Believes Thousands of Dollars are Lost each Year by Producing Comb Honey Instead of Extracted.*" Told in the December *Review*. Send 15 cts. for three-months' trial subscription. THE BEE-KEEPERS' REVIEW, Detroit, Mich.

FOR SALE.—Two Remington typewriters, good as new, cheap; one six-inch foundation-mill, $6.00; 100 lbs. propolis, $20.00; 30,000 folding cartons for 4¼ plain sections, $3.00 per 1000; 150 dovetailed ten-frame supers, with section-holders, cheap.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Bees and Queens

Fifty per cent discount on queens.
GERMANIA APIARIES, Germania, Ark.

"*A Battle between Bees and Red Ants.*" Read it in the December *Review*. Three months' trial subscription, 15 cts. THE BEE-KEEPERS' REVIEW, Detroit, Mich.

Select superior red-clover Italian queens. "The Best for the West." Order early from a reliable breeder specialist who guarantees satisfaction.
W. W. DAKIN, Hood River, Ore.

FOR SALE.—Golden queens that produce 50 to 100 per cent five-banded bees. Untested, $1.00; tested, $1.50; select tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Bradley's Store, Va.

Golden queens — very gentle, very hardy, and great surplus gatherers. Untested, five and six band, $1.00; select tested, $3.00; also nuclei and full colonies. Send for circular and price list to
GEO. M. STEELE, 30 So. 40th St., Philadelphia, Pa.

Colonies of Italian bees in L. hives, 10-fr., built on full broodf., wired, body and sh. super, redw. dovet., three coats white sheeted lids; each neat, modern, and full of stores—any time.
Jos. WALLRATH, Antioch, Cal.

Help Wanted

WANTED.—Bee-men for the season of 1912. Give age and former experience in first letter.
J. W. GEORGE BEE CO., Imperial, Cal.

WANTED.—Help for the *active* bee season of 1912 — one or two young men who want to learn bee-keeping; board promised, and a little more if we do well. Wanted, also, a carload of bees, spring delivery. R. F. HOLTERMANN, Brantford, Ont., Canada.

WANTED.—First-class comb-honey man — a hustler, and not afraid to work — one who can handle 500 colonies of bees, and familiar with Root line of goods. Single man preferred. State wages wanted. Board furnished. THE PENN CO., Penn, Miss.

Real Estate

FOR SALE.—In good honey territory, home, acre of land, and a few bees; city water and car line. Price $4500. D. R. KEYES, Montgomery, Ala.

Virginia apple orchards pay big profits. $350 on long time and easy payments buys a ten-acre apple-orchard tract in the beautiful Shenandoah Valley of Virginia. Other lands, $15 per acre and up. Write for beautiful booklet and excursion rates.
F. H. LA BAUME,
Ag'l Agent N. & W. R'y, Box 4015, Roanoke, Va.

FOR SALE.—6½ acres of best level land: new eight-room house; fine large spring and branch; 5500 sq. feet of greenhouses; cannery; other out-buildings; right at city limits, population 20,000; fine market; $4000 to $5000 yearly business; good for bees. Write for price and further particulars.
M. D. ANDES, Bristol, Tenn.

FOR SALE.—Large apiary with all appliances necessary for conducting the business of raising honey in an up-to-date manner; located in the far-famed Hudson River Valley—a region abounding in fruit-trees, raspberries, the clovers, buckwheat, and fall flowers. The owner has kept from 100 to 250 colonies in his present location for 32 years, and has never failed to get a paying crop of honey. The apiary has been run for extracted honey exclusively, and at present it consists of 250 colonies with an eight-frame power extractor, Hershiser wax-press, 5000 surplus combs, large honey-tank, and every convenience for conducting the business successfully. No other apiary of any size within many miles. JAMES MCNEILL, Hudson, N. Y.

Poultry

April-hatched Indian Runner ducks, fawn and white; $2.00 each; $3.50 a pair; $5.00 per trio. White-egg strain. KENT JENNINGS, Mt. Gilead, Ohio.

America's Premier Barred Rocks (Prolific strain, 240 eggs). Cockerels $3.00 to $10.00; pullets, $2.00 to $5.00. ORCHARD PLACE POULTRY YARDS—the Quality Plant—Box 54, Seville, Ohio.

Stock chicks' eggs ready for delivery; standard-bred heavy-laying Barred Rocks, S. C. R. I. Reds, S. C. White Leghorns. A patron reports over 1500 eggs from 10 hens in 12 months. Catalog free.
CRYSTAL SPRING FARM, Rt. 3, Lititz, Pa.

INDIAN RUNNER DUCKS.—Full-grown young stock for sale, either fawn and white or penciled, from best strains in America. Eggs for hatching. All sales guaranteed as represented.
C. O. YOST, Rt. 4, Winchester, Ind.

WANTED.—To exchange 4 cockerels, 4 pullets, and 1 cock and 2 hens, throughbred White Cochin bantams; also 20-year gold watch, Elgin movement, 17 jewels, for Italian bees, queens, Indian Runner ducks, or bee-supplies.
C. R. PROVINS, Martinsburg, Pa.

DUMARESQ SICILIAN BUTTERCUPS.—Some fine young stock from my blue-ribbon winners at Appalachian Exposition and other shows. Testimonial of pullets laying in 124 days. Send for circular.
MRS. J. S. DUMARESQ, Cato's Hall, Easton, Md.

Bee-keepers' Directory

Nutmeg Italian queens, after June 1, $1.00. Circular. A. W. YATES, 3 Chapman St., Hartford, Ct.

Bees, queens, supplies, and export; free school.
W. C. MORRIS, 74 Cortlandt St., New York.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York.

For bee-smoker and honey-knife circular send a card to T. F. BINGHAM, Alma, Mich.

Improved golden-yellow Italian queens for 1911; beautiful, hustling, gentle workers. Send for price list to E. E. LAWRENCE, Doniphan, Mo.

QUEENS.—Improved red-clover Italians, bred for business; June 1 to Nov. 15, untested queens, 75 cts.; select, $1.00; tested, $1.25 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Quirin's famous improved Italian queens ready in April; nuclei and colonies about May 1. My stock is northern-bred and hardy. Five yards wintered on summer stands in 1908 and 1909 without a single loss. For prices see large advertisement.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Convention Notices.

I give you herewith the preliminary announcements of the annual conventions of the nurserymen, fruit-growers, and bee-keepers of this State. The programs of these conventions will be out in a short time and copies will be sent you.

The State Horticultural Society will meet at Nashville, January 25, 1912. Secretary and Treasurer, C. A. Keffer, Knoxville.

The State Nurserymen's Association will meet at Nashville, January 26, 1912. Secretary and Treasurer, C. M. Bentley, Knoxville.

The State bee-keepers will meet at Nashville, January 27, 1912. Secretary and Treasurer, J. M. Buchanan, Franklin.

C. M. BENTLEY,
Sec. and Treas. of the State Nurserymen's Asso'n, Knoxville, Tenn.

The annual meeting of New Jersey Bee-keepers' Association will be held at the State-house, Trenton, Saturday, Dec. 23.

PROGRAM.

10 A.M., roll-call. Reading minutes. Reports of officers. President's address. Reports of standing committees. Reception of new members; other business.

Report of apiary inspection by inspector J. B. Smith, State Entomologist. Lunch, recess.

AFTERNOON SESSION.

Legislation in a bee-line, Wm. A. Selser, Philadelphia.

How to obviate the swarming impulse, Geo. M. Steel, Philadelphia.

Merits of Carniolan bees, Albert G. Hann, Pittstown.

Queen-breeding for improvement in stock, Penn G. Snyder, Swarthmore, Pa.

Puting up extracted honey for retail market, Harold Horner, Mt. Holly.

An up-to-date apiary, Franklin S. Fox, Pipersville, Pa.

The above topics will be discussed as time will permit. All bee-keepers are cordially invited, and a good meeting hoped for.

J. H. M. COOK, President.
ALBERT G. HANN, Secretary,
Pittstown, N. J.

PREMIUMS AWARDED AT THE TEXAS STATE FAIR, DALLAS, ON HONEY, BEES, ETC., OCT. 14—29.

The following is a list of premiums awarded to Texas bee-keepers who made entries at the State Fair, Dallas, by Judge W. H. Laws, Beeville:

J. W. Holland, Rice, best glass jar of white comb honey above 6 lbs.; first, $5; best display of special designs in comb honey, second, $5.

T. H. Long, Trenton, second on golden Italians, $3; second on largest and best display of section honey, $5; first on best case of white section honey, $5.00.

J. A. Simmons, Sabinol, second on three-banded Italians, $3; second on Holy Land bees, $3; second on Banat bees, $3; first on black bees, $5; best and largest bees of various races, $6; second on best and largest display of queens of different races, $3.

W. M. Jones, Tehuacana, best glass jar of comb honey above 6 lbs., second, $3; best six jars of white comb honey, first and second, $8; best display of comb honey put up in glass jars, second, $4; best 12-lb. friction-top pail of white comb honey, first, $3; best 6-lb. ditto, second, $2; best display of bulk comb honey, second, $6; best dozen 3-lb. jars white extracted honey, first, $3; best ditto light-amber extracted honey, second, $2; best and largest display of extracted honey, second, $6, best display of special designs in beeswax, second, $10; best and largest display in beeswax, second, $5; best and most instructive display of apiarian products and various uses made of honey and beeswax, second, $5.00.

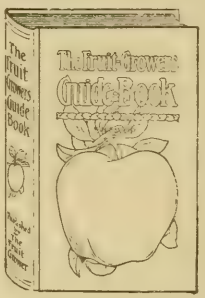
B. M. Caraway, Mathis, best 12-lb. friction-top pail of white comb honey, second, $2; best 6-lb. ditto, first, $3; best 3-lb. ditto, first, $3; best display of bulk comb honey, first, $10; best dozen 3-lb. jars of white extracted honey, second, $2; best dozen 3-lb. jars light-amber extracted honey, $3; best and largest display of extracted honey, first, $10; best cake of bright yellow beeswax, first and second, $8; best display of special designs in beeswax, first, $15; best and largest display of beeswax, first, $8; best display of fruits preserved in honey, first, $3; best display of apiarian products and various uses made of honey and beeswax, first, $10; best display of comb honey in glass jars, first, $8; best case of white section comb honey, second, $3; best case of light-amber section honey, first and second, $8; best display of section honey in comb, first, $8; best display of special designs in comb honey, first, $10; best golden Italian bees, first, $5; best three-banded Italian bees, first, $5; best Carniolan bees, first, $5; best Caucasian bees, first, $5; best Cyprian bees, first, $5; best Holy Land bees, first, $5; best Banat bees, first, $5; best black bees, second, $3; best and largest display of bees of various races, first, $10; best and largest display of queens of various races, first, $10.

T. P. ROBINSON, Sup't.

Special Notices

By OUR BUSINESS MANAGER

In our catalog of combination offers on GLEANINGS with books and magazines on various subjects, we quote a rate of $1.50 for GLEANINGS with *The Fruit Grower*, a big, beautiful, authoritative journal which is published monthly at St. Joseph, Mo., in the heart of the land of the big red apple—both journals one year. Unquestionaly *The Fruit Grower* is the finest horticultural publication in America, and we are very glad to be able to offer our readers an opportunity to save just one-half the regular price of this excellent publication by ordering it in combination with GLEANINGS.



The publishers of *The Fruit Grower* have just brought out a book entitled "The Fruit-grower's Guide Book," written by E. H. Favor, Associate Editor of *The Fruit Grower*. This book discusses, among other subjects, down-to-date methods of growing and marketing fruit, the selection of a location for the orchard, the preparation of the land and trees, planting the trees, their cultivation and care, harvesting, packing, all in an authoritative and complete way. Entire chapters are devoted to the subjects of packing and fruit-packages, and the protection of orchards from frost injury—matters in which there have been great changes in recent years. Spraying for insect and fungous pests is also fully discussed. The Fruit-growers' Guide Book contains 285 pages; is bound in cloth, and costs $1.00 per copy, postpaid. It is our pleasure to announce a combination offer on this excellent book with *The Fruit Grower*, monthly, and GLEANINGS, semi-monthly, both journals one year for only $1.75. This is a $3.00 value for a trifle more than one-half the regular price; and all of our readers who are interested in fruit-growing (a pursuit which admirably combines with bee-keeping and general farm work) will certainly want to avail themselves of this combination while the low price holds good. Canadian postage on this combination, 80 cents extra; to foreign countries, $1.60 extra.

One of the oldest and most influential farm journals published in the Southland is *The Southern Planter*, of Richmond, Va. This journal, devoted to practical and progressive agriculture, horticulture, trucking, live stock, and fireside interests, is now in its 72d year, and each monthly issue is a most entertaining volume to whoever desires to succeed in farming in an extensive or intensive way in the great Southern States. One department alone in this excellent journal, "The Poultry-yard," is worth more than the annual subscription price, which is 50 cents per year. Through his intimate writings on poultry in *The Southern Planter*, the name of "Husselman" has become a household word on Southern farms, and there is a charm about Mr. Husselman's stories which brings one to share his experiences just as a similar feeling comes

to those who read the writings of Mr. A. I. Root on the same subject in GLEANINGS.

Within the past few years, since our senior editor has taken up his winter residence in Florida, and has had so much to say of Southern opportunities, the attention of a great many readers of GLEANINGS has been directed to this great garden spot, and it is our belief that an opportunity to subscribe to an honest, intelligent, enterprising farm paper like *The Southern Planter* will be greatly appreciated by a number of our friends. Almost no other farm paper published contains as many pages per issue as *The Southern Planter;* for instance, in the November issue there are nearly 125 pages—a book almost as large as one of the standard national magazines—and yet the subscription price holds at the fifty-cent rate. Though an arrangement with the publishers of *The Southern Planter* we are permitted to offer this, the leading agricultural journal of the South, with GLEANINGS both one year, at a combination rate of only $1.25—certainly an offer which will bring a generous response from all who want to know more about Southland opportunities. The price of this combination to Canada is $1.80; and to all foreign countries, $2.35.

BUCKWHEAT, BUCKWHEAT FLOUR, ETC.

Mr. A. I. Root:—In your issue for Sept. 1, page 546, you ask for information concerning buckwheat and why the Department of Agriculture has never put out a bulletin on buckwheat. It is because the consumption of buckwheat flour in its pure form has practically ceased, only prepared compounds now being sold, and the Department considers buckwheat as a passing and not as a coming crop. Wholesale grocers who formerly handled several carloads of buckwheat flour each winter now handle none, what buckwheat they do handle being in the prepared-package form, and even that variety of flour is in decreased demand on account of the breakfast foods which have been introduced in almost endless variety.

Concerning the grain, the greatest yield was in Maine, in the great potato section of Aroostook Co., around Houlton. The price per bushel was lowest, but the yield per acre made the net yield the highest of the whole country. The variety sown was neither the Japanese nor silverhull, but a coarser, blacker kind—a Russian sort, I believe, with much adhering chaff or fuzz.

My last information dates back ten years, and new varieties may be in use there now; but if you can get in touch with correspondents in Houlton you can doubtless learn what variety they used, and why the yield was greater.

I have grown a little here in Augustine, coming up from chicken feed thrown on the ground; but this summer it was too dry to head. I have seen it growing as far south as 20 miles below Miami, Fla., where it was sown in drills—a poor way, in my estimation, as it did not shade itself, and shade is what it needs more than any thing else here in the South.

In 1885 buckwheat was almost a failure in New York, going up to over $1.00 a bushel; and these scant years of high prices, and the advent of ready-prepared cereals, are the main causes of the decreased demand for the flour in bulk form, and the prepared form is not pure buckwheat flour, so the present generation has but little idea of what a real old-fashioned buckwheat cake with buckwheat honey and fresh country sausage is like, and that was our winter breakfast in Oberlin, back in the '70's.

There never was much profit in raising buckwheat in New York, with a yield around 15 bushels per acre, and the price averaging 45 cts. per bushel. The dark-colored honey it made also brought a low price. But on better land it yields over 50 bushels per acre; and with a demand at a price never below 50 cts., it would pay to raise; but I fear the day of the buckwheat cake in its old-fashioned shape has gone, never to return.

I note that you say in your Sept. 15th issue, page 548, that Mr. Harrington's crop of buckwheat on 35 acres would be from 1200 to 1400 bushels, worth some $1000. The old milling rule was, price of flour four times the price of grain, or, flour per 100 lbs. equals the cost of 4 bushels of grain. Eighty cents for grain would make flour worth $3.20 per 100 lbs. by this rule, which is about double the usual price. I think these wide fluctuations have had something to do with the demand for flour. At mill, wholesale, $3.20 means nearly 10 cts. per lb. retail.

Perhaps with larger crops and no short years buckwheat cakes might come in fashion again, with car-lot price not exceeding $2.00 per 100 lbs., with retail price at 5 cts. per lb.

St. Augustine, Fla., Oct. 19. C. W. LEONARD.

Friend L., I am glad to tell you that buckwheat cakes and maple molasses are advertised in the windows of the restaurants in most of our northern cities every year as soon as new buckwheat flour comes in; and your remark reminds us that some good nice honey, perhaps, might be as tempting as the maple molasses. I agree with you in regard to the buckwheat flour put up in cartons. Although we pay a big price for it at the groceries, it is not buckwheat flour at all. I hope the Pure-food Commission (with Dr. Wiley back of it) may soon get hold of these spurious packages of buckwheat flour. God bless our good friend Wiley. Long may he live, and may our people back him up in his efforts to put behind the bars every rascal who is trying to palm off on the unsuspecting public fake honey or fake buckwheat flour.

BUCKWHEAT IN MAINE; THE OLD GRAY AHEAD.

I see you request results of Japanese buckwheat. I got 4 oz. of you when it was first advertised in GLEANINGS, and grew it for a number of years on a farm in another part of Maine, but I never got more than half what the old gray sorts gave. It seemed to blight badly, though great bloom always came out. I dropped it and used the small gray sort, and, to my surprise, it was far superior in all respects. It seemed more hardy as to cold nights, and grew in less time. I shall grow it every time. Another thing, I will sow earlier than usual—along in July—so as to ripen by cooler weather. I feel sure that, to plant by June 1, the yield may be even heavier, and resist frost, which often destroys nearly the whole crop. Never wait for the stalks to ripen before cutting, and handle when damp with dew, as much as possible. By the way, the straw is one of the best strawberry mulches I ever used. It has a good effect on fruit, allowing the fruit-stalks to grow right up through it. Such clean fine fruit I never had by any other method, and the soil is improved by using it. Apply just enough to hide the plants as a winter cover—no smothering, and yet good wintering, other things being equal. Land need not be extra rich for the grain. Try the good old sort and see for yourself.

Mechanic Falls, Me., Oct. 26. E. P. CHURCHILL.

Inclosed you will find one dollar for GLEANINGS. I take it for the Home and Poultry departments now, as I have not kept bees for a dozen years or more. I like to read what Uncle Amos writes, because he so often has a good word to say of his wife, and is not ashamed to confess his faults. I like his temperance talks, and am glad he hates tobacco, which thing I also despise. You wished me to write and tell you why I like GLEANINGS. These are a few of the things that I like it for.

MRS. ALICE KESLER.

Winnebago, Minn., June 6.

Allow me to extend to Mr. A. I. Root and his noble wife my hearty congratulations on reaching their golden wedding. For many years I have read Mr. Root's articles in GLEANINGS. I have always found them to ring true, though at times I widely differed from his views on theology. I suspect that Bro. Root is better posted on bee culture than on theology. His writings, I doubt not, have done a great deal of good. He has reared to his memory monuments more lasting than those of brass or of stone. I hope that he may be spared many years to serve his fellow-man and his God.

Gainsville, Ala. W. C. C. FOSTER.

A Merry Christmas

To Southwestern Bee-keepers.

Got any beeswax you want to turn into Christmas money? We want 50,000 pounds of beeswax between now and May 1st next, and will pay 28 cts. cash or 30 cts. in trade, per pound, for average clean beeswax delivered at San Antonio.

We need considerable quantities of beeswax to keep our comb-foundation factory going. We have the largest and most complete equipment in the Southwest for the manufacture of **Weed New Process** foundation. Our machinery is all new and down to date, and every pound of foundation we sell is guaranteed to be absolutely perfect and will give entire satisfaction.

We Solicit the Patronage of Bee-keepers Everywhere, and Association Orders.

Remember! We are giving early-order discounts for cash, just as you get from the manufacturers we represent. **You save more** by ordering here, for freight to San Antonio has been paid by us.

December early-order discount **4 per cent** | January early-order discount **3 per cent**

Here's a special to clean up surplus stock of

Shipping-cases for Comb Honey.

10-inch 4-row 3-inch glass, per 100,	$10.35
12-inch 2-row 3-inch glass, per 100,	6.65
16-inch 2-row 3-inch glass, per 100,	7.40
8-inch 3-row 2-inch glass, per 100,	6.75
6¼-inch 3-row 2-inch glass, per 100,	6.75
7⅛-inch 4-row 2-inch glass, per 100,	6.75
7⅛-inch 3-row 2-inch glass, per 100,	6.75

Above prices hold good in lots of 50 or multiples thereof as they are put up in packages of 50.

TOEPPERWEIN & MAYFIELD COMPANY

Cor. Nolan and Cherry Sts., San Antonio, Texas

Beware of "Gasoline Doping"

It is a favorite trick of the professional "gyps" who infest the great horse markets—also the "ginger trick" and the "artificial tail" frame-up. These smooth dodges and all the other rascalities of these brazen scamps are laid bare in

"Horse Secrets"

by Dr. A. S. Alexander, famous veterinarian. The only complete book of horse-trading swindles ever published as far as we know. Farm Journal has distributed seven editions of this book—75,000 copies—in the past two years. We want every farmer to have one for his protection against roguery and for the valuable information this book also contains about the feeding and conditioning of stock and the cure of diseases and bad habits.

The warning advice contained in this book and in the pages of Farm Journal have probably saved "Our Folks" $100,000 in the past year. Subscribers constantly write to tell us of the cash value—dollars and cents—they have received from

FARM JOURNAL

This wise little paper will be of real money-saving and money-making value to *you*. No other farm paper is so broad in its scope—so intensely practical—so interesting in its presentation of facts—so helpful and entertaining in its columns devoted to the home—so strict in its demands that all its advertisers shall be absolutely reliable.

You need it for yourself and your family, and you can have

Farm Journal every month for four years and Horse Secrets at once, postpaid, for only $1.00.

Send for them at once, and if, on receipt of the book, you don't believe that in it alone you have more than your money's worth, say so and we'll stop the paper at once.

If you order promptly, we will send, absolutely free, "Poor Richard Revived"—our splendid new Almanac for 1912.

FARM JOURNAL, 117 N. Clifton St., Philadelphia

Old Hampshire Bond

[1]

WHICH letter do you read first? All things being equal, you pick out the best-looking letter, don't you? It's as natural as reading the leading article in your newspaper first. You do it without thinking—instinctively.

So does your correspondent—the man you want to read *your* letter first—while his mind is open.

That is why you want your letters and envelopes to be Old Hampshire Bond.



Sometimes the printer doesn't understand these things, and with the best of intention tries to sell you something else. Be gentle, but firm—like Old Hampshire Bond—and get what you know to be right.

[2]

YOU should see the Old Hampshire Bond Book of Specimens. It shows a wide selection of letterheads and business forms. One style of printing, lithographing or engraving, on white or one of the fourteen colors of Old Hampshire Bond, is sure to express exactly the feeling tone you desire for your stationery.

Hampshire Paper Company

South Hadley Falls
Massachusetts

The only paper makers in the world making bond paper exclusively.

[3]



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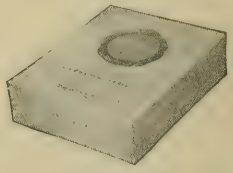
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Supplement to Gleanings for January 1, 1912

Index to Gleanings in Bee Culture

Volume XXXIX

In using this index the reader should not fail to note that it is divided into five departments, namely, General Correspondence, Editorials, A. I. Root's Writings, Contributors, and Illustrations. The index of General Correspondence includes every thing except editorials and A. I. Root's writings.

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